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Sustainable consumption and care

Edited by
Stefan Wahlen, Aurianne Stroude, Laurence Godin,
Barbara Smetschka and Gabriella Spinelli

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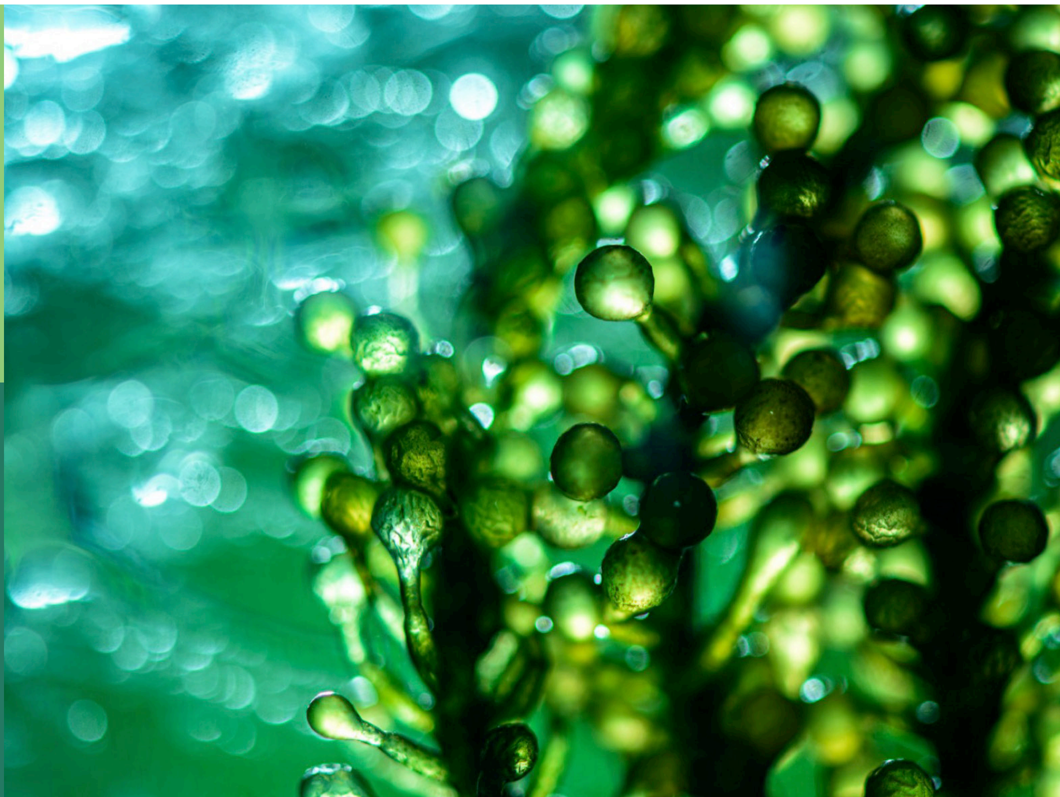

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Sustainable consumption and care

Topic editors
Stefan Wahlen — University of Giessen, Germany
Aurianne Stroude — Université de Fribourg, Switzerland
Laurence Godin — Laval University, Germany
Barbara Smetschka — University of Natural Resources and Life Sciences Vienna, Austria
Gabriella Spinelli — Brunel University London, United Kingdom

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*CORRESPONDENCE
Stefan Wahlen
stefan.wahlen@uni-giessen.de

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Editorial: Sustainable consumption and care

Laurence Godin[1], Barbara Smetschka[2] and Stefan Wahlen[3]*

[1]Department of Sociology, Laval University, Quebec, QC, Canada, [2]Institute of Social Ecology, University of Natural Resources and Life Sciences Vienna, Vienna, Austria, [3]Department of Food Sociology, University of Giessen, Giessen, Germany

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Editorial on the Research Topic
Sustainable consumption and care

Sustainable consumption is an essential element of the transition to a sustainable lifestyle. In the everyday, care is intertwined with processes of looking after oneself, family, household, and friends, as well as for distant others and the community. Care touches all areas of human life, including material dimensions such as the living environment and the resources required for production and consumption. Looking at sustainable consumption through the lens of care provides us with conceptual tools to rethink how we protect the planet, its biodiversity and the people who live on it. Care emphasizes our vulnerability as living beings and the way in which a complex web of life-sustaining relationships holds us accountable to one another. Care is thus an important thread that connects the ecological, economic, social and political systems in which we operate.

Research on care and sustainable consumption is fragmented. Research on care has its origins in feminist scholarship, first developed in relation to health. More recently, care has been extended to environmental and sustainability studies. Research on sustainable consumption and care can be broadly divided into four categories. A first strand of work is concerned with whether ethical consumption can allow caring relationships to flourish. A second strand looks at sustainability in the context of parenting, focusing on gender relations and caring activities, in which health overshadows sustainability. A third body of work is concerned with the ways in which inconspicuous consumption is intertwined with care activities, for example in food or energy consumption, mobility, and leisure activities. Finally, the fourth strand considers care as a dimension of geographical communities or communities of interest that supports sustainability and resilience.

This Research Topic of papers highlights care as a fundamental yet undervalued component of sustainable consumption. From household practices to broader societal transformations, care emerges as both a practical and an ethical lens through which to understand and address sustainability. Gender dynamics, time use, community building, and social justice are recurring themes that argue for rethinking sustainability in relational rather than transactional terms. The nine contributions to this Research Topic are organized around two groups of papers. The first group considers care as a set of practices or activities that support or hinder the transition toward more sustainable forms of consumption. The second group outlines pathways toward care-centered societies.

The first group is composed of four papers. In their paper "*The cultural practice of decluttering as household work and its potentials for sustainable consumption,*" Muster et al. show how the current trend of decluttering and minimalist lifestyles is a form of self-care and caring for the household. While opening households toward more sustainable modes of consumption, it also runs the risk of being reclaimed by the consumerist ideology of constant accumulation and leading to an increase in consumption. In "*Care, gender, and change in the study of sustainable consumption: a critical review of the literature,*" Godin and Langlois show that transforming consumption often means interfering with established routines, practices, and activities of care. Thus, transforming household practices toward more sustainable forms of consumption risks further entrenching existing and persistent gender inequalities in the distribution of care work. They thus propose a reduction and redistribution of care work. Smetschka et al. come to similar conclusions in their paper "*Time to care—Care for time—How spending more time for care than consumption helps to mitigate climate change.*" Based on an analysis of time-use data in Austria, they show how men's and women's time-use patterns are shaped by the gendered division of care work and how this affects their respective carbon footprints, particularly in relation to time prosperity or pressure. Finally, "*Social ties and sustainability in neighbourhood canteens: a care-based approach,*" Dyen and Michaud draw on "third spaces" and ethnographic fieldwork conducted in two neighborhood canteens in France to show how participation in such collective and community-building spaces is driven either by a desire to receive care, a desire to give care, with both impulses often occurring simultaneously.

Five papers address pathways toward care-centered societies. In "*Who cares (for whom)?,*" Spangenberg and Lorek (a) argue that in order to solve the current care deficit, which is largely caused by an unequal distribution of care work, and to ensure social reproduction and thriving communities, profound transformation is needed in [terms of] the institutional recognition of care work. In their perspective paper "*Towards care-centred societies,*" Spangenberg and Lorek (b) then highlight the differences between various types of care work, and discuss how the distribution of paid and unpaid care work affects sustainable development. In his paper "*Toward sustainable wellbeing: Advances in contemporary concepts,*" O'Mahony mobilizes care as a tool to better integrate nature and the environment into the concept of wellbeing, arguing for a more collective, relational and systemic approach. In looking at "*Sustainable consumption, resonance, and care,*" Wahlen and Stroude turn to the concept of resonance to think about care in relation to people and politics, things, and collective singulars, to suggest that thinking about care as an experience of resonance can help to redefine the role and place of consumption. Finally, in their paper titled *"Using the theory of protected needs to conceptualize sustainability as 'caring for human wellbeing': an empirical confirmation of the theory's potential,"* Di Giulio et al. describe how community-level practices of care foster social ties, resilience and sustainable systems, demonstrating the interconnectedness of individuals and society, and the systemic transformations needed to institutionalize care as a foundation for sustainable and equitable societies.

As a whole, this Research Topic explores care as a transformative lens for sustainable consumption, emphasizing its relational and systemic dimensions. From individual practices such as decluttering and time management to community-building efforts in shared spaces, care emerges as the linchpin that connects personal actions to broader societal goals. By prioritizing empathy, justice and relational wellbeing, the contributions highlight the need for structural changes to elevate the role of care in our economies and policies. Current frameworks undervalue care, and place a disproportionate burden on women and marginalized groups. A care-centered approach requires an equitable redistribution of responsibilities, challenging traditional gender norms and ensuring inclusion. Crucially, care offers a narrative for sustainability that resonates with everyday experience, linking ecological action with human wellbeing. This perspective reorients sustainability from an abstract goal to a shared societal responsibility that nurtures both people and the planet. Future research should deepen the understanding of the transformative potential of care in promoting inclusive, just and sustainable societies.

Author contributions

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The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Care, Gender, and Change in the Study of Sustainable Consumption: A Critical Review of the Literature

Laurence Godin and Justine Langlois*

NUTRISS Center - Nutrition, Health and Society, INAF, Université Laval, Quebec, QC, Canada

In Western countries, moving toward more sustainable lifestyles often involves the disruption of well-established routines and habits in relation to consumption domains such as food, washing and cleaning, heating and cooling, transportation, and managing "stuff" more generally. These activities are deeply embedded in our everyday lives and often tied to care, which is the work invested in maintaining the well-being of oneself and others. In this paper, we are interested in the ways sustainable consumption and care interlock within the household, how they relate to gender inequalities, and how change toward more sustainable lifestyles can both impact and be impacted by these inequalities. With this in mind, we conducted a critical review of the academic literature by analyzing a corpus of 75 papers on household consumption and sustainability, paying particular attention to the role authors attribute to care and gender. The analysis shines light on the relational character of care and consumption, emphasizing the ways sustainable consumption is dependent on relationships within and outside the home. We suggest that care often acts as a barrier to the establishment of more sustainable consumption practice. Care work, per definition, upholds routines and habits while mobilizing the very resources that are needed to transform them. This insight invites us to rethink the role of households as a site for change. We suggest that the transition toward more sustainable consumption practices within the home relies on reducing and redistributing care work, transforming the world of work, and actively promoting an ethos of care that includes people, other beings, the material world and the planet.

Keywords: sustainable consumption, care, gender, inequalities, everyday life, change, practices

Edited by:
Myriam Ertz,
Université du Québec à Chicoutimi, Canada

Reviewed by:
Cecilia Solér,
University of Gothenburg, Sweden
Eliisa Kylkilahti,
University of Helsinki, Finland

****Correspondence:***
Laurence Godin
laurence.godin@fsaa.ulaval.ca

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INTRODUCTION

In the efforts to fight climate change and move toward more sustainable societies, households are key sites for intervention (Dubois et al., 2019). However, when it comes to changing consumption habits, they occupy an ambiguous position. On the one hand, changing consumption alone is not enough to achieve the depth of transformation necessary to avoid the worst effects of climate change. It has been demonstrated time and time again that focusing on individuals to change their habits and adopt more sustainable practices does not work, in part because citizens and consumers evolve in a system that precludes them from consuming the way they might want to (Maniates, 2001). And indeed, trying to adopt a sustainable lifestyle in a non-sustainable society tends to involve a lot of work, time, and energy. Putting the onus of solving climate change on individuals and consumers has recently been labeled a "discourse of climate delay" (Lamb et al., 2020), a strategy put forward by more powerful actors such as oil companies or governments to redirect responsibility and avoid taking action. On the other hand, as long theorized by Smith (1776), consumption *is* what drives our economies (Holt and Schor, 2000), and if we are to properly address the climate and environmental crisis as a society, individual practices and household consumption habits do have to change.

In the last 20 years (un)sustainable consumption has developed rapidly as an area of research in social sciences. One contribution of this area of research has been to underline the centrality of non-conspicuous consumption for moving toward more sustainable lifestyles. Loosely organized around social practice theory, this body of literature aims at understanding everyday life, routines, and habits in relation with household consumption, social processes and infrastructure, and the tension between individuals and the collective, all of which underline the centrality of social norms and relationships in performing and reproducing consumption practices (Sahakian, 2019). Through the study of ordinary life, this literature seeks to think about change in consumption practices in the private sphere (one can think of water use and showers, for example) and frame it in terms of a collective process, moving away from individualization and responsibilization. By focusing on routines and habits, rather than on consumer decisions for example, this body of literature also accounts for the fact that sustainable consumption goes beyond pro-environmental behavior at the point of purchase but also in the home, and may encompass all we do that involves the material world.

Most often, research in the area of sustainable consumption focuses on consumerism, overconsumption and "stuff" (Miller, 2010), or on the consumption of energy services (heating, mobility, etc.) and food in daily life. In all these instances, consumption is tied to the way we relate and care for each other. Care practices—provisioning and cooking food, cleaning the house, doing laundry, maintaining comfort of household members—require the use of resources such as food and energy, meaning that they are inevitably transformed by the adoption of more sustainable consumption practices. At the same time, care work is at the core of family life and relationships within the domestic space, and is more often accomplished by women than not (for the province of Québec, Canada, see Crespo, 2018). Therefore, transforming consumption toward more sustainable practices has an impact on care work and gender relations within the home, and might demand the investment of resources such as money and time. For example, moving toward "zero waste" consumption practices might require extra efforts for washing cloth diapers, planning purchases, going to different stores for cleaning products, bulk buying, or carrying reusable containers. Turning to local food or reducing meat consumption can mean changing provisioning habits and invest time, money, and efforts into learning new cooking skills. If the transformation of household consumption toward more sustainable practices takes place without addressing issues of gender inequalities, the new practices, routines and habits created might very well contribute to the further entrenchment of these inequalities, while creating an impossible programme of action for women to undertake. The literature on sustainable consumption has, for a large part, proved ill-equipped in tackling inequalities and power relationships within and outside the home, a weakness we seek to address by throwing light on the centrality of care in household consumption practices. That being said, questions of gender, inequalities and care in sustainable consumption have been gaining momentum in the last year or so, with several publications on this topic coming out in a short time span, among them the work of Fathallah and Pyakurel (2020), Hargreaves and Middlemiss (2020), Johnson (2020), Lane et al. (2020), Mechlenborg and Gram-Hanssen (2020), or Gram-Hanssen (2021).

In this paper, based on a social practice understanding of consumption, we are interested in the ways sustainable consumption and care interlock within the household, how they relate to gender and inequalities, and how change toward more sustainable lifestyles can both impact and be impacted by these inequalities. To approach this question, we completed a critical review of the literature by analyzing a corpus of 74 papers on household consumption and sustainability, paying particular attention to the role authors attribute to care and gender. Focusing on care led us to underline the centrality of relationships for understanding how gender inequalities and care tend to hinder change and the implementation of more sustainable consumption practices. In the following pages, we will start by presenting a conceptual framework that brings together consumption, care, gender, social practice theory and change, after which we will expose the methodology for building and analyzing a corpus of papers on household sustainable consumption. We will start our presentation of the results by looking at mothering and the way it exemplifies the nexus of care, gender and consumption. Afterwards, we will consider the implications for change of studying sustainable consumption practices and habits as part of care work. In the discussion, we will argue that the way care unfolds within the home generally tends to make more difficult the establishment of more sustainable consumption practices, and put forward suggestions for countering these dynamics.

CONCEPTUAL FRAMEWORK: CONSUMPTION, CARE AND GENDER IN EVERYDAY LIFE

In this section, we start by defining care and its different forms, before turning our attention to the relationships between care and consumption. We will then discuss the links between gender and sustainability before closing the section with a discussion of social practice approaches and change in practices.

Defining Care

Fisher and Tronto (1991, p. 40) propose to view care as "a *species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible.* That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web" (ital. in original). This definition includes, among other things, food work, caring for children, sick, or elderly people, but also caring for spaces, communities, the material world and the environment. Central to this understanding of care are the notions of vulnerability, interdependency and responsibility: we are all vulnerable, but some of us more than others; we all rely on each other, the community, and the material world to exist and thrive; we all give and we all receive care; and, as a consequence, we are all responsible for maintaining and repairing the world, bearing more or less responsibility depending on our respective privileges and capabilities.

In their now-classic definition, Berenice Fisher and Joan C. Tronto identify four interdependent phases of care, which are all necessary for "good" care to happen. The first phase, "caring about," "involves the recognition in the first place that care is necessary" (Tronto, 1993, p. 106). Indeed, to get involved in care, one must first recognize that care needs to happen. The second phase, "taking care of," means assuming some responsibility in recognizing the need for care and identifying appropriate solutions, which supposes a considerable level of agency from the person caring. The third phase is "care giving." It refers to the moment when care needs are met. In the words of Tronto, "[i]t involves physical work, and almost always requires that care-givers come in contact with the objects of care" (1993, p. 107). Finally, "care receiving" entails "that the object of care will respond to the care it receives. For example, the tuned piano sounds good again, the patient feels better, or the starving children seem healthier after being fed" (p. 107). In 2013, Tronto added "caring with" to the original four phases of care, to address questions of justice, equality and freedom for all. Tronto also puts forward other elements that must be taken into account to understand what *good* care is. Among them, she argues that care should be theorized as a practice that involves thoughts and action which are directed toward an end. She also stresses that both needs and care are culturally defined, but the need for care is universal. Finally, and most interestingly for the topic of this paper, good care heavily depends on having access to resources, namely material goods, time and skills (Tronto, 2013, p. 110), without which appropriate caring can't happen.

How Care Relates to Consumption

Some literature exists on the relationship between care and consumption, which can roughly be separated in two big categories. A first body of works is organized around the issue of care in the marketplace and within economic relationships. This work is mostly interested in ethical consumption and how "caring about" a distant stranger—in this case the people we are related to through their involvement in the value chain—can influence consumer behavior (Boulstridge and Carrigan, 2000; De Pelsmacker et al., 2005). In doing so, this body of work explores the role of distance in conceptualizing care and, therefore, its relationality. As Smith (1998) and later Popke (2006) put it, "if relations of care are affective, embodied and relational, then an ethics arising out of this would seem to be necessarily partial and situational, holding only for those with whom we have some immediate contact and familiarity" (Popke, 2006, p. 507). The question, then, is that of whether it is possible to "care about," "care for," or extend beneficence to people with whom we have no interaction or relationship beside the one we have through the value chain. Drawing on Tronto, Smith (1998) suggests three ways of extending care to a "distant other" or a more abstract figure. The first one is related to spatial relationships, where being aware of "how 'we' in the affluent parts of the world impact on the lives and environments of distant others, can lead to an extension of a sense of responsibility" (p. 21). The second one relates to the ways the recognition of our human similarity, and the similarity between "close and distant others" (Clement, 1996 in Smith, 1998), can drive people to "extend their scope for care" (p. 23). Finally, adopting care as a moral value means engaging in caring relationships in an unconditional way, irrespective of the social or physical distance. The location of the object of care becomes its context rather than a condition or an obstacle, which makes "ethical consumption" possible. In their empirical work on the consumer's conceptualizations of care, Shaw et al. (2017) show how caring through consumption highlights the interdependencies between consumers, producers, and the stakeholders in between, and how the care for self and the care for others are deeply intertwined, even when the consumer is involved with a distant other. More importantly, they find that the ability to care for "unidentified and distant others" (p. 429) is possible through hope that the process of care will meet actual needs, trust in stakeholders involved such as distributors or labels, and respect for the care receivers. As such, and in relation to the concerns underlined by Popke and Smith, caring for a distant other through ethical consumption is not only possible, but also an embodied and affected phenomenon.

The second body of work is closer to the main object of this paper and studies care and consumption in relation to social reproduction (Popke, 2006), which refers to our everyday lives, the private sphere, the home, or "maintaining our world." Moving away from matters of ethical consumption, which is mostly concerned with economic relationships, this literature questions how certain acts of care rely on consumption and how consumption can also be an act of care. In her ethnographic study of household energy demand in the UK, Moroşanu (2016) forges the concept of the Mother-Multiple, where (mostly) women occupy a specific ontological position characterized by a mode of being centered around acts of care for family members, pets, and the home itself. For the Mother-Multiple, care can happen through consumption practices such as boiling water, cooking food, or leaving the lights on in anticipation of the return of a family member. It involves the anticipation of needs, habits, preferences, and dislikes of "domestic others" and, consequently, a great knowledge of the people and spaces she is caring for. For Moroşanu and the women she interviewed, becoming one another's "Mother-Multiple" would, through global justice and a decrease of overconsumption, pave the way toward a sustainable future. In this line of thought, Hall (2011) theorizes consumption as a fundamentally moral act, "a means of expressing our moral identities and an outlet for ethical obligations" (p. 628). She argues that consumption is interwoven with "caring work" and is part of everyday practices that are ethical by nature, as they involve multiple "acts of care" performed to address family members' needs. In other words, she argues that multiple ethics of care meet in everyday consumption practices, in relation to caring for oneself, for the family or for the environment.

In building her argument, Hall highlights the definition of shopping crafted by Daniel Miller, which frames it in terms of love and care and includes the notion of responsibility. In Miller's view, shopping is "the activity you undertake nearly every day in order to obtain goods for those people for whom you are responsible—the goods you and they eat, wear and employ in a multitude of tasks" (Miller, 1998a, p. 2). In this definition, consumption is understood as part of social reproduction processes. It is seen as an act of care in and of itself, inextricable from our relationships, everyday needs, and the responsibilities we hold to one another. Within the marketplace, consumption has also been conceptualized as a way to build self-identity and communicate this identity to others. According to consumer culture theory, the marketplace produces "consumer positions that consumers can choose to inhabit" (Arnould and Thompson, 2005, p. 871). From their consumer positions, individuals mobilize the symbolic and material resources offered by the marketplace for forming a coherent sense of self and expressing their identity, along with establishing and maintaining relationships (Catulli et al., 2017). This is especially true for family relationships. In fact, as Miller (1998b, p. 92) writes, "'family shopping' is one of the key contexts in which the relationship between consumption and identity is currently being forged." Consumption offers ways to create cohesion and stronger ties within the family, or "feelings of solidarity and bonding" (Belk, 2010, p. 717), which are especially salient in the context of care giving. This happens mostly through sharing and gift-giving, where sharing is defined as "the act and process of distributing what is ours to others for their use and/or the act and process of receiving or taking something from others for our use" (Belk, 2010, p. 717). Belk considers mothering as one prototype of sharing, as childcare is given freely and does not carry expectations of reciprocity. In this sense, consumption carries symbolic meanings that feeds in existing caring relationships, while also reinforcing gender roles and inequalities.

Gender, Sustainability, and Everyday Life

Historically, consumption and political consumerism have been a space of action and a "tool for change" for women (Micheletti, 2003, p. 37), who were in many ways excluded from the public spaces and democratic processes. Today, household consumption remains a gendered territory, and so does what Dzialo (2017, p. 434) calls "private-sphere environmental behaviors," meaning that in general, women report higher engagement in pro-environmental behavior than men, across socioeconomic status (Kennedy and Kmec, 2018). Within feminist scholarship, there is a long tradition of connecting gender, sustainability and everyday life. One vision, developed in the 1990s, is that by virtue of their social position, daily caring practices and mothering, women have a deeper understanding of nature, and are thus more likely to care for it (e.g. Merchant, 1996). This rhetoric has been heavily criticized, as it is viewed to essentialize women, in relation to both their biological or social realities. MacGregor calls "ecomaternalism" the theoretical position that "make connections between *women's caring* and *ecological politics*" (MacGregor, 2006, p. 3). Over the last 20 years, Sherilyn MacGregor has been a strong advocate for ecofeminism and the necessity of accounting for gender, inequalities and intersectionality within sustainability research. In 2009, in a paper titled "A stranger silence still: the need for feminist social research on climate change," she deplores the marginalization of gender within environmental sociology and in relation to climate change. She argues that a feminist and gender analysis is relevant to the problem of climate change in three areas: first, gender as a discursive construction is relevant to better understand the social construction of climate change and the power dynamics involved. Second, it also offer tools for better understanding institutional and individual resonses of mitigation and adaption. Third, and most relevant for out topic, feminist research can offer a more in-depth understanding of how climate changes translates in everyday life in relation to the *global feminization of poverty* (p. 130), the *gendered division of labor* (p. 131), and the *gender differences in perception of climate change-related risks* (p. 131, ital. in original). In other words, climate change is more disruptive to women's lives worldwide, as they already are poorer and more vulnerable while also bearing the responsibility of social reproduction, but research that takes them into account tends to be sidelined (MacGregor, 2009). In 2021, MacGregor's diagnosis has not changed. She notes that while some see a "materialist turn" within mainstream environmental politics scholarship which leads to taking everyday life seriously, this "turn" tends once again to ignore gender and ecofeminist scholarship. As a consequence, it fails to take into account decades of work on the everyday as political, both a space of asymetrical power relations and a base for political action and activism. This omission is not without consequences. She writes: "Discussions of sustainable materialism celebrate a 'new domesticity' of crafting, growing and sewing, with no mention of changing the structural conditions or gendered power relations that shape how people manage to meet everyday needs in a capitalist economy" (MacGregor, 2021, p. 56).

MacGregor's critic of the place of the everyday in environmental sociology doesn't account for the considerable amount of work produced in sociology of consumption and through social practice approaches, which center on everyday life, the conditions of its (re)production, and what this implies for sustainable consumption. However, as we stated earlier, it is also a body of work which struggles to account for gender and inequalities, although this is changing. For example, Fathallah and Pyakurel (2020) question the problematic use of gender and the lack of differentiation between "gender" and "sex" within energy studies both in the Global North and the Global South. In a study of voluntary downshifting among Australian households, Lane et al. (2020) noted that the reduction in both paid working hours and consumption was most often motivated not by sustainability, but by the necessities of care giving, which was almost always accomplished by women, pleading for the necessity of taking gender and care into account in the discussions around reducing consumption. Similarly, Johnson (2020) demonstrates the importance of chore-doing for energy systems transition and its quasi-absence from both public policy and scholarship, along with the absence of gender. She argues that it is a major blind spots which risks undermining efforts to reduce household energy consumption. In a recent article, Murphy and Parry (2021) draw on feminist scholars, such as Tronto and MacGregor, to cast light on the ways actions aimed at promoting sustainability, because they often do not question the gendered division of domestic labor, can be regressive in relation to gender equality and increase women's workload. They conceptualize care as a key site for envisioning new approaches to household sustainability that take into account gender dynamics and relationships. Finally, in a promising approach for integrating gender within social practice theory, Mechlenborg and Gram-Hanssen theorize gender as "threading through a multitude of practices" (Mechlenborg and Gram-Hanssen, 2020, p. 5) and argue that energy consumption practices *and* technologies are gendered, and that in energy studies, gender needs to be taken into account at every stage of the research process, as the energy system transition will be "entangled in everyday life" and gender (p. 7).

Social Practice Approaches and Change in Practices and Habits

In relation to sustainability and consumption, concerns around care and gender lead us to the issue of change, and how it happens. For changing household consumption, public policy and interventions tend to draw on individualistic approaches that are focused on behavior, and to put aside the context in which individuals and households exist (Shove, 2010). As an answer to the limits of individualism, since the 1990s, theories of social practices have been developed to conceptualize everyday life, routines, and habits as a social phenomenon. In this social ontology, practices, rather than individuals, are the unit of analysis. Following Schatzki (2001, p. 72), practices can be defined as a set of "bodily doings and sayings" which are performed through an "array of activity" (2001, p. 2), meaning they imply action and the enactment of tasks and projects. In a similar vein, Reckwitz (2002, p. 249) defines a practice as a "routinised type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge." As a consequence, to understand consumption and change, one can look at practices and what allows them to exist, as opposed to the individuals performing them. In a popular conceptualization of practices, Shove et al. (2012) suggest that they are made up of three elements, namely material, competences, and meaning, the combination of which makes the performance of a particular practice possible. As they are rooted in the body, in the material world and in the social world, practices tend to be strongly resistant to change (Sahakian and Wilhite, 2014). Practices nevertheless contain the "seeds of constant change" as people who carry them "adapt, improvise and experiment" (Warde, 2005, p. 141). By looking at how their elements combine, it becomes possible to understand the stability and change of a practice or a bundle of practices. Acting on the interconnection of practices can provoke change across a bundle of practices (Jensen et al., 2018). For instance, participative approaches to energy consumption have demonstrated that it is possible to voluntarily re-craft practices by acting on their constituting elements, such as social norms or skills (Sahakian et al., 2021). However, changing practices involves work which, in the household arena, risks falling disproportionately on women's shoulders (Godin et al., 2020; Johnson, 2020). This concern, and the impact it can have on successfully implementing more sustainable consumption practices and lifestyles, is at the core of this paper.

METHODOLOGY AND DESCRIPTION OF THE DATA

Data Collection and Analysis

To better understand the role of gender and care in the academic literature on sustainable consumption and pave the way to a better conceptual integration, we engaged in a critical, or integrative, review of the literature on sustainable household consumption (Snyder, 2019), based on a corpus of paper built between March 2020 and April 2021, with additions made in September 2021. To identify papers relevant to this review, we relied on our prior knowledge of the literature, conducted a search on Google Scholar, and identified more relevant papers by examining the reference lists of the journal articles already included in the analysis. We also collected suggestions of relevant papers through a post in the newsletter of a professional network of researchers and activists on sustainable consumption, along with a call launched on social media. To be included in the analysis, papers had to fulfill two criteria. First, they had to center around sustainable consumption practices, as defined by Schatzki (2001, 2002). Second, they had to relate to the phases of "taking care of" or "care giving" as defined by Fisher and Tronto (1991), whether the practices were conceptualized in these terms or not.

In total, we examined around 130 papers and book chapters, and retained 75 for analysis (see **Annex 1** for the list of papers and their main objects). The papers we analyzed were published between 1998 and 2021. For each paper, we filled an analytical form containing eight categories. The first five categories were descriptive and included: (1) consumption domains, such as food, energy, or transportation; (2) main object of the paper, for example "gender in energy studies" or "arrival of a new child and consumption"; (3) care practices, such as cleaning, feeding the family, or caring for the family or the community in general; (4) theoretical approach and main concepts; and (5) methods. The last three categories were analytical and addressed (6) the role of care in the argument, looking at whether care is addressed directly or not, how care intersects with consumption, or what the object of care is; (7) the role of gender in the argument, and how it intersects with care and sustainability; and finally (8) recommendations for public policy or change discussed in the papers. Once all forms were completed, we performed a content analysis underlining the factors at play in the performance of care as it relates to consumption and change, refining the code as the analysis was progressing and going back to the original paper when necessary. The section "Caring for" and "Care Giving" in the Literature on Sustainable Consumption presents the results of this content analysis.

Description of the Corpus

The bulk of our corpus consists of empirical papers that present the results of research conducted in Europe, Canada, Australia and the United States. Adding to this are eight theoretical papers, and two literature reviews from European scholars. The limited geographical scope of our corpus is a reflection of the status of the literature on household sustainable consumption, which tends to remain scarce outside of the Western world while either adopting an individualistic framework or focusing on the socio-technical dimension of the sustainability transition (for the example of China, see Liu et al., 2016). This means that the results of the present paper remain culturally situated and might not reflect the way sustainable consumption and care interact outside Western societies, in which consumption plays a central role that is not necessarily replicated elsewhere. This might also contribute to hiding power relationships, vulnerabilities and inequalities that arise from the essential role of care for sustainable consumption, which would appear with a different formulation of the problem.

Regarding methods, five papers relied exclusively on quantitative data, mostly time-use surveys, while the rest of the empirical paper employed either qualitative or mixed methods. Although we conducted our research in both English and French, the papers selected and reviewed were exclusively written in English. The journals most often represented in the review are *Energy Research and Social Science* and *Geoforum*, with ten and five publications, respectively. Based on the journals' affiliations to a certain discipline, we determined that the disciplines most often represented were geography (16), energy studies (14), sociology (11), and consumption and consumer culture (8). However, we can expect sociology, geography and other social sciences such as anthropology to be "hidden" in journals related to food studies, energy studies, or transport, for example. Twenty-nine papers studied sustainable consumption based on social practice approaches. This is a reflection of both the criteria for selecting papers, which favored papers that draw on a social practice approach given its focus on non-conspicuous consumption, and of its prevalence in research on the social dimension of sustainable consumption. The other papers mobilized various academic fields and theoretical approaches such as gender studies, time-use research, sociology of everyday life, relational sociology, moral philosophy and ethics, consumer culture theory, actor-network theory, behavioral change, and political ecology. Twenty-three papers discuss energy consumption, covering practices such as heating and cooling, laundry, cleaning up, communication and entertainment, and meal preparation. Twenty-one papers discuss food consumption, including provisioning, cooking, waste management and meal planning. Twenty-five papers deal with consumption in general—every day and ethical consumption and consumer culture—, four with mobility, and two with the consumption of space. The main care practices discussed in the corpus pertain to childcare and care for the family more broadly (feeding children and attending to their needs, doing the laundry, ensuring the comfort of the family). In these two areas as well as in relation with food, there was often a tension between the care for the self, in relation to one's health and security, and care for a distant other, the community, or the environment.

Finally, a handful of papers included in the corpus drew directly on feminist ethics of care. For example, Marovelli (2019) turns to Tronto's fifth phase of care, "caring with," to study food sharing practices, showing that food sharing can be a way to alleviate isolation, express vulnerabilities and build communities. Jarosz (2011), building on feminist ethics of care and Foucault's ethics of self-care, argued that community sustained agriculture is experienced as a way to take care of others while taking care of oneself. Lane et al. (2020) drew on feminist ethics of care to explore the relation between care giving, consumption and downshifting, showing that care giving, rather than sustainability, is the motivation for reducing working hours, income, and consumption. Morgan (2010) employed Tronto's ethic of care to discuss choices made by consumer citizens, stating that ethical and green consumption can be conceptualized as a way of "caring for distant strangers." Meah and Jackson (2017), using Fisher and Tronto's phases of care, demonstrated that "convenience food," although often characterized as unsustainable and unhealthy, can be used as an expression of care for one's family, because it enables mothers to combine childcare with cooking. Finally, Mincytė et al. (2020) considered self-provisioning agricultural work as a "more-than-human" care ethics which, while serving as a pathway toward more sustainable future, also reproduce gender inequalities. All these papers highlight the relational character of care, which will appear in the next section as the defining element for thinking about consumption, care, and sustainability in relation to change.

"CARING FOR" AND "CARE GIVING" IN THE LITERATURE ON SUSTAINABLE CONSUMPTION

In this section, we analyse how care work is addressed in relation to sustainable consumption and change in the literature. We start by looking at how the mundane realities of caring for a child, social norms, and gender inequalities interact in regard to sustainable consumption in the context of mothering. We argue that mothering best exemplifies how the realities of everyday life and the constraints of care work tend to hinder the transition to more sustainable lifestyles at the household level. Following this, we look at the different elements impacting the relation between sustainable consumption practices and care work, and how they often contribute to impeding change.

Mothering as a Blueprint for Understanding Sustainable Consumption and Care

Tronto (1993, p. 109) points out that in Western cultures, mothering is seen as the "paradigmatic act of caring," which is clearly reflected in the literature on household sustainable consumption. Some papers within our corpus directly address the question of mothering whether or not the discussions are linked to gender dynamics. Work completed by Burningham and Venn

(2017) on early motherhood, Cairns et al. (2013) on the "organic child," and Parker and Morrow (2017) on urban homesteading and intensive mothering, all highlight the interrelations between ideals of good mothering, the time and material constraints of caring for a child, and the unequal distribution of labor within the household. While the arrival of a child might lead to increased concern for the environment and its protection, the implementation of sustainable or ethical consumption practices such as organic or local food consumption, avoiding taking the car, living at a lower temperature or reducing waste, happens only if a synergy is built between several elements: representations of the child well-being or of "good mothering" to which the practices may be associated; a balance between family time and the time required for the good performance of these practices, and the availability of adequate financial resources (Burningham and Venn, 2017). This combination can be more difficult to achieve while caring for an infant, and Jamieson (2016) suggests that the arrival of a first child can lead to giving up sustainable consumption practices, especially if they become incompatible with family life. Therefore, papers that focus on mothering confront head on what perspires in the literature on household sustainable consumption more generally, namely that the actual implementation of sustainable consumption practices happens only when the constraints and concerns of family life allow it, and that family life and relationships within the household often come in the way of implementing more sustainable consumption practices.

Shedding light on mothering in relation to care and sustainable consumption also reveals the entanglement of different areas or objects of care, and how they get prioritized. Knibb and Taylor (2017) show how, in Western societies, green consumption can be enmeshed with parental identity and viewed as a moral obligation. Through green consumption, mothers in particular can seek to promote the well-being of their children while feeling they are doing their part for the environment. Ethical consumption can also be a tool for new mothers who need to build their post-natal identity (Carey et al., 2008). However, as "green motherhood" is motivated by the well-being and the needs of children, if the "green" alternatives are not compatible with what is perceived as being good care giving, it will be set aside. Indeed, caring for a child and its well-being often means putting health first, and the environment or community second, while caring for the environment is often embedded in the act of caring for a child and the family well-being. Caring for a distant stranger through individual commodity choice and ethical consumption can also merge itself with caring for the self or the family. This is well-illustrated by Hawkins (2012) who studied "cause-related marketing" campaigns, that use environmentalism to promote shampoo while promising to the women who buy a specific sort of shampoo that their purchase will support mothers' access to clean water in the Global South. In doing so, she shows how ethical consumption is gendered, women being most often targeted by such strategies, and how such campaigns serve to essentialize motherhood, framing it, in this case, as "moms helping moms."

In line with Tronto's argument that good care depends on accessing resources, looking at the everyday conditions for adopting sustainable consumption practices while conforming to social norms related to gender and mothering also means thinking about inequalities and their expression. Cairns et al. (2013, p. 111) discuss this in the context of raising the ideal "organic child," which "requires significant investments of economic and cultural capital. The organic child ideal works ideologically to reinforce gendered notions of care-work, and establishes a standard for good mothering that is widely recognized, but not universally attainable." As they demonstrate, successfully performing an unrealistic representation of good mothering while caring for the environment is not something that is accessible to everyone equally, nor is the social recognition attached to high standards of care in the different consumption domains. Moreover, failing to conform to social norms can quickly lead to feelings of shame and guilt, especially in Western societies where successful femininity can be linked to achieving those ambitious standards of care. In short, the literature on mothering brings together social norms, access to sufficient resources, the gendered distribution of work within the household, and ideals of motherhood and femininity. In doing so, it reveals how the dynamics that bind these elements together often become an obstacle to the establishment of more sustainable lifestyles. This literature also provides a blueprint for understanding how sustainable consumption and care interact in the household.

Sustainable Consumption Practices as Care Work and the Implications for Change

In the following pages, we analyse the main household consumption practices represented in the literature on sustainable consumption as part of activities of "caring for" and "care giving." The goal is to better understand how change happens at the household level and gain insight for the transition toward more sustainable forms of consumption. We will show how the necessity of satisfying everyone's needs, the constraints of time and the rythms of daily life, social norms, emotions, and gender inequalities within the home all tend to hinder the adoption of more sustainable consumption practices and habits, which invites us to rethink the role of the household as a site for change.

Conflicting Needs and Desires Within the Household

Care and consumption are both at the heart of family life. In their day-to-day activities, carers—most often mothers—juggle with household members' varying needs, demands and desires. This is especially visible in relation to food and cooking, where taking into account everybody's taste and preferences is seen as an expression of love and a way of being a good mother (Gojard and Véron, 2018). However, because of the complexity and limits of composing with a wide variety of wants and needs, it can lead to food waste (Evans, 2012). In relation to food but also energy consumption, carers often prioritize their health and the health of family members over the health of the planet (Gojard and Véron, 2018). Prioritizing human health can play both for and against more sustainable consumption practices. Indeed, caring for the health of family members can lead to more organic or local food consumption, but it can also perpetuate the practices of meat consumption or keeping a warmer home. In this vein, Heath et al. (2016) show how family members can oppose the adoption of more sustainable practices, such as refraining from eating meat, in relation to what they value as "good" or "bad" for the development of the children. Similarly, Carey et al. (2008) note how, as a way to maintain good relationships between household members, a person can make a compromise regarding consumption practices or realign her habits with what is commonly sanctioned. As a consequence, in relation to establishing new, more sustainable consumption practices, the more conservative household members tend to have the upper hand, which contributes to maintaining the statu quo.

Competing Rhythms and Issues Related to Time

Taking every household member's needs into account also means carers need to adapt to different rhythms, especially in relation to children, and including guests. Discussing energy consumption, Hargreaves and Middlemiss (2020) write: "families with children can face profound difficulties in shifting their energy use in demand response intervention due to the immediate and immovable demands of infants, or the fixed schedules imposed by school timetables." In this context, "demand flexibility," which centers around the notion of time, relies on the doing of chores and care work, as argued by Johnson (2020). Johnson coined the expression "Flexibility Woman" to highlight the way energy systems capitalize on undervalued domestic labor. She presents the Flexibility Woman as the feminine pendant of the "Resource Man," a caricatural reprensentation of the well-informed, competent, technology-oriented energy consumer for which smart energy systems tend to be designed, painted by Strengers (2014). In her study of smart meters and time use tariffs in the UK, Johnson shows how, contrary to the Resource Man, the Flexibility Woman does exist. To access cheaper energy, she has "knowledge about her family's consumption habits, the loads in home and the schedules of life that shaped her household's electricity demand profile" (Johnson, 2020, p. 6). Through the lens of chore-doing, the adoption of more sustainable consumption practices within the household—materialized here through energy consumption off peak hours—appears to be contingent on the practices' compatibility with the needs, preferences or expectations of the household members, including their respective schedules, rhythms and routines, and the availability of someone for managing this variety of needs.

In Western societies, the rhythms of everyday life, and the time constraints that impact the possibility of adopting sustainable consumption practices, are closely linked to the world of work, the work-life balance, and the notions of "time squeeze" and "time prosperity." They are also tied to the "committed time," which directly relates to the necessities of care work (Smetschka et al., 2019). Wiedenhofer et al. (2018, p. 7) argue that "[a]rrangements on working hours and income strongly structure everyday living; most other activities are also organized around them. Income and available time also influence which goods and services are required to conduct everyday life." Most often, these activities seem to lead to a "time squeeze" which can perpetuate less sustainable practices, such as taking the car instead of cycling to work, taking the plane instead of the train, buying goods instead of sharing, or turning to convenience food to have more time for the family (Meah and Jackson, 2017). Lacking time or being rushed also seems to directly influence the transformation of routines and habits and the adoption of new practices. Schoolman (2016) shows how "rushed shoppers" have more difficulty forming new buying routines in relation to ethical consumption, as it necessitates taking time in the supermarket to study products and look for alternatives. In other words, adopting new practices takes time, which is not available to everyone equally.

Reducing work hours to escape the time squeeze has been discussed as a way of lowering consumption. However, at the household and individual levels, empirical work suggests that it is no silver bullet, especially if it is not done with sustainability and reducing consumption in mind. In studies conducted in Australia by Lindsay et al. (2020) and Lane et al. (2020), voluntary downshifting was most often undertaken as an answer to overwhelming caring responsibilities, usually for children or aging parents. In general, it was women reducing their work hours or giving up paid work entirely, which has implications for gender equality. Similarly, in a research project on a co-housing project oriented toward reducing consumption and sustainability through collective installations and sharing resources, Leitner and Littig (2018) observed that going from a lifestyle centered around the household to a lifestyle organized around the community did not have a significant impact on CO_2 emissions, on time devoted to care practices, or the distribution of care work between genders. They explain these results by the difficulty of coordinating former and new practices, the time, motivation and work necessary for creating new routines and habits, and the rigidity of collective practices (e.g., meal time) in terms of schedule, which might come in conflict with paid work or care for children. In short, downshifting or reducing consumption relies on the availability of various resources with time being key, and the same goes for care giving.

Obstacles Linked to Social Norms and Gender Relations

While the complexities of fulfilling everyone's needs and the constraints of time have a rather tangible impact on the transformation of consumption practices, at the more symbolic level, social norms and standards enforce specific ways of doing in relation to "caring for," "care giving" and consumption. Social norms are rules that dictate how one should or ought to be in a society and they lead to sanctions when they are broken, such as shaming or being cast aside (Durkheim, 1893, 1894). They are thus communicated and enforced through emotions and affects, as we will discuss below. Regarding standards, they are the personal interpretation of a social norm and its application. Strong social norms exist in relation to health, cleanliness, bodily odors, or comfort for example, which can have a direct impact on energy consumption through activities such as doing the laundry, showering, and heating. Social relations tend to uphold social norms and often preclude change. For example, Sahakian (2018) shows how relations within affluent circles in Geneva create a social lock-in effect where social pressure, as well as the need for acceptance and for "keeping up with trends," often leads to the enforcement of strict norms in regards to cleanliness or the necessity of getting new, bigger appliances. Here, social norms and their translation into standards contribute to keeping energy consumption at high levels. In the context of unconspicuous and household consumption, standards define the specific, personal interpretation of "comfort, cleanliness and convenience" (Shove, 2003). For example, they determine what is "enough" in relation to doing the laundry, in terms of frequency of washing or water temperature, while the norm will relate to the smelling or appearance, which is what can be perceived by others. Standards can vary from household to household, but also between household members, which might lead to negotiations. The type of negotiation, and what is up for discussion, depends on the relation between household members. For example, in one research project in Europe, teenagers appeared to have much stricter cleanliness standards than adults in relation to laundry, presumably because of what they perceived the expectations of their peers to be (Godin et al., 2020), and this had an impact on the parent's actual cleaning practices. While negotiations surrounding laundry might not be a common occurrence among roommates, the topic of room temperature, for example, might be up for discussion in such a setting. Standards related to comfort can differ based on age or what has been learned during childhood (Hansen and Jacobsen, 2020). In relation to cleanliness, they can be part of a mechanism of social comparison or identity formation, which in turn has an impact on daily energy consumption (Shove and Warde, 1998). In their discussion of the links between food, health and sustainability, Plessz et al. (2016) argue that standards relating to food tend to change at "life-course turning points" such has moving or having a first child, which often leads to the integration of new prescriptions into the diet. Prescriptions play a part in defining what an appropriate meal is, and the importance they are given depends on who does the food provisioning and cooking, and who sits at the table, as food is a way of building, maintaining and expressing relationships (Godin and Sahakian, 2018).

Emotions and affects are the means through which social norms are learned and enforced. They are also gendered and inherent to care. As such, they can have both a negative and a positive impact on the adoption of more sustainable consumption practices and habits. For example, not conforming to social norms about what a proper meal is—including when these norms run counter to sustainable practices—can lead to feelings of culpability and stress. In fact, the "prospect of social sanction" when contravening to social norms seems to be a factor that precludes the adoption of sustainable practices. For instance, in relation to meat, Mylan (2018) writes: "In the case of consumers taking action on sustainable consumption of meat, the study demonstrates that this was frequently constrained by the prospect of social sanctions, in the form of the disappointment of others, unsatisfying participation in social occasions, or anticipation of wasted time and effort, which effectively curbed the enactment of meat reduction." Wondering why food practices are not more sustainable in France, Dubuisson-Quellier and Gojard (2016) argue that the gratification and satisfaction that comes with a "traditional meal" appears to be greater than the one that comes with having more sustainable practices. In both these cases, failing to conform to social norms, or having the impression to fail—for example in relation to cleanliness or cooking healthy food—leads directly to negative affects. On the other hand, lowering standards—which in many cases leads to reducing consumption—can contribute to calming anxieties and diminishing the "mental load" (Godin et al., 2020). Similarly, the work put into conforming to social norms or seeking to adopt sustainable consumption practices can also feel heavy and contribute to frustration and anxiety. In sum, emotions and affects can be a barrier to the adoption of more sustainable practices, but they can also support transformations in routines and habits, when change means being relieved from stress and experiencing more positive feelings.

Finally, the fact that women tend to be socialized to work for the well-being of their kin as well as more abstract "future generations" influences their involvement with "green" and sustainable consumption. Drawing on MacGregor feminist critic of ecological citizendship, Elliott (2013) argues that although green consumption can be used as a symbol for women to express themselves about their role as caregivers and mothers, targeting women through green marketing reaffirms the gendered division on labor. This is important because the unequal division of domestic labor, which is tied to strong gender norms, contributes to the time squeeze that comes in the way of achieving more sustainable consumption practices. Schoolman (2016), in his study of ethical consumption in supermarkets, shows how the devaluation of care work as a social phenomenon is an obstacle to change in itself. He writes: "In often quite self-aware discussions, participants connected their 'rushed' orientation toward shopping to the idea that taking time to do things like read labels and ponder differences between products—essential steps to becoming an ethical consumer—is basically a feminine quality, and not appropriate for someone with more serious things to do" (2016, p. 629). Similarly, in their study on time use and the division of domestic labor in "sustainable households," Organo et al. (2013) show that sustainable consumption practices tend to follow traditional division of household labor—women cook and clean, while men are involved in activities requiring longer blocks of time, such as gardening or activities related to transport. In this context, women's work is less visible, as it mostly relates to routines, habits and everyday life, but they remain the ones who instigate change and carry most of the weight related to adopting new practices and habits. Grønhøj and Ölander (2007) made a similar observation and demonstrate how pro-environmental behavior tends to follow a traditional division of labor, women adopting environmentally-friendly habits inside the home and men outside the home. As gender roles and relationships of care within households tend to be especially resistant to change (Godin et al., 2020), and given that expectations surrounding care structure energy demand (Hargreaves and Middlemiss, 2020), gender norms and unequal distribution of labor within the home can curb the transformation of consumption practices toward more sustainability. At the same time, challenging gender roles offers interesting possibilities for intervention and could open the door to a renegotiation of standards, expectations, and priorities, which can lead to lower energy consumption and higher well-being (Sahakian and Bertho, 2018).

SOCIAL INEQUALITIES AS A BARRIER TO SUSTAINABLE LIFESTYLES

When we started this critical literature review, we set out to find the ways through which "taking care of" and "care giving" in the home can be a vehicle for sustainable consumption practices. What we found is the opposite. Rather than an opportunity for change, care work has proven to be a significant obstacle, as it is linked to the main activities that upholds routines and habits while mobilizing the very resources that are needed to transform them. The "time squeeze"—which is tied to the world of work and feeds on the unequal distribution of household labor—is a particularly important issue. Applying the conceptualization developed by Tronto (1993) to the study of sustainable consumption highlights the fact that the current organization of our societies does not allow "good care" to happen. "Good care," indeed, would involve access to the necessary resources—including time, money, and social support—to work for the well-being of humans, non-humans and the planet, all of which is rendered difficult by the organization of everyday lives in the Western world.

How can we address these issues as a society if we are to truly establish sustainable lifestyles? Based on our findings, we want to put forward four suggestions. First, *reducing care work* could free resources to experiment with change. One main way of doing this would be to challenge social norms and to lower standards. This has been tried elsewhere in relation to heating and laundry, with a certain level of success (Jack, 2013; Sahakian et al., 2021). Key to reducing consumption was to create awareness of social norms and collective conventions, and to trigger reflexivity that would lead people to critically look at their own practices and habits. A second way would be to *redistribute* care work within the home, which could relieve the household members who accomplish the bulk of it while potentially promoting the engagement of others in care work. This could increase resources dedicated to care and support change toward more sustainable consumption practices, while challenging gender inequalities and the division of domestic labor. In Western countries, there has been a clear movement toward a more equal division of housework in the second half of the 20th century – even though it seems to have slowed down after 2000 (Altintas and Sullivan, 2016). However, there are some worries regarding the effects of the Covid-19 pandemic on this issue, for women but also families (Power, 2020). It is also notoriously difficult to achieve change in relation to gender roles, as women's care work is deeply embedded in routines and habits, but also the functioning of our economies. Toward this end, Elson (2017) points to the need to "recognize, reduce and redistribute unpaid care work" as a strategy to close the gender gap, in a way that mirrors the argument we are making here, and which underlines the interdependencies of challenging gender inequalities and supporting more sustainable consumption practices in the home.

Rethinking the world of work is a third path toward more sustainable consumption practices and lifestyles. In a recent study, Mallinson and Cheng (2021) replicated for the years 2014–2017 a research by Fitzgerald et al. (2018) that demonstrated a positive association between working hours and greenhouse gases emissions across the United States between 2007 and 2013. Following their analysis, Mallison and Cheng came to similar results, but noted that this association seemed to have become stronger over time, providing a convincing argument for reducing working hours as an answer to climate change. This argument ties in with scholarship advocating for degrowth as laid out by authors such as Jackson (2011) or Kallis (2019); Kallis et al., 2020). In their book *The Case for Degrowth*, Kallis et al. (2020) argue that the path toward a sustainable economy goes through a reduction of working hours as a way of "slowing down," reducing emissions, and enhancing well-being. Elsewhere, Kallis (2019, p. 2) argued that care can "become the hallmark of an economy based on reproduction, rather than expansion." Building a caring economy—one that recognizes the value of care and centers around care work and categories of employment such as health care, education, community building or disability care—could offer a pathway for a transition to more sustainable lifestyles. The recovery that will follow the Covid-19 pandemic will open possibilities for moving in this direction (Cohen, 2020; De Henau and Himmelweit, 2021). Investing in an economy that makes visible and recognizes the value of care could also have an impact on some of the roots of gender, socioeconomic and racial inequalities, as we will discuss below. Our final proposition is to *actively promote the development of an ethos of care* that covers humans, other beings, the material world and the planet. This must happen through the active involvement of all sectors of society, especially politics and the State, mainstream and alternative media, and schools. This would mean putting our interdependencies with others and the material world at the core of our worldview, to represent ourselves as embedded into the living world, and to make care the foundation of our political organization.

This leads us to underlining an important gap in the scholarship on sustainable consumption practices and social practice approaches, which has to do with the relative absence of social inequalities and vulnerabilities in relation to race, income, education, or health in this literature. As Tronto (1993) puts forward, historically, care has been devalued and trapped in dynamics of oppression. It is often accomplished by people coming from the more marginalized segments of the population who are more vulnerable because of gender, race, but also social class and income, such as women, LGBTQ+ people or people of color. While it can be argued that middle-class households, because of their numerical importance, are key to mainstreaming more sustainable consumption practices, they do rely on the hidden and devalued work of marginalized populations to maintain their lifestyles and their level of consumption. Paid care work within and outside the home, such as the one accomplished by *au-pair* workers and domestic cleaners, teachers and daycares workers, hospital or long-term care facilities staff, and the long list of "essential workers" whose importance has been highlighted by the Covid-19 epidemic, is a condition to maintain the production and consumption system as it is now. How they are treated now, in relation to wages or work conditions among other elements, is often the very opposite of what an ethos of care means. Including them in our view of sustainable consumption and lifestyles means pushing the reflexion from "care giving" to "caring with," embedding our accounts of household consumption in the production system, and accounting for the spaces where invisibilized, devalued care and reproductive work happens, all of which is crucial to creating truly sustainable lifestyles.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/**Supplementary Material**, further inquiries can be directed to the corresponding author/s.

AUTHOR CONTRIBUTIONS

LG contributed to defining the conceptual framework and the methodology, as well as data analysis and interpretation. JL conducted the data collection and most of the analysis while providing input for the conceptual framework and interpretation. Both authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/frsus.2021.725753/full#supplementary-material

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frontiers in Sustainability

REVIEW
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Toward Sustainable Wellbeing: Advances in Contemporary Concepts

*Tadhg O'Mahony**

Finland Futures Research Centre, University of Turku, Turku, Finland

Sustainability and wellbeing are two key global policy priorities, which despite considerable overlap, are invariably isolated. In wellbeing, the importance of social dimensions is an emergent conclusion, but recognition of the environment and nature is embryonic. In sustainability, wellbeing remains poorly characterized. Despite some procedural advantages, in practice, a continued ambiguity risks compromising both goals, and improved conceptual integration is therefore necessary. In this review article, key contemporary wellbeing accounts are considered, including preferences, needs, capabilities, happiness, psychological wellbeing, and physical wellness. Wellbeing literature suggests that a holistic multidimensional account is strongly supported, that is context- and value-dependent, with a prominent role for social and relational dimensions. A transdisciplinary systems thinking approach is appropriate to integrate from the individualism characteristic of wellbeing, to the interdependent human and environmental systems of sustainability. It is recognized that both wellbeing and sustainability are complex and value-laden, requiring the surfacing of values and ethics. A synthesis of the two branches of literature asserts four fundamental lenses: the framing of growth and change; social justice; the ethics of freedom; and the value of nature. The conceptual synthesis both platforms the relational approach of "care," and underlines the imperative to reconsider the place of consumption. An integrated "sustainable wellbeing" offers the potential for win-win outcomes, in transformation to a flourishing of human wellbeing and the natural world.

Keywords: wellbeing, flourishing, needs, capability, nature, systems, transformation, sustainable development

Edited by:
Barbara Smetschka,
University of Natural Resources and Life Sciences Vienna, Austria

Reviewed by:
Oksana Mont,
Lund University, Sweden
Marc Craps,
KU Leuven, Belgium

****Correspondence:***
Tadhg O'Mahony
tadhg.omahony@utu.fi

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INTRODUCTION AND BACKGROUND

The Concept of Sustainable Development, and the Place of Wellbeing

The concept of sustainable development (SD) emerged 40 years ago in ideas of a sustainable society, nature conservation, and resource management (Sathaye et al., 2007). It has since become ubiquitous in framing the development of human systems, and their relationship with the environment. From the analytical framing of climate change [Intergovernmental Panel on Climate Change (IPCC), 2018] and biodiversity challenges [Millennium Ecosystem Assessment (MEA), 2003; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2019], to development policy practice in the UN SD Goals 2015, it continues to act as a linchpin, a concept as powerful as it is universal. Since its inception, an evolution is evident in how this complex concept is understood. In 1987, the "Brundtland report" of the World Commission on

Environment and Development introduced the seminal definition of SD, that seeks to balance the human-environment relationship; "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" [World Commission on Environment and Development (WCED), 1987][1]. Signs of evolution can be found in the 2007 global synthesis of Halsnæs et al. (2007), which articulated the emerging basic principles of SD as: the welfare of future generations; the maintenance of essential biophysical life support systems; more universal participation in development processes and decision-making; and the achievement of an acceptable standard of human wellbeing. In the more recent synthesis of Fleurbaey et al. (2014) SD is conceived as: development that preserves the interests of future generations, that preserves the ecosystem services on which continued human flourishing depends, or that balances the co-evolution of the three pillars or spheres; economic, social, environmental. This is a noteworthy change, to articulate SD through "human wellbeing" and "flourishing," rather than "needs." Yet, it could be related to a lesser cited reference in Brundtland, to satisfying "aspirations for a better life" [World Commission on Environment and Development (WCED), 1987: 44].

Despite the evolution in the SD concept, there is also robust empirical evidence of a lack of progress, as the actual outcomes of development are demonstrably unsustainable. A variety of environmental systems are now at or near critical thresholds, driven by the pressures of human activity [Intergovernmental Panel on Climate Change (IPCC), 2018; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2019], and attended by problems of equity and growing in-country inequality [International Panel on Social Progress (IPSP), 2018]. Further criticisms have noted, the primary focus on environmental and economic dimensions, while overlooking social, political and cultural change (Sathaye et al., 2007; Fleurbaey et al., 2014), and the anthropocentric framing of most SD frameworks, that do not recognize nature's intrinsic value (Kopnina et al., 2018). The urgency of the sustainability crises sharpens criticism of the definitional vagueness of SD, which provides a conceptual frame without guidance on priorities. Where Robinson (2004) sees "constructive ambiguity," and Meadowcroft (2000) a necessary flexibility to allow for political contestation, James (2017) and Mensah and Casadevall (2019) point to the risks and problems arising out of continued impreciseness.

More specifically, some scholars have noted a fundamental lack of clarity on the conceptualisation of human "needs" and "wellbeing" (Kjell, 2011; Helne and Hirvilammi, 2015). Yet, as noted above, a shift has occurred widely in SD literature, from articulating human "needs," to the placeholders of "wellbeing," and "flourishing." This can be found across synthesized principles [Sathaye et al., 2007; Fleurbaey et al., 2014; Intergovernmental Panel on Climate Change (IPCC), 2018][2] and in comprehensive reviews (Atkinson et al., 2014; McGregor, 2014). Consistent with the conclusion that definitional ambiguity continues, Kjell (2011) observed that within sustainability research, human "needs" and "wellbeing" are poorly understood, conceptualized, and elaborated upon, arguing that there are implications for the pursuit of sustainability. On the flip-side, the literature that conceptualizes human wellbeing, continues to exist largely outside of SD. The wellbeing concept literature is almost entirely dissociated from the contribution of nature, or relationships with ecological and planetary systems. To understand the significance of this limited integration, it is imperative to recognize that wellbeing has major implications for SD, and vice versa. At the systems level, the strategies to pursue human wellbeing are fundamental to drivers of environmental pressures, where they push the consumption of resources and the generation of wastes. In turn, the environment is a critical foundation underpinning human wellbeing, by providing the natural resources and ecosystem services necessary for human survival and development. Nature also has cultural meaning, and has its own intrinsic value beyond the utility of physical functions (see Existing Literature Seeking Integration of "Sustainable Wellbeing" and The Value of Nature-Intrinsic and Instrumental).

The Concept of Wellbeing, and the Place of Sustainability

Human wellbeing, or "well-being," is also a major global policy priority in itself, and has been receiving greater empiric and policy priority in recent years. Discussions of wellbeing and "the good life," have an ancient global history, spanning spiritual, religious, cultural, philosophical and secular traditions, and are represented in voluminous theories (McGillivray, 2007; Varelius, 2013; Fletcher, 2016; Sachs, 2016). A rich and varied discussion is found in *the philosophy of wellbeing*, which draws on both ancient and contemporary accounts, as alternative perspectives on the fundamentals (Fletcher, 2016). The contemporary applied concept of wellbeing is acknowledged as complex (Huppert, 2014), and occurs across the disciplines of anthropology, economics, psychology, sociology, and other social sciences (Fleurbaey et al., 2014). Within the study of wellbeing, when broadly defined, efforts to bring more consistency to the field include Parfit's "tripartite model" (Parfit, 1984) -which identified three broad philosophical theories in: hedonism; desire fulfillment or satisfaction; and objective lists -. Further efforts can be found in what are sometimes known as MacKerron's "five standard approaches to wellbeing" (MacKerron, 2011), which were originally noted in Dolan et al. (2006a) as: preference satisfaction; objective lists; eudaimonic/flourishing; hedonic; and evaluative approaches.

In general, wellbeing accounts have invariably been conceived separately to nature-environment and sustainability (Roberts

[1] This is an internationally agreed guiding principle adopted by heads of states and governments in the 1992 Rio Declaration (Principle 3), and reaffirmed at 2012 UN Conference on SD.

[2] "*Well-being for all*" is placed at the core of an ecologically safe and socially just space for humanity, including health and housing, peace and justice, social equity, gender equality and political voices, and alignment with transformative social development and the 2030 Agenda of "*leaving no one behind*" [Intergovernmental Panel on Climate Change (IPCC), 2018].

et al., 2015). While Dodds (1997) noted the importance of understanding the relationship between wellbeing and sustainability, integration has only received greater attention in the last decade, and is described here as the literature of "sustainable wellbeing." The applied literature on physical health and mental wellbeing has begun to show increasing scholarship on the contribution of nature (Capaldi et al., 2015; Oh et al., 2017; Britton et al., 2020), but this has yet to substantially influence or integrate with the conceptual and foundational literature of wellbeing.

Existing Literature Seeking Integration of "Sustainable Wellbeing"

The conceptual literature, seeking some form of integration of sustainability and wellbeing, has been dominated by economic welfare, needs, capabilities, quality of life, and happiness studies. The concept of "human needs" has continued to manifest in a number of texts (Rogers et al., 2012; Hirvilammi and Helne, 2014; Helne and Hirvilammi, 2015; Guillen-Royo, 2016; Gough, 2017; Raworth, 2017; Büchs and Koch, 2019). The main alternative to needs, the capability approach, is also found in work by Anand and Sen (2000) and later interpretations (Lessmann and Rauschmayer, 2013; Oakley and Ward, 2018). Hybrid needs-capability approaches have been developed in the last decade (McGregor, 2008, 2014; Coulthard et al., 2011; Rauschmayer et al., 2011; Rauschmayer and Omann, 2015) and the application of happiness studies can also be found in the last decade [Kjell, 2011; New Economics Foundation (NEF), 2012; Cloutier and Pfeiffer, 2015; Sachs, 2016]. In economics, the Stiglitz-Sen-Fitoussi Commission broke new ground as an influential synthesis of thinking. It recommended reform to measure people's well-being, and the central importance of sustainability, rather than continuing the focus on economic production (Stiglitz et al., 2009). Further indicator discussions occurred through the UN Commission on Sustainable Development, and the OECD "Better Life" initiative, which developed frameworks supporting indicator selection for sustainable development [United Nations Department of Economic and Social Affairs (UNDESA), 2007], and for wellbeing measurement [Organisation for Economic Co-operation and Development (OECD), 2011]. See section Wellbeing Accounts in Critical Summary.

A number of synthesis frameworks have considered the links between poverty and needs with ecosystem services (Duraiappah, 2004; Agarwala et al., 2014; Roberts et al., 2015; Schleicher et al., 2018). The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) developed a groundbreaking conceptual framework of "nature and people," in Díaz et al. (2015), as a synthesis that seeks to broaden from poverty to more generalized wellbeing, and from ecosystem services to social and ecological systems. IPBES employ epistemological and ethical innovations through a systems thinking approach, that considers social and ecological components across scales, culture and time, and the key relationships between them. Díaz et al. (2015) describe the six main elements linking people and nature as: nature; nature's benefits to people; anthropogenic assets; institutions and governance systems and other indirect drivers of change; direct drivers of change; and good quality of life. The two key innovations of IPBES are, firstly, the expansion of ethical categories, from solely anthropocentric values to include ecocentric, by declaring nature's own intrinsic value[3]. Secondly, they employ a synthetic description of "good quality of life[4]" using a broad interpretation similar to the Millenium Ecosystem Assessment [Millennium Ecosystem Assessment (MEA), 2003], itself based on the "voices of the poor" by Narayan et al. (1999). The IPBES framework seeks deeper levels of integration, at the frontier of literature on sustainable wellbeing, by richer descriptions of wellbeing, and by enhancing the systems and ethical framings of sustainability.

The levels of integration in the sustainable wellbeing literature are vastly different, from excluding the environment in standard wellbeing literature, to shallow integration by including it as a resource to be exploited, to deep integration in the transdisciplinary synthesis of Diaz et al. Raworth's doughnut has been criticized for shallower integration, by artificially separating the environment as an ecological ceiling -a resource for consumption in development- and also for arbitrarily selecting factors in its "social foundation" (Krauss, 2018). It is also important to question if conceiving wellbeing, based on needs, is sufficient? The IPBES (Díaz et al., 2015) provides a deeper integration of nature and environment, and does not rely solely on needs, yet prompts the question could the wellbeing description based on Narayan et al. be further enriched?

Objectives, Approach, and Structure of the Article

The IPCC Fifth Assessment Report (Fleurbaey et al., 2014) concluded that decoupling human wellbeing, from economic growth and consumption, is the strongest form of transition to SD. Pioneered as the "double dividend," to achieve improvement in wellbeing alongside a reduction in consumption by Jackson (2005), Rogelj et al. (2018) noted that the concept is crucial to sustainability transition/transformation, and shows more synergies than tradeoffs. Despite the evident merit and opportunities, conceptual literature, that integrates sustainability and wellbeing, remains embryonic. Persistent ambiguity in the characterisation of wellbeing in sustainability will hamper the task of transition. Recognizing the disconnect between contemporary sustainability and wellbeing concepts -in the weak conceptualisation of wellbeing in sustainability, and the lack of inclusion of sustainability in wellbeing- this review seeks to provide deeper transdisciplinary integration. As is defining of sustainability, Halsnæs et al. (2007), emphasize that transdisciplinary outcomes are holistic, weaving knowledge from a number of existing disciplines, into new concepts and methods,

[3]A major distinction is adopted between *intrinsic values* and *anthropocentric values*, both of which have *existence value* and *future-oriented value*.

[4]Defining good quality of life as: "A perspective on a good life that comprises access to basic materials for a good life, freedom and choice, health and physical well-being, good social relations, security, peace of mind and spiritual experience" (Díaz et al., 2015).

to address the many facets of sustainable development, as per Munasinghe (2002)[5].

Section Introduction and Background has characterized the wider concept of sustainable development, highlighted the conceptual literature on human wellbeing, and discussed current literature that seeks some form of integration of "sustainable wellbeing." Section Contemporary Accounts of Wellbeing considers the major approaches to human wellbeing, across the social science literature, including notable implications for sustainable development. The accounts included for discussion are in line with the standard approaches noted by Parfit and Mackerron/Dolan et al. accounts that are already found in sustainable wellbeing literature. The literature review of section Contemporary Accounts of Wellbeing demonstrates that at least three further branches of wellbeing conceptual literature have emerged in the last two decades: hybrid accounts from psychology, in "wellbeing research," and "wellbeing science"; accounts from the study of physical health and "wellness"; and advances in philosophical discussion on the concept of wellbeing. These three branches of literature neither fit neatly into the classifications of Parfit or Mackerron, nor have they featured in the existing literature of sustainable wellbeing, and are therefore included for completeness. Section Synthesis and Discussion provides a synthesis that seeks to integrate the concept of sustainability, as discussed in section Introduction and Background, with that of human wellbeing, as discussed in section Contemporary Accounts of Wellbeing. Section Conclusion concludes the review by emphasizing the modes to deepen integration, and the broad implications for future research and policy, of an integrated concept of "sustainable wellbeing."

CONTEMPORARY ACCOUNTS OF WELLBEING

The following section considers the standard approaches to wellbeing in the literature, as per Parfit or Mackerron, supplemented with recent advances in psychology, physical health and in wellbeing philosophy. This section also scrutinizes key conclusions on each wellbeing account, through the sustainability lens, where available in the literature.

Preference Satisfaction and Desire

It is broadly accepted, across development, and welfare economics, that there is an important contributory role for physical resources and income, in support of welfare, particularly in the case of poverty and deprivation (Agarwala et al., 2014). While thinkers such as Pigou emphasized the importance of income and wealth to welfare, this has also been contested. Marshall's concept of "economic welfare," from 1890, specifically discussed "wellbeing" and recognized the central role of immaterial "goods," such as nature and social relations (Marshall, 2009). To simplify complexity, and enable quantitative analysis, Marshall proposed a compromise. This prioritized the "material requisites of wellbeing," where "efforts" and "wants" are measured through the proxy of money. The related "preference satisfaction" account of wellbeing has come to dominate orthodox neo-classical economics (Roberts et al., 2015). It articulates wellbeing as the freedom and resources to meet one's wants and desires, sometimes referred to as "desire fulfillment theory." This is core to the theoretical and ideological platform that advocates economic growth, yet the compromise of Marshall remains problematic.

Contemporary measurement and analysis of welfare has involved income, material resources, and psychological states. All three of these approaches have been described as too narrow (Sen, 1985; Fleurbaey, 2009). Fleurbaey and Blanchet (2013) recommend "equivalent income" allowing comparison of individuals functioning, by placing money values on the important dimensions of life that are not priced in the market. Yet the challenge of the "fetishising of resources and money" (Sen, 1982), remains an ongoing tension in economic welfare (Fleurbaey, 2015). Marshall's "law of diminishing marginal utility" was preceded by general discussion of the damaging effects of consumption, persistent since the Ancient Greeks, as it can undermine the balance of the individual, and threaten society (Dodds, 1997). This is particularly problematic for preference satisfaction, as its organizing principle is consistent with driving unlimited desire for income and consumption, a principle that has major consequences for individual, collective and planetary wellbeing.

While recognizing empirical innovations, as an account of wellbeing, preference satisfaction is subject to many challenges. Fleurbaey et al. (2014) note empirical controversies in the relationship between subjective well-being and income, including the "Easterlin paradox[6]". Heathwood (2016) emphasize that desires can be manipulated, malicious, unwanted or ill-informed. Kahnemann concludes that awareness of the impact of our preferences on wellbeing is frequently limited (Kahneman, 1997), and Dolan et al. note that we are even less likely to be informed of the impacts on others (Dolan et al., 2006b). It has been submitted that preference satisfaction is not a model of well-being, as it is indirect and relegates it to equivalence with quantitative economic welfare [New Economics Foundation (NEF), 2008]. It is on this basis that Agarwala et al. (2014) propose that the concept of "wellbeing" has emerged largely in response to the inadequacy of uni-dimensional and monetary examinations, to describe the human condition. Two key alternatives in development and economics, are human needs and the capability approach.

[5] Choi and Pak (2006) provide useful distinctions of multidisciplinary, interdisciplinary, and transdisciplinary, as additive, interactive, and holistic, respectively. In discussions of SD, Munasinghe (2002) and Halsnæs et al. (2007), emphasize that a holistic transdisciplinary meta-framework is necessary for SD. In terms of wellbeing, Rojas (2009) recommended that it requires a transdisciplinary, or least interdisciplinary approach (see also Describing Multidimensional Human Wellbeing).

[6] The "Easterlin paradox" arises from a body of literature finding little or no relationship between subjective well-being and the aggregate income of countries, but within countries, people with more income are happier (Easterlin, 1973). These insights have been used to question whether economic growth should be the primary goal of development.

Human Needs, Basic, and Fundamental

Human needs have a long heritage in western philosophy, two notable contemporary accounts can be found in "Basic Human Needs" and "Fundamental Human Needs." These have common roots in the work of Maslow, a theory of human motivation from psychology based around a hierarchy of needs; physiological, safety, love, esteem, and self-actualisation (Maslow, 1943). Maslow's theory was later amended to place self-transcendence as a motivational step beyond self-actualisation (Maslow, 1969), and the collected works have been influential not only on psychology and sociology, but on development and economics. Drawing on Maslow, and on Rawl's theory of justice (Rawls, 1971), the basic needs movement of the 1970's and 1980's, was influential in international development policy. It was effective in platforming the moral and political argument to address poverty, in the form of core physiological needs for food, water, shelter and clothing (McGregor, 2014). This found expression in the Brundtland definition of SD, rooted in essential needs [World Commission on Environment and Development (WCED), 1987].

Basic needs analysts have insisted that non-material, as well as material needs, must be included, but in practice basic needs has focused primarily on material goods and services (Stewart, 2006). Sen is critical of what he saw as "commodity fetishism" in basic needs (Sen, 1984), giving "a meager view of humanity" (Sen, 2004). Basic needs have attempted to consider opportunities for a full life (Clark, 2006), yet they have receded as the capability approach (CA) became more dominant. The CA seeks to address all levels of development, rather than just poverty (Reader, 2006). Grix and McKibbin (2016) contend that needs are useful as accounts of wellbeing, but are critical of where they are defined by survival and harm avoidance as the ends. They propose that wellbeing and flourishing are more appropriate ends, and that needs are proxies that have different normative weight.

A distinct move away from hierarchies occurred with Allardt (1976), who defined wellbeing through satisfaction of non-hierarchical needs, in three groups: having, loving and being[7]. This appeared to influence Max-Neef's work on Human Scale Development (Max-Neef et al., 1989), describing nine non-hierarchical "fundamental human needs[8]". These needs occur in four flexible existential categories of: being, doing, having and interacting, allowing the means to satisfy needs to be defined by culture and individual circumstance. Max-Neef proposes the nine fundamental needs as finite, few and classifiable, the same across all cultures, and in all historical periods. Common to needs-based approaches, this questions the reductive and insatiable economic "wants" in conventional preference satisfaction.

Fundamental human needs can be described as "objective lists" of wellbeing. Objective lists can be attractive as they are both intuitive and supported by theory (Fletcher, 2016). Evidence from empirical study of life evaluation and subjective wellbeing (SWB) has offered support to needs accounts (Kingdon and Knight, 2006; Tay and Diener, 2011)[9]. Needs have received challenge from liberal concerns about elitism and paternalism, perceiving that as the constituents of wellbeing are prescribed, it demotes the ability to freely define one's own account. Yet wellbeing philosophers have argued that such objective lists are no more a theory of what people ought to have for their wellbeing, than hedonism or desire fulfillment, and can be combined with the most stringent of anti-paternalism conditions (Fletcher, 2016; Crisp, 2017).

The Capability Approach

The social indicators movement of the 1960's gave rise to concern for multidimensional outputs, as objective lists, as opposed to inputs such as income. This movement sought to consider wellbeing independently of subjective individual happiness or desire fulfillment (Angner, 2016). In line with this flux, Sen's CA, (Sen, 1985, 1992), was developed from welfare economics as the leading alternative framework for thinking about human development (Clark, 2006). It emerged from increasing criticism of economic growth as a means to secure increases in wellbeing (Qizilbash, 1996), and also of the perceived incompleteness of the needs-based and "happiness" accounts. The CA is concerned with valuable doings and beings, and is often presented as an intermediate between the narrow resourcist (material) and hedonic (pleasure and pain) accounts. It seeks to account for all of the relevant dimensions of life, as mental and physical states conceived through freedom (Sen, 1985; Fleurbaey, 2009; Fleurbaey and Blanchet, 2013). The CA has the basic proposition that we should evaluate development and progress on what people are effectively able to do and be, as '*the expansion of the "capabilities" of people to lead the kind of lives they value—and have reason to value*' (Sen, 1999). The approach differentiates potential and achievements, where *capabilities* describe potential functionings, and *functionings* are actual achievements[10], with the freedom to define valuable doings and beings at its core.

In an attempt to elaborate, Nussbaum (2005) specified a list of 10 core human capabilities that are argued as fundamental, universal entitlements to secure social justice (see **Table 1**). Yet only the possibility of achievements can be guaranteed, and only at minimum levels. This return to basic levels makes it "impossible" to develop a full theory of wellbeing that applies to all circumstances, not just situations of poverty and subsistence, according to Fleurbaey and Blanchet (2013). It was this challenge that led Sen away from needs, to "functionings" for all sorts of doings and beings, at any level of affluence and development,

[7]By material resources in *having*, by how people relate to each other in *loving* and by what an individual is and what he or she does in relation to society in *being*.

[8]Subsistence, Protection, Affection, Understanding, Participation, Idleness, Creation, Identity, and Freedom. See **Table 1**.

[9]In large multi-country study Tay and Diener (2011) examined the association of needs fulfillment and subjective well-being (SWB), finding that needs are indeed universal, with life evaluation most associated with fulfilling basic needs, and positive feelings associated with social and respect needs. Kingdon and Knight (2006) found that basic needs of education, health, employment and living conditions, are statistically significant determinants of happiness.

[10]The capability approach involves two key terms of "*functionings*" and "*capability sets,*" where functionings are described as the doings or beings of an individual, such as material consumption, health, and level of education. These can then be described by a functioning vector which an individual can choose to value (Sen, 1999). A capability set, is the set of potential functioning vectors that an individual can obtain, where functionings are achievements, and capabilities are opportunities.

that may matter in defining a flourishing life. Sen shunned a prescriptive list of capabilities, to facilitate definition in diverse social and cultural contexts, avoiding paternalism by placing agency centrally. The CA has expanded considerably, and has been refined since its inception, with much literature in support (Stiglitz et al., 2009). Challenges have been evident in the lack of specification which creates difficulties for empirical applications (Fleurbaey, 2009)[11]. Schokkaert (2009) suggests that many proclaimed applications appear to be merely studies of living conditions incorporating non-market data. But beyond these empirical difficulties, the challenges of "freedom" and sustainability are considerable.

To Sen, freedom is central to the conception of capabilities, yet the philosophical underpinnings of the related issues of individual freedom, agency and what we have reason to value, are criticized (Clark, 2006). In a world that demonstrates significant inequality, with uneven opportunity and unequal power, the exercising of an individual's freedoms can significantly limit the freedom of others, and even violate their rights. This returns to social justice accounts, as the actual full extent of freedom is therefore inevitably limited by this "negative freedom" (Qizilbash, 1996). Gasper (2002) requires a balance between the needs and freedom of the individual, with those of others, and also an appropriate account of the "reason" of what people value. Gasper and van Staveren (2003) require "freedom" to be anchored by justice and the value of caring for others. Deneulin and McGregor (2010) propose a reframing to include both an individual and social conception, from "living well" to "living well together." These criticisms can be related to Rawls first principle of justice: "*Each person is to have an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all*" (Rawls, 1971). The criticisms are consistent with Sen's earlier work, which itself emphasized the importance of democracy, respect and friendship. Yet Sen has been deliberately ambiguous, and this can be seen either as theoretical flexibility, or as a weakness[12]. The lack of guidance has led to its description as "more a paradigm than a well-defined theory" (Robeyns, 2003), indeed the CA does not fully resolve these issues, and does not attempt to. Sen's more recent work has conceded that equality matters apart from capabilities, and that the approach does not provide a full theory of justice (Sen, 2009).

The considerable challenge of negative freedoms in the social dimension, also has major implications for the environmental dimension. The expansion of individual capabilities threatens both equality and environmental sustainability. An expansion of the capabilities of "having," in increased material consumption and its related environmental pressures, has major implications across generations and for the natural world. This is clearly illustrated by global heating and ecological breakdown, which have chiefly been driven by the high consumption of the more affluent. Anand and Sen (2000) attempt to rectify this with a concept of "*integrated sustainable human development*" to address both the claims of the present, and of future generations, to a "generalized capacity" of the environment to produce wellbeing. However, natural capital is not perfectly substitutable [European Environment Agency (EEA), 2015], and "planetary boundaries" cannot be transgressed if the capacity for capabilities are to be transmitted to future generations (Häyhä et al., 2016). Adopting an unspecified "generalized capacity" runs into major difficulties, when it is recognized that the natural world underpins both survival and wellbeing. Consequently, it will be necessary to constrain peoples' combinations of functions in some way to reconcile capabilities with sustainability (Peters et al., 2015), aware of the problems of an absolute freedom. Fleurbaey and Blanchet (2013) suggest that the main message of the CA is to avoid narrow evaluations of individual wellbeing. It is neither a theory of wellbeing, nor of sustainability, and in response to this, Gasper (2002) recommends that capabilities focus on measuring of personal advantage.

Happiness Studies: Hedonic and Evaluative

Under the umbrella of happiness studies, both psychologists and economists have increased interest in subjective mental states. Happiness is an ambiguous concept associated with the field of positive psychology, and is often used as a catchword for subjective wellbeing (SWB) (Fleurbaey et al., 2014). Diener and Seligman (2004) describe how happiness itself can measure pleasure, life satisfaction, positive emotions, a meaningful life or a feeling of contentment among other concepts, as individual self-reported measures. Prominent among these are measures are "hedonic" indicators of current feelings -of positive and negative affect- and the "evaluative" judgement of satisfaction with life as a whole. A seminal contribution was made by Diener, through the model of SWB, which incorporates cognitive judgments of satisfaction and affective appraisals of moods and emotions (Diener, 1984).

The World Happiness Report (Helliwell et al., 2012) characterized happiness as a subjective experience, but one that can be objectively measured and analyzed, related not only to individual characteristics and objective circumstances, but to those of the wider societal context. Within the Report, Layard et al. (2012) looked at external factors (income, work, community, governance, values and religion) and "personal" factors (mental health, physical health, family, education, gender, and age), concluding from 30 years of happiness research, that while income is important, particularly for those experiencing poverty, it has limits in its contribution to average global wellbeing. They re-asserted the "diminishing marginal utility of income," and that the results of both life satisfaction and SWB show a greater contribution of other determinants: social support; health; freedom; and the place or absence of corruption. Sachs (2016) examined the relationship of economic freedom (libertarianism), wealth generation (consumerism) and

[11] While functionings may be more straightforward, measuring capabilities as pure potentialities are not. In addition, attaching an appropriate system of weights is problematic.

[12] According to a "politically liberal" approach, the CA is required to respect individuals' sovereignty, by ceasing to evaluate advantage, and support removing unfreedoms and providing general purpose freedoms. On the other hand, a "perfectionist" approach needs to specify and justify its theory of value. See Wells (2013).

SD (holism), to global happiness[13] SWB data for 119 countries. Sachs concluded that it is SD that is statistically significant in determining happiness, and this was bolstered by recent study that highlighted social safety nets and public health among key factors (Richardson et al., 2018).

While happiness is climbing up the ladder of priority for research and public policy, debate, and criticism frequently point to: conceptual challenges, as wellbeing requires more than happiness or hedonism[14] (Sen, 1985; Fletcher, 2016); measurement difficulties and biases toward hedonic wellbeing (Fleurbaey and Blanchet, 2013); and the phenomenon of psychological adaptation (Fleurbaey, 2009; Stiglitz et al., 2009). As individuals undergo adaptation to circumstances, this means that self-report measurements can be somewhat immune to actual life conditions, leading to concerns about social justice where objective inequalities are hidden.

Psychological Wellbeing and Flourishing

The "flourishing" accounts focus on ways of "living well," or the "good life," for an individual to reach full potential. Different branches identify wellbeing with characteristics of life such as, engagement, meaning, virtue, and authenticity [New Economics Foundation (NEF), 2008]. Flourishing is classically related to Aristotelian theory of human good, the "perfectionist" account, holding that virtue or excellence are closely tied to human nature, and that flourishing involves engaging in activities that exercise these. This "eudaimonic" living, in perfectionist accounts, has been challenged for potentially excluding pleasure and preferences, and concerns of elitism. Yet Bradford (2016) notes that flourishing accounts can function either as a theory of value, or as a theory of wellbeing, and therefore can be calibrated to address these concerns. Contemporary psychological wellbeing, in "wellbeing science," clarifies that flourishing and perfectionism are not the same.

"Wellbeing science" refers to a more broad concept than "happiness," incorporating both hedonia and eudaimonia as distinct concepts that are mutually supportive (Kashdan et al., 2008; Huta and Ryan, 2010). "*Hedonia*" is linked to the Benthamite tradition of desiring pleasure and avoiding pain, and classically to Epicurus. The hedonic perspective suggests that maximizing pleasure and avoiding pain is the pathway to happiness (Henderson and Knight, 2012). While classically related to Aristotelian theory, "*eudaimonia*," in wellbeing science, is described as having associations with goals, particularly those related to intimacy rather than power, and also associations such as flow, altruism, and helping and autonomy. Henderson and Knight (2012) describe eudaimonia as directed toward living a life of virtue, actualising one's inherent potentials, personal growth and meaning. While these are distinct and contribute to wellbeing in unique ways, they are also highly related (Huta and Ryan, 2010). Empirical results from numerous studies reviewed by Kashdan et al. (2008), show, that in general, eudaimonia is not simply linked to a qualitatively different kind of happiness, but quantitatively to higher levels of hedonic wellbeing. Henderson et al. (2013) argue that increasing both hedonistic and eudaimonic behaviors may be effective in both increasing wellbeing and reducing psychological distress.

In applied psychology, these philosophies have been incorporated, the resulting approach has sought to move from an approach to mental health that is pathological, dealing with mental health problems, to deal with "positive mental health" (Seligman and Csikszentmihalyi, 2000). Positive mental health includes a psychological concept of "*flourishing*[15]" (Huppert, 2009), where wellbeing is defined as more than the absence of disorder. The theoretically derived dimensions of positive psychological health include; Self-acceptance, Positive relations with others, Autonomy, Environmental mastery, Purpose in life, and Personal growth (Ryff, 1989). The seminal work of Ryff, on scales of Psychological Well-Being, is the most widely used measure of positive psychological functioning. Keyes (1998) went a step further by explaining that while psychological wellbeing represents the necessary private and personal criteria, social well-being epitomizes the public and social. The social dimensions consist of social coherence, social actualisation, social integration, social acceptance, and social inclusion. Individuals can then be described as functioning well: when they see society as meaningful and understandable; that society possesses the potential for growth; when they feel they belong to and are accepted by their communities; when they accept most parts of society; and they see themselves as contributing to society. This transcendence of the individual, in the individual-society description of Keyes, can be seen in Adler and Seligman's concept of personal, societal and institutional "flourishing" (Adler and Seligman, 2016), and also in the new field of "wellbeing research," illustrating that a systemic social perspective is emergent.

"Wellbeing research," with roots in wellbeing philosophy and psychology, has pioneered an innovative holistic representation of individual wellbeing. It addresses difficulties noted in the philosophical separation of "hedonic" and "eudaimonic" living, and encompasses external and relational life domains. These are termed "*wellbeing pathways*" (Huta and Ryan, 2010; Henderson and Knight, 2012), "*full-life*" or "*integrated pathways*" (Waterman, 1993; Seligman et al., 2004; Peterson et al., 2005; Huppert and So, 2009). Delle Fave et al. (2011) refine this as "*integrated wellbeing pathways,*" as combinations of hedonia, eudaimonia and engagement activities[16] that lead to higher overall wellbeing; physically, psychologically, socially, and in terms of flourishing, such as growth and fulfillment. Endorsed by Henderson and Knight (2012) for

[13] Sachs (2016) refers to religious and secular traditions to highlight six dimensions of happiness: mindfulness; consumerism; economic freedom; the dignity of work; good governance and social trust.

[14] The "experience machine" is a common theoretic objection to the hedonistic view that only pleasure contributes to wellbeing. Nozick (1974) attempts to show that there is something of value other than pleasure, by imagining a machine that could give us whatever pleasurable experiences are desired. This prompts the question, would we prefer the machine to real life?

[15] "*Flourishing*" in psychological wellbeing may be defined variously as fulfillment, purpose, meaning, or happiness (Horwitz, 2002). The influential work of Keyes (2002) incorporates the main components of emotional, psychological, and social well-being.

[16] Engagement is equated with "flow," as a state characterized by intense absorption in one's activities (Csikszentmihalyi, 1997).

further wellbeing research, Delle Fave et al. (2011) define pathways by outlining 11 different life domains: work, family, standard of living, interpersonal relationships, health, personal growth, spirituality/religion, society issues, community issues, leisure, and life in general. Among the life domains, the social and relational feature prominently, and the relatively overlooked dimension of harmony/balance, constitutes an important aspect of lay people's conceptions of happiness. In a study of Eudaimonic and Hedonic Happiness Investigation (EHHI) of citizen definitions of happiness, across 12 nations, results showed that inner harmony[17] predominated among psychological definitions, and family and social relationships among contextual definitions (Delle Fave et al., 2016).

Similar to happiness studies, it is important to consider potential limitations in measurement difficulties, biases and psychological adaptation. Wellbeing pathways may also benefit from directly considering nature-environment, as this is currently not included as a life domain. Nonetheless, they provide unique holistic perspectives on individual wellbeing, integrating hedonic and eudaimonic wellbeing, and considering the social, relational and external. They also address an overlooked consideration in happiness studies, which exclude harmony and balance[18], which could potentially be a bias of significant importance. Wellbeing pathways note that achieving a balance between different needs, commitments and aspirations may be more important to wellbeing than simply "having more" (Henderson and Knight, 2012; Delle Fave et al., 2016), providing an important overlap with SD and addressing over-consumption.

Physical Health and Wellness

A strong connection between physical health and broader wellbeing is frequently assumed. Although adaptation may occur to many life changes[19], physical pain and psychological problems are exceptions in studies of SWB (Kahneman, 2003; Krueger and Stone, 2008; Fleurbaey, 2009). A priority on pathology can be intuited from utilitiarian and justice perspectives, but on its own this may constitute a "meager view." In contrast, Larson (1999) conceptualizes physical health according to three different models: the *medical model;* the *WHO model;* and the *wellness model*. Whereas, the medical model pertains to pathology, the other two models are strikingly different, focusing on wellbeing rather than ill-health. The WHO model refers to a state of complete physical, mental, and social well-being [World Health Organisation (WHO), 1946], and the *wellness model* involves progress toward to higher functioning, energy, comfort, and the integration of mind, body, and spirit. The latter two models constitute a shift toward a hybrid account, by flourishing and objective list, with wellbeing *a priori* as the objective. They also show that physical and psychological wellness are protective against pathology. A variety of wellness models, from the 1960's onwards, are reviewed by Oliver et al. (2018), noting that while the dimensions may differ, they are consistently holistic and multidimensional, recognizing the importance of balance and the interrelatedness of the individual with the external environment.

Naci and Ioannidis (2015) are critical that most medical research continues to address the effectiveness of drug interventions, and that little is known about the causes of "wellness." They describe "healthy" people as differing vastly in terms of wellness; whether their life is filled with creativity, altruism, friendship, and physical and intellectual achievement. In response, they propose an agenda for "wellness research" that addresses gaps in knowledge on diverse and interconnected dimensions of physical, mental, and social well-being. Similar to the re-casting of psychological wellbeing that has occurred, this nascent effort offers a distinct opportunity to re-frame physical health, as more than survival or absence of disease, but as positive flourishing of wellbeing.

SYNTHESIS AND DISCUSSION

Wellbeing Accounts in Critical Summary

Wellbeing has been a major theme throughout the history of moral philosophy, and recently, it has become the subject of increasing empirical investigation, particularly in the social sciences of psychology and economics. To arrive at an integrated concept of "sustainable wellbeing" it is useful to consider the existing contemporary approaches to human wellbeing. Theoretical and applied fields have sought description: by satisfaction of preferences and needs; functioning by capabilities; psychological and physical health (by subjective self-evaluation and objective measurement); and by determination of objective lists. These accounts have typically focussed reductively on the individual, or their aggregate sum, facilitating discipline and context-specific knowledge, often to enable quantitative analysis. In order to distinguish alternative accounts, the "philosophy of well-being" has provided a useful lens, to seperate "substantive" claims -what constitutes wellbeing- and "formal" claims -what makes it "good" in terms of normative, or prudential value (Grix and McKibbin, 2016).

Section Contemporary Accounts of Wellbeing illustrated that preference satisfaction, basic needs, capabilities, and happiness studies all contribute useful insights. They can also be complimentary, triangulating different perspectives on the same problem. Yet these approaches do not provide holistic theories of wellbeing in themselves, and usually do not purport to. Preference satisfaction and desire theories aid understanding of the contribution of economic welfare, but are subject to criticism for being indirect, with too many prudential goods and fetishising resources and money. Basic needs encourages the normative focus on poverty and inequality, and critique of consumption, but is criticized for being hierarchical and narrow in fetishising resources. Capability theory has been influential in prioritizing functioning, but is criticized for being under-specified, fetishising freedom, and for incompleteness relative to

[17]"Harmony," the most frequent subcategory within the psychological definitions of happiness, included the components of inner peace, inner balance, contentment, and psychophysical well-being (Delle Fave et al., 2016).

[18]Delle Fave et al. (2016) discuss the importance of harmony and balance in happiness across all countries, while noting that there are cultural and age related differences in the degree of identification of happiness with high arousal positive affect (HAP: excitement, euphoria, enthusiasm) and with low arousal positive affect (LAP: serenity, peacefulness, tranquility).

[19]Psychological adaptation can occur to some changes in objective life conditions. It can also occur for health changes that affect our capabilities (Schroeder, 2016).

TABLE 1 | Key "objective list" accounts of multidimensional human wellbeing.

Account	Human scale development	Central capabilities	Happiness studies	Psychological wellbeing	Wellbeing research	Wellness and health
Primary discipline	Economics	Economics	Psychology	Psychology	Psychology	Physical health
Dimensions, constituents and domains	Subsistence, protection, affection, understanding, participation, leisure, creation, identity and freedom.	Life; bodily health; bodily integrity; senses, imagination, and thought; emotions; practical reason; affiliation; other species; play; and political and material control over one's environment.	Income, work, community, governance, values and religion, mental health, physical health, family experience, education, and gender and age.	Self-acceptance; quality ties to others; sense of autonomy in thought and action; ability to manage complex environments; pursuit of meaningful goals; sense of purpose in life; and continued growth and development as a person.	Work, family, standard of living, interpersonal relationships, health, personal growth, spirituality/religion; society issues, community issues, leisure and life in general.	Mental well-being; social wellbeing; physical wellbeing; spiritual wellbeing; activities and functioning; personal circumstances; and global wellbeing.
Wellbeing frame	Objective list of needs	Objective list of capabilities	Subjective and objective indicators	Subjective evaluation	Subjective evaluation	Subjective and objective indicators
Nature and ecosystem services	Not clear, implies ecosystem services to humans	Other species	Not included	Not included	Not included	Not included
Source	Max-Neef et al. (1989)	Nussbaum (2005)	Layard et al. (2012)	Ryff (1989)	Delle Fave et al. (2016)	Linton et al. (2016)

Account	IPBES nature-people connections	Economic Performance and Social Progress	United Nations Commission on Sustainable Development (CSD)	OECD Better Life
Primary discipline	Transdisciplinary sustainability science	Economics	Interdisciplinary sustainability science	Economics
Dimensions, constituents and domains	Access to food, water, shelter, health, education, good social relationships, physical, energy and livelihood security, equity, cultural identity, material prosperity, spiritual satisfaction, freedom of choice, action and participation in society.	Material living standards (income, consumption, and wealth); health; education; personal activities including work; political voice and governance; social connections and relationships; environment (present and future conditions) and Insecurity, of an economic as well as a physical nature.	Poverty, Governance, Health, Education, Demographics, Natural hazards, Atmosphere, Land, Oceans seas and coasts, Freshwater, Biodiversity, Economic development, Global economic partnership, Consumption and production patterns.	Health status; work and life balance; education and skills; social connections; civic engagement and governance; environmental quality; personal security; income and wealth; jobs and earnings; housing; and subjective wellbeing.
Wellbeing frame	Integrated conceptual framework of nature and people	Objective and subjective indicators	Objective indicators of SD	Objective and subjective indicators
Nature and ecosystem services	Integrates both nature and ecosystem services to humans	Ecosystem services to humans	Includes nature and ecosystem services to humans	Ecosystem services
Source	Díaz et al. (2015)	Stiglitz et al. (2009)	United Nations Department of Economic and Social Affairs (UNDESA) (2007)	Organisation for Economic Co-operation and Development (OECD) (2011)

justice and sustainability. Happiness studies has been lauded for promoting self-evaluated outcomes, but are criticized for having too few good makers, as it is limited to hedonia, and also for being open to biases and blindspots.

In contrast, Fletcher (2016) and Grix and McKibbin (2016) point to the advantages of beginning with objective list type approaches. Objective list accounts offer advantages for description of sustainable wellbeing, enabling the kind of descriptive holism, flexibility, and integration, that are necessary to bridge social and natural sciences, in a transdisciplinary sustainability science. Holistic description is necessary for characterisation, and/or generalization, and objective lists can combine this holism with a flexibility for different values, across individuals and cultures. They can avoid the problems of too many or too few good makers, can be appropriately supported by theory and evidence and can be subjected to public deliberation.

Objective lists are analogous to "multidimensional wellbeing," described by a variety of accounts in **Table 1**. The table characterizes the conceptual accounts[20] discussed in section Contemporary accounts of Wellbeing: human scale development (needs); central capabilities; happiness studies; psychological wellbeing; wellbeing research (psychological wellbeing and flourishing); and wellness and health. The table also includes the conceptual accounts discussed in section Introduction and Background (IPBES and Stiglitz-Sen-Fitoussi), supplemented with indicator initiatives from the UN Commission on Sustainable Development and the OECD, to enhance supporting illustration. The table presents the dimensions, constituents or domains that are listed under each account, and notes whether they enumerate nature or ecosystem services, to demonstrate the gaps in interpretation emphasized throughout this review. As background information, the table also notes the source, primary discipline and the "wellbeing frame." The wellbeing frame considers defining characteristics of each account, emergent from the review in section Contemporary Accounts of Wellbeing: whether objective or subjective assessment is included; and whether the account is intended to list dimensions, to provide a conceptual framework, or to support indicator development. **Table 1** does not seek a definitive universal interpretation of sustainable wellbeing, but offers support to the further interpretation required in applied contexts.

Describing Multidimensional Human Wellbeing

Using a multidimensional wellbeing concept, as an "objective list," is consistent with recognizing it as a complex phenomenon [Millennium Ecosystem Assessment (MEA), 2003; Waterman, 2008], understood broadly across the domains of life, similar to Easterlin (2006), and requires a transdisciplinary or at least interdisciplinary approach (Rojas, 2009). A multidimensional concept of wellbeing is supported, not only by an ancient heritage of philosophical discourse[21] (Varelius, 2013; Angner, 2016; Sachs, 2016), and by a variety of needs, capability, happiness, quality of life, social progress, psychology, and physical wellness approaches, but by contemporary conceptual discussion (Alkire, 2002; McGillivray, 2007; Fletcher, 2016) empirical results (Tay and Diener, 2011; Layard et al., 2012; Sachs, 2016), expert panels [Millennium Ecosystem Assessment (MEA), 2003; Stiglitz et al., 2009], citizen deliberation and participation (Delle Fave et al., 2011, 2016) and in the holistic new "science of wellbeing[22]" (Huppert et al., 2005). In **Table 1**, the descriptions of the dimensions of wellbeing show variations related to the specifics of discipline, aims, and context. Yet, there is also significant complementarity and overlap, which potentially enables generalization and blending. Conceptual discussion commonly concludes that wellbeing has both objective and subjective dimensions, and that relational dimensions are central to understanding (Huppert et al., 2005; McGregor, 2008; Stiglitz et al., 2009; Agarwala et al., 2014; Díaz et al., 2015).

Social and relational factors are repeatedly found to be crucial to individual wellbeing (Keyes, 2002; Huppert, 2009; Tay and Diener, 2011; Naci and Ioannidis, 2015) but are also to related societal wellbeing (Helliwell and Putnam, 2004; Delle Fave et al., 2011, 2016; Bartolini, 2014; Bartolini and Sarracino, 2014). This conclusion is consistent with the results of studies in behavioral economics, neuroscience and in evolutionary biology, as humans are now conceived of as profoundly prosocial (Jensen et al., 2014)[23]. The emergence of the importance of social and relational factors, beyond the reductive individual, is a key finding from the review across the disciplines in this article. It is consistent with the bio-psycho-social model, endorsed by the WHO since the 1940's, but rarely actualised in practice (Delle Fave et al., 2016).

An important conclusion from sustainability is that the relational dimensions involve society but also people-nature connections (Díaz et al., 2015). The individualist approaches have often reductively downplayed society (Kjell, 2011), but crucially for sustainability, they frequently avoided consideration of ecosystems, the environment and nature entirely. The importance of the "sustainability," "environment," "other species," "ecosystems," and "nature," has been noted (Nussbaum, 2005; Stiglitz et al., 2009; Helne and Hirvilammi, 2015; Roberts et al., 2015), yet applied accounts have placed less emphasis, or more frequently discounted them entirely. In wellbeing research, Delle Fave et al. (2016) provide a robust defense of the "ontological interconnectedness characterizing living systems," across conceptual frameworks, disciplines, and cultures, providing a platform to rectify this omission.

The "flourishing" concept, relatively common across psychology, and overlapping with the positive functioning of the wellness model -at the frontier of physical health- are of potential major significance for describing "sustainable wellbeing." In contrast to other accounts, flourishing and wellness are holistic and integrated in wellbeing dimensions, seeking to focus directly on the processes and outcomes of thriving multidimensional human wellbeing. From an individual locus, they can assist in the understanding of thriving, and also languishing and the complexities of poverty, across all levels of development. The increasing emphasis on interconnectedness of dimensions, and the importance of social wellbeing, can be observed in the personal, societal, and institutional flourishing of Adler and Seligman (2016). However, there remains a clear absence of nature and environment in these accounts. Kjell (2011) also argues that as the dominant approaches in psychology are methodologically individualist, a group-level perspective is absent. To describe sustainable wellbeing it is necessary to

[20] Noting that an elaborated account of preference satisfaction and desire is not relevant, as "satisfaction" and "desire" are themselves the 'dimensions' of interest in these approaches.

[21] Aristotle is often considered the archetypal objective-list theorist (Angner, 2016).

[22] The holistic psychological science of wellbeing includes physiological, psychological, cultural, social, and economic determinants (Huppert et al., 2005).

[23] Delle Fave et al. note the importance to the psychology of wellbeing of Baumeister's characterisation of humans as "cultural animals" (Baumeister, 2005). Despite differences in contents of goals and meanings across cultures, in this characterisation, humans pursue goals, and search for meaning in life events, in interpersonal relationships and in daily activities.

broaden and deepen integration, to ensure sociological and environmental dimensions are appropriately represented, and provide a comprehensive sustainability concept that recognizes and embraces system interdependence.

Deepening Integration, From Wellbeing Holism to a Systems Lens

The applied fields of wellbeing have been dominated by a reductionist focus on the individual, frequently tied to issues of measurement, and the links to SD have remained tenuous. In moving toward a concept of sustainable wellbeing, integration is crucial. This involves achieving holism across wellbeing dimensions, but also beyond the individual, to the systems that are interdependent with, and impacted by, our collective wellbeing paths. As SD is accepted as a complex systemic construct[24] (Halsnæs et al., 2007), describing a concept of sustainable wellbeing requires deeper integration. This involves moving beyond the individual to consider interrelated socio-ecological-economic systems (Lessmann and Rauschmayer, 2013; Díaz et al., 2015), from the local scale, up to planetary systems where aggregate sustainability impacts of human wellbeing paths are materializing. The understanding of the links between wellbeing and the economy has matured, yet as discussed, consideration of relational wellbeing with society is emergent, and relational wellbeing with environment and nature is embryonic. Synthesis can be achieved by integrating the social sciences of human wellbeing, and related social and economic systems, with the physical and sustainability sciences. The latter describe the environment and nature, and interrelationships with human systems at different levels. This process involves traversing from wellbeing theories, which are primarily methodologically individual, to sustainability science which is plural and systemic.

Dodds (1997), discussed the co-determination of social, economic and environmental systems, recommending the integration of wellbeing and sustainability using a holistic systems thinking approach. In the intervening years, the framework known under the loose term of "*Systems Thinking*" has emerged, as a transdisciplinary and synthetic response to the inability of normal disciplinary science to deal with complexity and systems—the challenges of sustainability (Halsnæs et al., 2007). This epistemological framework recognizes human, natural and combined systems, as interrelated in hierarchical structures that grow and adapt[25]. Applying sustainability science and systems thinking to wellbeing could support moving beyond the "decontextualised methodological individualism," described by McGregor and Sumner (2010) and Kjell (2011). This could facilitate the inclusion of both the psychological and sociological co-construction of wellbeing, and also of interdependent ecosystems and nature. This was approached by Díaz et al. (2015) as "nature-people connections" -an integrative systems approach, and by West et al. (2018) as embodied in "relationality," a set of normative, methodological, and ontological approaches that are distinct, and yet closely related.

West et al. (2018) expanded on "relational values" and "relational thinking," where relational values reflect a normative sense of connection or kinship with other living things, reflective and expressive of care, identity, belonging and responsibility, "relational thinking" is used in sustainability science. Relational thinking may be used methodologically to describe approaches insisting on mutual consideration of social and ecological entities, or, ontologically, to challenge the idea of foundational entities altogether, in processual accounts emerging through heterogeneous associations in flux. These relational approaches allowed West et al. (2018) to expand on "stewardship," the now popular term to describe action for sustainability (Bennett et al., 2018). Previously dominated by a focus on the responsible use of natural resources, West et al. articulated sustainability stewardship through the relational approach of "care": care as embodied and practiced; care as situated and political; and care as emergent from social-ecological relations. Notwithstanding these ontological and methodological innovations, toward holism, it is also imperative to recognize that the questions involved, in both sustainability and wellbeing, are also deeply normative. They cannot be resolved by empirical or quantitative methods alone, as they intrinsically involve issues of values and ethics[26].

Key Lenses to Assist Integrating Sustainable Wellbeing

SD has been alikened to "democracy," "freedom," and "justice," as norm-based meta-objectives (Sathaye et al., 2007), and wellbeing can be similarly described. Well-being and ill-being are acknowledged as complex and value-laden concepts, expressed and experienced as context- and situation-dependent, reflecting local, social and personal factors such as geography, ecology, age, gender, and culture [Millennium Ecosystem Assessment (MEA), 2003]. Ambiguity in these concepts facilitates appropriate contestation, and also allowed SD to act as unifying political meta-objective (Meadowcroft, 2000). However, as noted previously, while flexibility has been a key strength, it is also a critical weakness. In the practice of applied fields, it must journey from a vague value-based general concept, that wellbeing and sustainability are "good," to context-based implementation, particularly across governance and strategic public policy, but also in analysis. Without such a process, current dynamics likely render it meaningless or ignored, with opportunities lost and ethical issues hidden in an uncritical acceptance of the status quo. This process of bringing conceptual clarity has been alluded to in the philosophy of wellbeing as moving from "thin[27]" generalized description, to the "thick" description in specific contexts. From

[24]As per the review of Halsnæs et al. (2007), sustainability is now perceived as an irreducible holistic concept, where economic, social, and environmental issues are interdependent dimensions that require a unifying framework.

[25]This theory is based on the idea that systems of nature and human systems, as well as combined human and nature systems and social-ecological systems, are interlinked in never-ending adaptive cycles of growth, accumulation, restructuring, and renewal within hierarchical structures (Holling et al., 2002).

[26]In the context of wellbeing measurement, Alexandrova (2017) describe the task as involving "mixed claims," noting concerns that this can import implicit views. This involves a danger of paternalistic coercion, by excluding what citizens value, in mutual trust, sustainability of lifestyle and justice.

[27]"Thinner" descriptions tend to be more abstract, objective, and universal, while "thicker" descriptions are more detailed in a particular individual or cultural context. For further discussion see Grix and McKibbin (2016).

the synthesis of the two branches of literature, of sustainability, and wellbeing, four lenses fundamental to sustainable wellbeing are surfaced: the framing of growth and change (for flourishing wellbeing and natural world); social justice (in poverty and equity); the ethics of freedom (and how it is balanced); and the value of nature (intrinsic and instrumental).

The Framing of Growth and Change: For Flourishing Wellbeing and Natural World

Growth and change are defining phenomena of human wellbeing, and of the natural systems that underpin sustainability. Since the industrial revolution, exponential growth in the global economy, and in human population, have exerted increasing pressure on natural systems. More specifically, the spread of higher material consumption amongst the affluent is a "mega-driver" of global resource use and environmental degradation (Assadourian, 2010; Häyhä et al., 2016). This path of pursuing human wellbeing, through a constellation of proliferating consumerism, economic growth and increasing inequality, has driven "over-consumption" (Fleurbaey et al., 2014). The resulting damages, to human wellbeing and ecosystems, have defining implications for the categories that follow in section Key Lenses to Assist Integrating Sustainable Wellbeing -equity, freedom, and nature. Yet a continuation of these historically observed development paths is not inevitable. Following from "systems change" theory (Holling et al., 2002), alternative forms of growth, accumulation, restructuring, and renewal are possible in people-nature systems. In keeping with systems change theory, alternative development paths could be framed by a flourishing of a holistic and integrated sustainable wellbeing, embracing relationships and harmony, within and across individual, society and nature. The framing of "flourishing" has been alluded to as fundamental to integration of sustainability and wellbeing (Ehrenfeld and Hoffman, 2013; Painter-Morland et al., 2017) while James (2017) describes sustainability as fundamental to human flourishing itself[28]. Rather than economic growth and consumption, a flourishing of a sustainable wellbeing offers a transformative reframing of growth and change.

Social Justice: In Poverty and Equity

Social justice remains a dominant concern of sustainability, from the framing of needs in Brundtland [World Commission on Environment and Development (WCED), 1987], to discussions of Rawlsian justice within and across generations in Anand and Sen (2000). In contrast, applied wellbeing has frequently shorn itself of these considerations, in search of a nominal "objectivity." As wellbeing includes normative assumptions and constructs, this entails major ethical concerns (Alexandrova, 2017). Wellbeing aspirations cannot be described as a replacement for income, the meeting of needs or equality in general. Nevertheless, the ability to live well, and physical and mental health are important to all people, including those in poverty, and can be preventative of pathology (Lyubomirsky et al., 2005; Huppert, 2009), while inequality is also known to markedly affect subjective wellbeing (Fleurbaey et al., 2014). How wellbeing is actually applied is therefore of great importance, so that it does not become a smokescreen to avoid addressing inequality and poverty (Hanratty and Farmer, 2012; Jenkins, 2016), or the necessary ethics of social justice encompassed by sustainability. In practice, a flourishing wellbeing description needs to also encompass provisions for poverty and equity.

The Ethics of Freedom: And How It Is Balanced

The ethics of freedom and autonomy return repeatedly in the ethics of wellbeing, as the imperative of freedom to determine what is the "good life," through individual autonomy, and also to choose the strategies to pursue it. Oft-repeated by thinkers such as Sen, this imperative led to silence in capability theory on further description. Yet freedom is practically and ethically limited by negative freedom (Deneulin, 2009). Sustainability science attests that the economic freedoms of the wealthy - and related power dynamics- increasingly foreclose the options of the majority, and of future generations, while consuming the natural world. If freedom is taken as an absolute, then the "commodity fetishism" criticized by Sen (1984), is replaced by "freedom fetishism," that serves the affluent and powerful. This prompts the equity-related question of "freedom for whom?" and elicits consideration of more than "living well individually," but "living well together" (Deneulin and McGregor, 2010). Achieving consensual definitions can be supported by public and expert deliberation in specific geographic and cultural contexts (Alexandrova, 2017). Practical responses to the autonomy problem include: beginning with "thinner" more universal descriptions; delivering participation when refining "thicker" descriptions in specific contexts; applying stringent anti-paternalism conditions; and also in practice, the balancing of freedoms and of social justice through institutions, public policy, markets, and cooperative arrangements.

The Value of Nature: Intrinsic and Instrumental

Sustainability science has shown the critical instrumental value of ecosystems to human wellbeing, across scales and time, and yet this is frequently divorced from consideration of wellbeing. Often categorized as "ecosystem services" [Millennium Ecosystem Assessment (MEA), 2003] and reflected in "planetary boundaries" (Steffen et al., 2015), sustainability science describes critical natural stocks that must be maintained for humanity (Neumayer, 2010). An important ethical distinction occurs in "anthropocentric" or human-centerd value, and "ecocentric" value, where nature is framed by its own worth (Washington et al., 2017), arising in indigenous philosophies as "Mother Earth." Díaz et al. (2015) note that a comprehensive and inclusive approach, across stakeholders, knowledge systems and worldviews, necessarily requires considering more than the instrumental or relational value of nature to human wellbeing, but inclusion of its intrinsic value[29]. Alexandrova (2017) noted the dangers of sneaking controversial values into wellbeing,

[28] James (2017) describes the "central capacities" for a flourishing social life in: vitality; relationality; productivity; and sustainability.

[29] Díaz et al. (2015) discuss intrinsic values as those inherent to nature, independent of human judgement, such as non-human species' inherent rights to exist, and that these are outside of the scope of anthropocentric values and valuation methods.

such as ignoring the place of social justice, and how this occurs in practice through the imposition of values, or inattention to their implications. This concern is equally valid in sustainability science, with major risks and ethical concerns, when an exclusive normative value of anthropocentrism is hidden. In response, Washington et al. (2017) discuss an ecocentrism that accepts humanity as part of nature, with both the power and responsibility to respect the web of life, and heal the vast damage to nature already evident.

CONCLUSION

The unfolding damage to the natural world, to planetary boundaries and risks to climate, require responses based not just on production efficiency and "green consumerism," but prompt fundamental reconsideration of wellbeing and sustainability. These primary global policy priorities are inextricably linked, yet the place of wellbeing in sustainability, and vice versa, remains underappreciated. Despite considerable overlap, they are invariably conceptually isolated. Sustainability and nature are rarely part of discussions of the social sciences of wellbeing. On the other side of this coin, in the concept of SD, the articulation of needs and wellbeing remains vague. Where limited integration has been attempted, it generally places the reductive individual of needs and preferences on one side, and the distant scale of the global environment on the other. Ambiguity in the concept of SD has had some procedural advantages, particularly at the global level, allowing freedom of definition across diverse circumstances, and has facilitated a unified political commitment. However, continuing to reproduce a lack of clarity at the applied level is at odds with providing wellbeing and sustainability in practice. Despite the imperatives, this receives little attention, creating major policy blind spots. This neglects opportunities to achieve win-wins and manage trade-offs, and puts wellbeing and sustainability at increased risk of failures. Reproducing the status quo also hides substantial ethical issues, vis-à-vis social justice and the value of nature.

This article has reviewed the major contemporary accounts of human wellbeing, synthesized with the frontier of knowledge in sustainability. It highlights that although many wellbeing accounts provide partial insights, these are often indirect or subject to limitations as descriptions of wellbeing. In contrast, the objective list accounts, occurring across a variety of disciplines, are more direct in describing a holistic human wellbeing. These multidimensional accounts are strongly supported, can provide improved conceptual clarity, and show notable overlaps and complementarity. Choosing the dimensions of the list involves conceptual and value judgements in specific contexts, a process that can be assisted by voluminous theory and evidence, and by deliberation through public and expert participation. A robust conclusion is the importance of the "relational" dimensions, in which social relationships and society are central, but with relationships to nature and SD as yet largely overlooked.

Through synthesizing wellbeing with sustainability, a unified concept of "sustainable wellbeing" can be advanced. This requires integration, from the individual locus dominant in wellbeing, to interrelated environmental (nature-ecosystems) and human systems (society-economy). It is reflected in emerging sustainability science, on how relational values such as care, and relational thinking, can animate stewardship action (West et al., 2018). The synthesis surfaces four lenses fundamental to sustainable wellbeing: the framing of growth and change -for a flourishing wellbeing and natural world; social justice -in poverty and equity; the ethics of freedom -and how it is balanced; and the value of nature -instrumental and intrinsic. Deepening integration can be assisted by: enumerating the contribution of nature in wellbeing; enriching the conception of flourishing wellbeing in sustainability; recognizing the central role of society as interconnected system; surfacing both the intrinsic value as well as function of nature; and also by further analysing links between wellbeing and sustainability, including synergies and tradeoffs.

Beyond conceptual discussions, sustainable wellbeing has potential major significance in applied sustainability settings, for the framing of policy and politics and of environmental assessments, as it is substantial to the transformations required in the 21st century. Technological transitions, through efficiency and technological change, have come to define much sustainability efforts, and while necessary, this is known to be insufficient, requiring sustainability transformation (Grubler et al., 2018; Kirby and O'Mahony, 2018). Transformation paths are more fundamental, and are recognized at the frontier of knowledge, as a sustainable development path: (i) to surface values; (ii) reconceptualise development goals; and, (iii) to design and implement strategy and policy that embrace synergies and learning (Fleurbaey et al., 2014). Consequently, sustainable wellbeing has broad potential for use, from conceptual framing and analytical scenarios, to designing systems and policy innovations. This could include reanalysis of over-consumption, a defining characteristic of our development paths, linked to our conception of wellbeing, which continues to fundamentally overwhelm all efforts toward sustainability. Collectively, these are conceptual and strategic policy processes that acknowledge complexity, but also recognize major opportunities for *win-win* outcomes (Fleurbaey et al., 2014; Rogelj et al., 2018), which emerge by transdisciplinary integration to uncover the synergies. The IPCC have been at the forefront of recognizing the importance of the conceptualisation of sustainable wellbeing. In the Fifth Assessment Report, Fleurbaey et al. (2014) noted that achieving sustainability can be most strongly influenced by decoupling wellbeing from economic growth and consumption. In the chapter, on "Sustainable Development and Equity," the Panel went on to note that this requires reconceptualising development, to prioritize wellbeing and sustainability, and the related synergies that can be achieved.

This iteration of *Frontiers in Sustainability*, addresses the research topic of "*Sustainable Consumption and Care*." Through embracing the place of care, and relational thinking, in a sustainable wellbeing that integrates society and nature, pathways and lifestyles that decouple from over-consumption can be articulated. This article has demonstrated, that empowering a transformation, for flourishing individuals, society and natural world, demands reconsideration of "development," from economic growth and consumption as means, to wellbeing and sustainability as ends.

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The author confirms being the sole contributor of this work and has approved it for publication.

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Who Cares (For Whom)?

Joachim H. Spangenberg and Sylvia Lorek*

Sustainable Europe Research Institute, Köln, Germany

The debate about care has intensified in the COVID-19 crisis. A consensus appears to be emerging that care work—mostly provided by women—is not only essential to our societies, but also undervalued, reputationally as well as—for the paid work—regarding its remuneration. As care is essential for the cohesion of societies, there is an urgent need to improve the situation. However, care comes in too many forms for general recommendations for improving the situation to be effective. Its majority in terms of working hours is unpaid, but the paid part of it in health, caring or education, is indispensable for any society built upon a division of labor. Finally, not every activity is work, and not every work is care—thus leisure activities are not necessarily care work. Care can be motivated by a plethora of reasons, and take a diversity of forms. To allow for effective suggestions for improvement to be formulated, we deem it necessary to more systematically distinguish different classes of care (each class of course being an ideal type including a wide range of activities). We suggest doing so by first using the "potential third party" criterion to distinguish work and non-work activities, secondly classify work according to the beneficiaries (which is closely linked to but not the same as organizational characteristics), and thirdly characterize the specific role of care work in these categories. The beneficiaries also reflect the motivation held by agents why care work is undertaken, although rarely any motivation comes in isolation. Starting from the proximate causes, the first class of care is caring for oneself, be it in terms of health care, hygiene, or the self-production of consumer goods, both short and long lived. The second class we suggest is caring for the family (native and chosen family including friends). It again includes caring for their health, but also their household (either the common one, or the one the caretaker is managing for the care receiver). It often includes nursing the elderly, disabled or young children, but can also be a kind of neighborhood support, from joint gardening to mutual help in building or renovating a flat or house. Extending the reach of care even wider, we come to care for the public good, with the community from village or city district to higher levels being the beneficiaries. This includes the volunteers working with environment, development, feminist, trade unions, food banks or belief organizations. Finally, there is a whole range of professional care activities, with the possibility to take over any of the previously mentioned activities if there is a financial benefit to be expected, or one is offered by (government) subsidies. We observe a permanent process of substituting professional, exchange value oriented care work for voluntary, use value based care, and vice versa. This dynamic, in combination with the ongoing changes of technology, social security systems and work organization in the remunerated work sets the framework conditions which will determine the future of care, commercial and societal. However, such trends are no destiny; they can be

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*Aurianne Stroude,
National University of Ireland
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*Kiriaki M. Keramitsoglou,
Democritus University of
Thrace, Greece
Rifat Rifat,
Université de Fribourg, Switzerland*

***Correspondence:**
*Joachim H. Spangenberg
joachim.spangenberg@seri.de*

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shaped by political interventions. Whether or not a professional or voluntary approach is preferable, depends on the assessment criteria applied which in turn represent political, ethical and cultural preferences.

Keywords: care work, societally necessary work, paid work, reproductive work, own work, community work

CARE, WORK AND CARE WORK

Care work is a social practice emerging or generated under specific circumstances and in relation to something—the self, a person or group of persons, the social or natural environment (Shove et al., 2012). It includes a recognition of mutual dependency, amongst humans as well as in the human-nature relationship and constitutes a mutual responsibility (Brettin, 2021). Care work encompasses a broad spectrum of activities contributing to human well-being and quality of life—improving one's own living conditions, the well-being of one's own (chosen) family or caring for the local, regional, national or international community. A "chosen family" consists of friends, relatives and acquaintances who have established intensive relationships of trust and care among themselves. The traditional family is often a subgroup of the chosen family. Care work can be a profession that is practiced for money and/or with dedication ("vocation")[1], which can be observed especially in times when the health system is overburdened as in the Corona pandemic—and which probably in many cases prevented the collapse of the system.

Most forms of care work or care (the terms are used synonymously here) require physical work, but also mental activities such as organizing the smooth daily life of the chosen family and the cohabitation of its members (Jürgens and Reinecke, 1998; Emma, 2017). Nevertheless, many types of care are often not recognized as work, but are classified as a voluntary activity, leisure activity or hobby. This classification also dominates in economics, for which work is necessarily associated with "work suffering," which is rewarded by compensation payments (wages, salaries). Those who do not demand compensation have not suffered and therefore have not worked, according to the logic of neoclassical economists—unpaid work, including care work outside the formal economy, is therefore not work but pleasure.

Everyone who has done care work knows that this assessment is wrong. This has also been proven by social science studies showing that care is not a pleasure but mostly the fulfillment of social, informally institutionalized duties that are mainly imposed on women. In these studies, care workers documented a variety of negative feelings due to physical and mental stress in the time diaries they kept as part of the research (Scherhorn, 2000). However, such feelings were perceived as not socially appropriate and were quickly repressed, so that retrospective descriptions did not necessarily correspond to the immediate feelings recorded in the diaries. Positive feelings developed only after, not during, care work, caused by the "feeling of having done the right thing, even if it was not always easy" and without reflection on the social norm that was thereby followed and reproduced.

The extent to which time outside paid work is enjoyed as leisure and activity or spent in other forms of work, especially care work, is thus not primarily a question of personal preferences. Rather, it is decisively shaped by values, norms, social situation, gender role attributions and the available social-ecological infrastructures shaping social practices and behavioral options (Spangenberg and Lorek, 2019; Großer et al., 2020). For all these reasons, we consider care work as a socially necessary component of the work members of a society do to maintain the functioning of that very society.

If care work is understood as a key part of socially necessary work in the sense outlined, the structure of the whole work provided in a society must be considered first, in order to understand the significance of care work, an aspect so far underemphasised in the literature. We hold that a new, systemic perspective on the different forms of work and its organization is needed to address the crisis of care, with work defined using the "potential third party criterion", see **Box 1**. Therefore, in the following we first describe the development of the total of work before looking at the role of care work in the individual segments and introduce the concept of 'mixed work' as one option, not yet established in the English language literature, how to reconcile different dimensions of societally useful work, with an emphasis on care.

THE DEVELOPMENT OF WORK AND CARE WORK

The gendered division of labor emerged in the eighteenth century with the growth of the bourgeois middle class and its emerging specific family structure (beforehand, few families could afford a situation where not all household members were contributing to the household income). While in the eighteenth century bourgeois family the "lady of the house" was a leadership role, commanding multiple staff members, the decreasing middle class income in the nineteenth century enforced the internalization of formerly externalized work, constituting the role of the housewife as unpaid care worker. With industrialization, this family model spread far beyond its social class origin and became dominant, surviving even the erosion of its group of origin, and cumulating in the hegemonic model of the bread provider core family which emerged in the aftermath of WW II (Ruffles, 2021).

As a result, throughout society, a separation of the male and female worlds of life and work was established. They were divided into the public sphere of the labor economy,

[1]In German, profession ("Beruf") and vocation ("Berufung") are closely related, giving the profession a social and ethical meaning "jobs" are devoid of. This explains much of the training-intensive education system for many professions, and the strong rule systems inhibiting outsiders practicing a profession as a job.

BOX 1 | What is work?

We distinguish *work* from *activities in* that work could in principle also be performed by third parties for payment of whatever amount. This criterion is derived from the fact that in a capitalist market economy based on the division of labor, the recognition of social benefit—which is undisputed in the area of care—manifests itself through a potential willingness to pay.

defined as professionally qualified male achievement, and the private sphere of the care economy, characterized as emotionally qualified maternal care. This division forms the basis of the distinction made in economics between "productive" and "unproductive" labor and still influences our thinking today. Care work, considered as unproductive, is undervalued and professionally underpaid, with few, mostly male exemptions (star cooks, chief physicians, etc.). But while the two spheres appear rather prevalent, only updated due to technical and economic developments, today sex and gender do not necessarily always coincide—women often make a career following male patterns and behavioral strategies. Still a man caring for the household risks stigmatizing (Zykunov, 2022).

This idea has only ever described an idealized, not a real "normal state." In today's society, however, it must be recognized as outdated in several ways. On the one hand, the increasing propensity of women to take on paid work is gradually causing the basic prerequisite of the model, unpaid reproductive work, to become scarce. Secondly, age stratification, lifestyles, family structures, forms of cooperation and communication are changing and being replaced by other forms of living and relationship networks in which care work must be organized differently (Spitzner, 1999). In particular among the younger generations, maintaining the web of relations has become unthinkable without communication technologies, a hybridization transforming a formerly social relation into a socio-technical one with consequences not yet fully recognized. At the same time, new mixed forms of work are becoming established, complementing paid work in ways specific to inclinations, situations and phases of life. Thus, a welfare pluralism is emerging in which individual wellbeing as well as the functioning of the community depend not only on paid labor in the formal sector, but also on unpaid work in the informal sector—and on the quality of social security systems. Care work is taking place in both areas. For example, family provisioning, nursing, education, voluntary work and do-it-yourself are welfare-creating care work as much as paid work is. Nevertheless, the gendered allocation of forms of work is still often reproduced: in positions of social power and responsibility, women are still underrepresented—in both the paid and the unpaid sectors.

Between these two areas, a continuous substitution takes place, driven by new societal developments. As a result, the provisioning of a certain service can shift from one to the other work category, in the process changing the time budgets and the forms and levels of remuneration, but not the *standard of living measured as service availability*. Economic growth figures do not capture such substitution processes between value added from labor and non-labor[2]. The transformation from an industrial to a service economy (even in Germany more than ¾ of all workers are now employed in the service sector) and the changes within the sectors have led to certain activities of the formal economy being outsourced to the informal care economy, and vice versa. In the distribution of goods, for example, paid work has declined significantly over decades. Commercial distribution from wholesale to retail has been individualized by consumers collecting goods in "greenfield" markets, and retail distribution work has increasingly been replaced by self-service in supermarkets. Recently, there has again been a shift back to the formal economy. Triggered by online commerce and the willingness to pay for the immediate fulfillment of all wants at any time, new, and to a large extent precarious, employment relationships are increasingly emerging in delivery services, causing particular traffic problems within urban areas (Morganti et al., 2014). In the banking and travel sector, work that had long been in the paid sector has become self-providing through internet portals, e.g., through online banking and online bookings for trains and flights.

Conversely, increasing professionalization (e.g., in nursing and education by replacing domestic provisioning or private tutoring by care professionals) generates an increase in GNP—statistically, but not in real living standards of those enjoying the services: the rather unchanged provisioning service is merely commercialized. However, on the—now (miserably) paid—care giver side, policies to reduce the burden of women's unpaid care and domestic work through the state-supported marketization have been shown to widen the income gap between women who can purchase these services and those who cannot by creating a vulnerable group of under-paid care and domestic workers, often migrants from the Global South (Yamane, 2021).

This outsourcing of unprofitable services from the formal economy of paid work is associated with a decline in employment, which is countered by a commercialization of formerly unpaid care and other unpaid work (professional nursing for the elderly, fast-food production). A quantitative assessment of the shifts is hardly possible because unpaid care work is not statistically recorded as such. The GDP is of little help in this case because it distinguishes numerous sectors and groups of goods, but aggregates services summarily in one position, and mostly ignores the unpaid care work. Hence these important differentiations are not visible: the GDP is stuck in the industrial society.

At the same time, paid work is also the basis for individual engagement in the informal sector; since more than 30 years now it is known—shown by sociological surveys—that it is mainly those who are most stably anchored in the formal

[2]A significant share of the economic growth since the beginning of the industrial revolution can be explained by the shift of formerly unpaid agricultural work into the formal labor sector, and the migration of local populations working outside the monetised economy, e.g., in subsistence agriculture, to the monetised world of factory work.

economy who are informally active and engaged in voluntary work: *for the unemployed, self-employment is not an alternative* (Mückenberger, 1990).

WHAT (CARE) WORK? *CUI BONO*?

For further systematization, we propose a concept of work (and thus also of care work) that differentiates according to the *cui bono* criterion of which persons or groups benefit from the work performed (Brandl, Hildebrandt, 2002; Spangenberg, 2003). We distinguish between: *work as a self-provider*, *provisioning work* for a "family of choice" of friends, relatives and acquaintances with the traditional family often as a subgroup, *community work,* which includes all activities for (organized) third parties with whom there is no direct relationship, such as citizens' initiatives, environmental and welfare associations, churches and trade unions, and finally *paid work*.

Work as a Self-Provider

Such work means being productively active on one's own behalf and for one's own benefit—manually, socially or culturally. Work is linked to self-formulated needs and their use value. It leads to reduced monetary expenditure. Examples are not only do-it-yourself work, handicraft labor, and—more recently—maker spaces, but also gardening and self-service—which of these activities can or must be counted as care work depends on the concrete criteria chosen for what is societally useful.

In addition to the material benefits, there are also psychological benefits from work as a self-provider. The acquisition of skills associated with it gives a sense of independence and self-esteem (Wolf and McQuitty, 2011). Thus, it offers meaningful psychologically, socially and economically enriching work opportunities during non-working time, which improves one's life situation and offers a productive rather than consumptive use of free time. It offers options for people, in particular young adults, who want to become creative or do something themselves, or who choose self-production instead of buying goods for cost reasons (Collier and Wayment, 2018). It also includes self-education as opposed to learning in institutional, professional contexts. An appropriate infrastructure, means of production and knowledge of the "how" of production or repair are prerequisites that are available partly privately ("do it yourself"), partly in neighborhood help or in institutions such as repair cafés. If in such processes things are made or repaired for the (chosen) family or other members of a social group, then self-provisioning work and reproductive work overlap and the character as care work becomes even more obvious. However, despite these benefits, Becker (1998) has argued that it could be both, a contribution to an environmentally benign economy, but also a patriarchist trap for women, depending on the social attribution of tasks and duties in self-providing work. Environmentally, self-made goods tend to be more resource consuming than goods from efficient industrial production, but they tend to be used longer due to their emotion-based high regard; the overall balance is unclear.

Provisioning Work in and for the Chosen Family

Provisioning work refers to the part of socially important work which is "associated with the active, engaged, everyday, long-term oriented, (relationally) contextualized, nursing and provisioning care of people in physical, psychological and mental terms" (Spitzner, 1997). It is a central component of care work that is expected to increase in the future, especially where public services are already inadequate or at risk to become so following austerity programmes in the wake of the Corona financial crisis. Such provisioning work is work for the chosen family. It includes care for a traditional family (which is however defined in very different ways in the culturally diverse urban settings where the majority of humans live now), and distinguished from a family based on kinship by the voluntary character of choosing its members—knowing that the freedom of choice ends once a decision is taken and mutual obligations are established.

It is functional for the persons (e.g., partner, child, loved ones) constituting the family, but also for third parties (e.g., employer, school). One of its core functions (although usually not deliberate aim or motivation) is reproducing labor power. Examples are psychosocial caring, teaching, cooking, nursing, shopping—in other words, work that in the pandemic was to a considerable extent shifted back into the household from the commercialized and professionalized areas of society (Power, 2020). What lasting consequences the temporarily externally enforced (and much lamented) retraditionalisation of gender-specific role attribution will have is not yet foreseeable.

The idealization of the self-determined character of provisioning work found in the literature and in some social discourses is unrealistic, if not cynical. Rather, they are duties imposed on individuals according to social norms, which are often perceived as burdensome and unpleasant in their performance—regardless of the ex-post perceived satisfaction of having done "the right thing." However, the acceptability is changing: Koo (2018) found a pervasive loss of meaningfulness in doing "housework" (the traditional form of provisioning work as discussed here) in the younger generation, even revealing harmful effects of doing housework on achieving an individuated self, separated from others and embedded into society. That care work in the sector apostrophised as "informal" is anything but free has been illustrated by the experiences with housekeeping, care work and home schooling in the Corona pandemic.

Finally, it should be mentioned that provisioning work also includes disposal, i.e., collecting, sorting and transporting waste for recycling; this unpaid disposal work is also currently performed predominantly by women. It can be surmised that the widespread implementation of the circular economy as a central goal of the European Green Deal presupposes a significant increase in such work, a further stepping up of the "feminisation of environmental responsibility" (Wichterich, 1992; Schultz, 1993).

Community Work

Community work includes self-organized or institutionally organized work outside private households in exchange with other people (community-oriented private resp. public work). It is the most political form of care work, because in its private form it offers an indicator of deficits regarding the performance of social care institutions, and in its public form it represents demands for remedial action. In community-oriented private work, the exchange relations are not predetermined, but are agreed upon in each case. The work content benefits the people working here and their social environment; the labor power is spent in one's own interest so that the use value and not the exchange value as in formal paid work is dominating. Examples are neighborhood help, self-help groups or exchange rings, sometimes associated with local, non-convertible currencies. The latter may be experiencing a new upswing due to the social crisis, but also due to easier organizational possibilities via the internet, WhatsApp, Facebook, etc.

Community-oriented public work is work that takes place in organizational contexts. The work content does not primarily benefit the people working here and their environment. It does not facilitate self-sufficiency, but rather is work for the common good, with "good" usually understood morally, in ecological or social terms. This category includes voluntary work, activities in environmental associations, consumer, social, human rights, women's and other political organizations.

A gender-specific division of labor is also prevalent in voluntary community-oriented work. While women tend to devote themselves to social support activities, men are more attracted to hierarchical functions, which have power and prestige and are partly financially endowed (Deutscher Frauenrat, 2021). Thus, public community work, traditionally based on money-free exchange processes, is undergoing a transition, at least at the higher functional levels of civil society organization. As a result, on the one hand, a professionalization can be observed at the top level, which partly results, as a necessity, from the functional logic of organizations wanting to exert political influence. Below this level, what used to be purely voluntary work is more often than before replaced by work for a "recognition wage" far below a market payment. A typical example of this is the youth coach of a sports team who does not receive a salary but an allowance that is far below the standard wage. The same applies to volunteers in civil society organizations of all kinds.

These tendencies indicate a beginning differentiation in the monetary recognition of different forms of care work. It could constitute an intermediate form of unpaid and paid work, be a beginning of monetary recognition of the value of care work, but also lead to a new low-wage sector in professional care work. The outcome does not seem to be fixed yet, and different actors pursue different interests. Therefore, it still seems possible to influence the direction of development of this important segment of care work through targeted interventions.

Paid Work

The term paid work refers to a wide range of forms of work, and forms of financial security through work. *Full-time work* with permanent work contracts, social security provisions and institutionally guaranteed workers' rights is socially secure, as long as the salaries are sufficient for a decent life in the respective society, i.e., not producing "working poor" (Ehrenreich, 2001)[3]. *Part-time work* includes various forms of permanent employment with working hours below full-time work. *Precarious employment relationships* are often temporary and without significant social benefits. They do not offer protection against dismissal, as is the case with bogus self-employed workers, or they are contracts for work and services whose remuneration is not based on the hours worked, but on a work result, or even zero-hour jobs. In addition, there is the area of *self-employment and entrepreneurial work* (but not unearned income without own active work, like capital rent income). Finally, we also count *unemployment* as part of paid work[4].

Paid work is the basis of our "working society" and apart from income, also offers social contacts and—at least for many—social prestige. The former is often very pronounced in care professions such as nursing and education; the latter, on the other hand, is often less so, e.g., for employees with cleaning jobs. Care work in paid work includes paid work in an institutionalized context, and is as diverse as paid work as a whole. Teachers and doctors as typical representatives of full-time work are socially protected in most countries, while work in social welfare and community support is often precarious and organized in the form of time-limited projects. Midwives are often self-employed, and quite some trained social workers are unemployed, despite the urgent need for their services.

The current, but not new developments in paid work can be described with the three terms intensification, precarisation and mechanization/automation, and these three trends also apply to care work. For example, the number of patients per care giver (nurses, doctors, ...) is now so high that it is at the expense of personal care quality, and of the health and wellbeing of care givers whose emotional dedication to their work and the patients they care for is exploited. Often migrants or ethnic minority members (with specific problems in and for their communities of origin: Kofman and Raghuram, 2012), they are "overworked and underpaid" (Razavi and Staab, 2010). Temporary contracts contribute to precarisation and salaries are so low that qualified personnel were turned into working poor: in the pandemic, nurses had to make use of food banks in the UK. Sadly, while all the professions and jobs recognized as "essential" early in the pandemic were care work (nobody suggested to consider investment bankers as essential), this has not led to improvements in the living and working conditions (yet)—the real salaries are currently declining. Absence statistics point to a significantly increased need for care for those in paid work due to exhaustion caused by the time compression in paid work in combination with hierarchical labor organization. The increasing numbers of "essential workers" quitting their jobs during COVID, from lorry drivers to nurses and hospitality workers, demonstrate this significant need for better care for the carers, to maintain viable working conditions by mitigating the effects of intensification, precarisation and

[3]Obviously, terms like "full-time," "socially secure" and "decent life" are socially defined and change over time.

[4]In German statistics, paid work also includes unemployment; according to German social law, the condition for receiving unemployment benefits is to be available to the labor market full-time at all times.

mechanization/automation. However, so far that development appears unbroken—the management level seems to be unaware of the increasing shop floor challenges. One reason possibly is that, according to the largest single study worldwide on narcissism (people who only care for themselves and not at all for the entity they are supposed to serve), it is not widely spread in the population at large, but a frequent phenomenon amongst business leaders and across age groups, and more prevalent in men. It results in CEOs and CFOs overestimating their own abilities and desiring constant admiration and affirmation without any reciprocity. Such people are not liked by their peers, but tolerated (although they are also the ones most likely to commit fraud and exhibit a lack of integrity) as they do not hesitate to take socially harmful decisions to enhance profit levels. So their influence shapes corporate cultures (Auxenfants, 2021). Another reason particularly affecting women is the androcentric institutional structure of our societies which creates employment for unfettered, male connoted singles with no social responsibilities, the imagined homini oeconomici of neoliberal theory, and discriminates against those employees actually or potentially involved in care work. As a consequence, in the UK three out of five women say their caring responsibilities for children and other vulnerable or elderly relatives are preventing them from applying for a new job or promotion, while only one in five men says the same, and even among women who identify as joint carers, 52% say they do "more than my fair share", in comparison to 10% of men, mostly because their partner's working pattern or culture is unsupportive of work and care (BITC, 2022).

Regarding mechanization/automation, electronic "helpers" are supposed to save human labor and thus increase productivity, not only in diagnosis but also in care. The human attention and empathy required by care work cannot be replaced by artificial intelligence and offers a mere pseudo-understanding that does not solve problems, but ultimately throws those in need of help back on themselves. Relationality with machines is hardly possible, even in those cases when the care receivers are able to build a mutual if asymmetric relationship (which is often not the case)—although they "have more time," at best such a substitute can create the illusion of attention like the cuddle machines for patients with dementia.

Care giving work can either be organized in institutions created for this purpose, from day care centers via schools, hospitals and nursing homes to doctors' surgeries and food banks, or it can be provided as an external service, e.g., by cleaning firms, to the community or in households. Such personal and household services (PHS) contribute to the domestic well-being of (chosen) families and their members. In the EU, they consist of about 60% person-related care work (e.g., care for children, the elderly and people with disabilities) and 40% household-related work. This includes, for example, assistance with housework, ironing, domestic repairs, and gardening (European Federation for Services to Individuals, 2019), often provided by non-for-profit organizations (although the commercialization pressure is strong). However, amongst those employed in civil society organizations such as NGOs and foundations, the gender imbalance is as obvious as in the commercial sector: 70% of employees are women, while on the leadership level the female share is only 40%. In international average, a man has three times as good a chance to reach a leadership position in a civil society organization than a woman (in Germany even 5 times) (FAIR SHARE of Women Leaders e.V., 2021, https://fairsharewl.org).

Mixed Work

The four-dimensional unity of overlapping, parallel or consecutive forms of work has been referred to as "mixed work" (Hildebrandt, 1997, **Figure 1**). It goes hand in hand with mixed experiences, requires or shapes mixed qualifications and leads to mixed incomes. Mixed work is first of all a descriptive notion without normative implications—it is not a priori "good work." While if realized as a self-chosen combination of work and income forms and hours, mixed work can contribute to the quality of life, it can also be an expression of social hardship, for example when a single mother is forced to perform all forms of work in parallel and alone. Especially provisioning and nursing work as part of mixed work is very often stressful, unpleasant, externally determined and little recognized, and is composed differently in different biographical phases (Brandl and Hildebrandt, 2002). The fact that it is still predominantly demanded of women has become even more apparent in the pandemic (Giurge et al., 2021). Emerging research suggests that the crisis and its subsequent shutdown response have resulted in a dramatic increase in this burden; it is likely that the negative impacts for women and families will last for years without proactive interventions (Power, 2020). In the UK, for instance, when lockdown happened, women were more likely to be furloughed and working mothers were more likely to lose their jobs than working fathers (BITC, 2022).

Provisioning and nursing work, and community work, private and public, are also referred to collectively as reproductive work; we use the term here in its feminist rather than in its Marxist, production-focussed interpretation. Reproductive labor in this sense is reproductive for the production process, but at the same time highly productive for society and its wellbeing (Biesecker and Hofmeister, 2007, 2010). The patterns of separation between such unpaid and paid work are not given by nature, but—as already explained—are socially produced and changeable. Since the distribution of paid and unpaid work has so far often followed gender-specific role attributions, gender justice is a central issue for the future-oriented design of working environments.

To be a contribution to overall welfare, mixed work requires a framework of social and institutional protection, accident insurance and safety regulations, but above all through social recognition of the extent and quality of the (care) services provided. As human preferences are context dependent and change over time, a changing composition of mixed work over the working life (paid and voluntary) will most probably emerge. This requires a modernization of the welfare state, so that support is provided in phases dedicated to chosen family/provisioning work, with low or no income from paid work. As a rule of thumb, community work for the public good is complementary

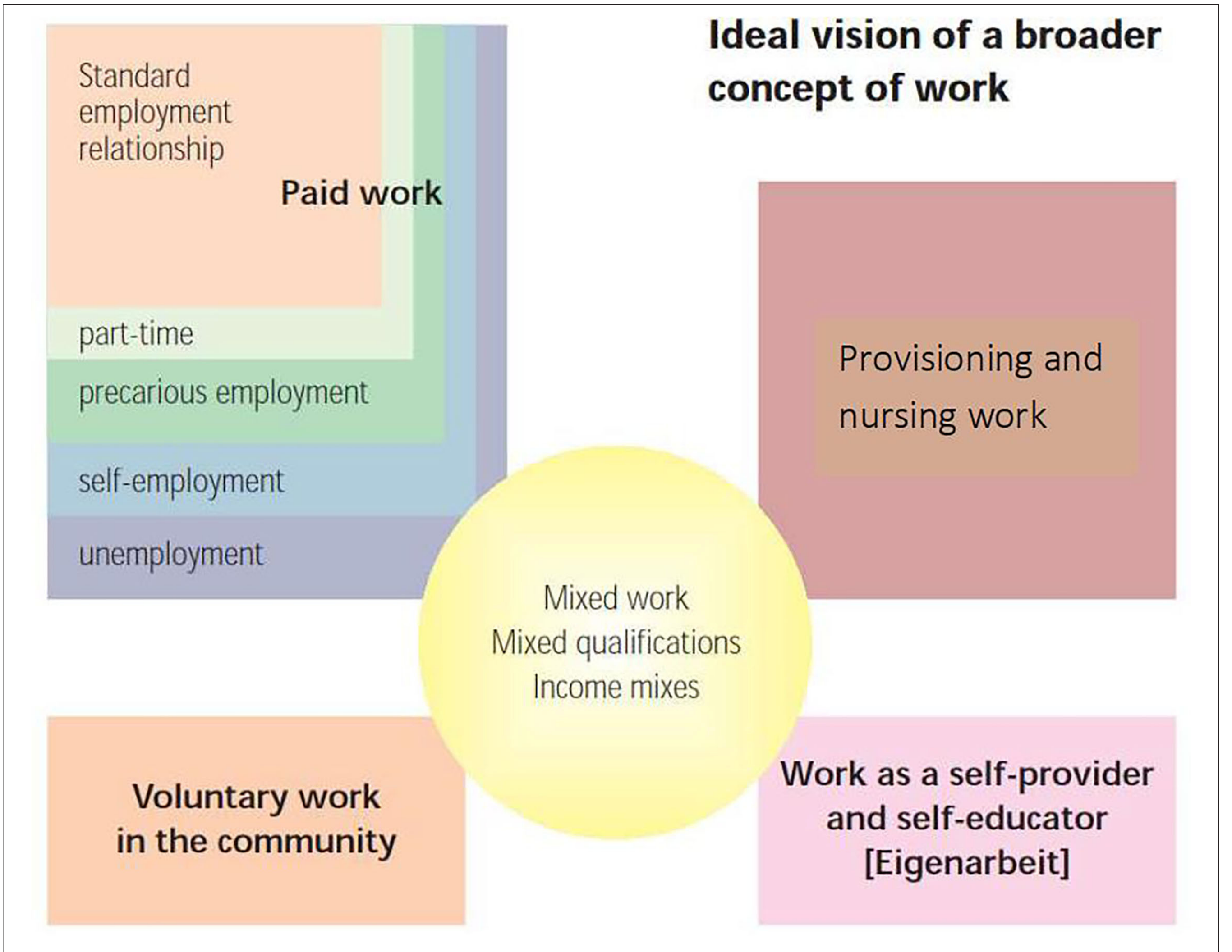

FIGURE 1 | A broader concept of work. Source: Hans-Böckler-Stiftung (2000). Pathways to a sustainable future. Results from the work and environment interdisciplinary project. HBS, Düsseldorf; modified.

to paid work, but in a variety of cases it can become so time consuming that either professionalization occurs, turning it into paid work, or compensation payments are required, for instance for members of citizen juries or those deeply involved in public participation processes. Consequently, for community work a decision should be taken case by case, but this as well requires institutional settings which can respond to the respective situation.

One way to contribute to the necessary value recognition change is through counting unpaid care work for later pension calculations, for instance by extending the parental leave with equal share obligations, and having similar regulations for other forms of unpaid care—this would avoid female old age poverty resulting from low pensions. Another option would be qualification measures in unpaid work offering testified certificates that are also recognized as valid qualification proofs in professional work. If proof of care experience were a condition for management positions in the formal economy, companies would probably be managed differently, not only by reverting the promotion of narcistic characters into its opposite. Mixed work could also level the playing field between gender insofar as a broader experience can modify subjective value attribution. So far, women tend to better recognize and value the social cost of professional advancement, making them considering it as equally attainable, but less desirable than men tend to do (Gino et al., 2015).

Recognition of all forms of socially useful work would increase permeability between different forms of work and thus promote the creation of freedom of choice, which in turn is an important component of quality of life. Therefore, permeability and the gender-equitable shaping and distribution of reproductive/care as well as paid work are one of the necessary concerns of a socio-ecological transformation, and a major challenge for a still androcentric society (Hans-Böckler-Stiftung, 2000; Spangenberg, 2003).

Such considerations are of central importance for the future of care work. After 20 years of stagnation, discussions about the forms and extent of a reduction of the standard definition of full-time working time are picking up speed again. In the future, there will be probably more phases of life in which a needs- and gender-appropriate distribution of unpaid and care work will be possible to realize, with a return to paid work still part of the life plan. Only in the context of working time models and substitution processes will it be possible to estimate the extent and content of future care work.

CARE IN CRISIS

For some years now, an *eco-social crisis of care work has* been observed; it can be illustrated with data from the German Statistical Office's time use survey 2012/13 (the survey is taken every 10 years) (Statistisches Bundesamt, 2015a,b). According to these data, provisioning work for the chosen family is in average 3:07 hours a day, and community work 0:21 hours. Provisioning is mainly composed of work in the kitchen (0:40), shopping (0:34), housekeeping (0:27), garden and pets (0:20), travel (0:17) and caring for children (0:13). This also illustrates why community work can be easily accompanying paid work, while for provisioning work this is more of a challenge. Women provide 61% of this care work, with a daily average of 4:10 hours (men 2:45). As compared to 20 years earlier, the total volume of unpaid chosen family and community care work has been declining, from 3:58 hours (1992) to 3:28 hours (2012). Women reduced their contribution from 5:00 hours (1992) to 4:10 (2021), and men theirs from 2:48 (1992) to 2:45 (2012) (Statistisches Bundesamt, 1995a,b).

In paid work the distribution as well as the dynamic is the opposite: the average daily paid work is 2:43 hours (2012); 1992 it was 3:14, with men working 3:19 hours per day in paid work (1992: 4:25 hours) and women 2:19 (1992: 2:11). In total, paid work now counts for 44% of all work done, and unpaid work for 56%. Comparing the data with the 1992 survey reveals that while the tasks have been changing and the allocation between paid and unpaid work has been fluid, women have reduced their time in unpaid (mostly care) work, while men have reduced their time in paid work without shouldering additional unpaid work. As a result, even if additional time has been invested in paid care work, it is by far not enough to compensate for the loss in the unpaid care. Although of the total daily average working hours, paid and unpaid added, of 6:11 hours (1992, 7:12) about two thirds are care work, the trend—which is expected to continue—is toward a "care-less" society and a challenge to sustainable development (Spangenberg, 2002). This is all the more worrying as the demand for care work is increasing as demographic developments are exacerbating the situation through increased care work demand for an aging population, and the climate crisis threatens to significantly increase the pressure on the health system (Romanello et al., 2021), while a scarcity of paid work is emerging in this sector—in Germany, the estimated deficit is almost 200,000 workers caring for the elderly by 2030.

In addition, there is an increase in—often part time—female employment, curtailing the time available for unpaid reproductive work. Add to this the said trend toward intensification, and the resulting exhaustion from time compression will increase the demand for care even further, within and beyond the professional working life.

Obviously, neither paid nor unpaid care work are limitless but shrinking resources in times of increasing demand, which in a market economy means they should fetch a high price, in money or else. Instead we observe precarisation, caused by the serious discrepancy between the practice of utilization and the rationality of valuation or non-valuation in the societal treatment of care work, resulting in badly paid jobs and a lack of recognition for unpaid care work as described above. However, as the outburst of voluntary help efforts in both the COVID and the Ukrainian war crises have shown, there is a high potential of willingness to care for people suffering, be it in terms of care work, or—as in case of the flood victims in summer 2021—in both labor and financial donation terms. Parts of that may be available on a more regular basis, if the conditions are right.

Designing work according to such ideas places not only a heavy burden on the care givers, but also alienates them from their clients, the receivers of care. One way to address at least part of these challenges has been developed in the Netherlands, where the nurse-led community care network Buurtzsorg since 2006 successfully established a different approach, based on rotating self-management of small teams and informal networks to tailor their care services to the needs of the local community, resulting in significant cost reductions. That the largely bureaucracy-free model has expanded to more than 10,000 nurses and assistants working in 850 self-managed teams in 25 counties, with high staff commitment and client satisfaction levels which are the highest of any healthcare organization, testifies for a demand for such new approaches, complementing specialized hospital treatments (https://www.buurtzorg.com/about-us). All these factors combine to create the risk that eco-social problems will multiply exponentially and that the potential of care work will be lost in the longer term.

CARE WORK AND THE ENVIRONMENT

That care, environment and sustainability are interlinked has long been an issue of debate (Spitzner and Röhr, 2011; Floro, 2012). The interaction works both ways—the way we practice care affects the environment, and the state of care influences how we relate to and care for the environment, in consumption and other practices (Yates and Evans, 2016). Hence we address both perspectives, starting with the practices of care work while having in mind that we talk about citizens in different roles, who through political engagement can challenge the rules which apply to them in their role as consumers.

The Environmental Impact of Care Work

In material terms, the ecological consequences of paid and unpaid care work can be related to the consumption of raw materials and energy and the intensity of land use associated with the production and consumption of care services and the goods this requires. The resource consumption resulting from the transformation of nature by human work into products is not on the one hand determined by the volume of goods demanded, which is increased by the dedication to growth and moderated by sufficiency, and by the efficiency of resource use (despite the rebound effects which necessarily come with efficiency, and which are the flipside of any win-win strategy for efficiency improvement, Reimers et al., 2021), which in turn is significantly influenced by the form of organization of care work.

Generally, it can be said that industrial production has a high efficiency of product-specific resource use in the production of goods (including services), which clearly exceeds that of most forms of material goods produced in work as a self-provider. On the other hand, such goods are mostly repairable and are used longer (in care as in other work) due to the higher emotional attachment to the product (Anwar et al., 2011). However, which products we use and which services we demand is not an individual free choice based on personal preferences by the atomistic individuals on the micro level economic theory postulates. While preferences play a role, decisions are taken in a social context, most often on the meso level of chosen families and households (Gram-Hanssen, 2008). Choices are restricted not only by law, but also by social norms and embedded in routines and social practices, which are enforced not by legal means but through emotions. Such norms are not constant but evolve, often demanding a resource-intensive way of providing care, for instance by using products or technologies being advertised (Røpke, 1999; Shove, 2003). Living in core families necessitates fragile elder relatives moving to care homes, or, if aging in place, being supported by mobile health and provisioning services—an increasing part of road traffic. Furthermore, macro level trends like communication habits and fashion co-evolve with the advertising of certain goods or brands (influencers play a role here) create demand in the care sector as much as in other sectors, e.g. for specific nutrition or cleaning products. The vast majority of goods is not discarded for being no longer functional, but not being fashionable any more. Political and legal interventions play a role too, like the COVID-19 mask obligations, and interact with the prevailing work situation. In particular, the time compression in the professional health care sector enforces the use of one-way products, resulting in hospital waste being the largest fraction of COVID-19 induced waste.

Sufficiency is an attempt to counter the ever increasing consumption levels, which in affluent countries do not enhance the life satisfaction anyway (Kahneman and Deaton, 2010; Wilkinson et al., 2011). The main routes to sufficiency discussed so far are absolute reductions, modal shifts, product longevity, and sharing practices (Sandberg, 2021), and they can be applied to care as well. For instance, in order to increase the useful life of products, infrastructures such as repair cafés and maker spaces are necessary, in which users, individually or collectively, do their self-providing work and sometimes provisioning work. These infrastructures themselves are often operated in community work. To move from an extensive to an intensive form of use of goods, sharing is another option, in particular if organized non-commercially in community work, while commercial sharing in paid work is often a means of increasing product sales (Clausen et al., 2017). Non-commercial sharing of means of production, e.g. tools or means of transport, is typical for community work, which also reduces resource consumption (Scholl et al., 2018).

However, for such options to become mainstream, a cultural change is necessary, including a changed perception of the value and importance in particular of unpaid care work for the chosen family and the community.

Care and Pro-environment Behavior

Care work can provide emotional bonding between humans as it safeguards against potential threats by assuring the proximity to caring and protective others. When individuals feel this as a reliable given, the activation of the caregiving behavioral system is facilitated: reliable care availability is a social process with positive feedback loops. Nisa et al. (2021) have shown that this situation does not only affect immediate and social relations, but also influences how much people care about climate change through an increased empathy for humanity even in conservative persons otherwise not inclined to climate change mitigation actions.

Hence a sufficient level of emotional bonding, supported by social networks of chosen family care, can facilitate not only community care, but even the relatively abstract notion of empathy with humanity. Among younger "digital natives," for whom social bonding has become hybridized with a mixture of personal, face-to-face and technology facilitated, long distance contacts, developing such a broader perspective appears particularly plausible—it might even be one of the processes providing for the success of movements such as "Fridays for Future."

This in turn is a condition for stringent policy action in times of group conflicts in many societies: the empathy for and identification with meta-groups and their vital interests, in this case environmental health and sustainable development.

OUTLOOK AND GOALS

Care and housework is no private affair—it keeps our economic system function through a process of productive reproduction (Biesecker and Hofmeister, 2007) and should therefore be recognized as constitutive and hence valuable for the society and its economy. Consequently, most recommendations and demands do not focus of individual behaviors and attitudes, but on necessary systemic changes enabling good care as part of the overall transformation of work.

Under current policies, however, the trends of intensification, precarisation and mechanization/automation described are likely to continue in all sectors. In paid care work, mechanization could facilitate many work processes that today still involve heavy physical workloads, but not the mental work that is central to care. Digitalisation allows for further intensification and poses the risk of influencing paid care work mainly in a negative manner through the transition from working time to work output as a basis for remuneration: contracts for work and labor, bogus self-employment and freelancers are evidence of this. Finally, flexibilisation, with working time accounts and working time flexibilisation, offers on the one hand possibilities of enhanced self-determination in the organization of work. On the other hand, there is the threat of income losses and the expansion of fixed-term, part-time and temporary work, which contribute to precarisation (Spangenberg, 2011). On the part of the non-privileged, subjective precariousness leads to insecurity and thus to blackmail exposure. This is especially true in paid work, with the consequence that, for example, unpaid overtime is accepted without contradiction—a particularly widespread phenomenon in care work, where employees' intrinsic motivation and ethical principles are abused and instrumentalised against their rights and material interests.

However, while the pandemic may turn out to be the straw that broke the camel's neck for the health system, it may also turn out otherwise: the fact that salary increases in the health sector were too low to compensate for inflation, and hence in the midst of a pandemic health workers were confronted with a further decline of their often already low wages has led to industrial action in the UK and Germany, an unusual process in care work, and the riders of delivery services have gone on strike despite their social vulnerability. Both groups could count on public support and sympathy, as the public appears to better understand the importance of essential workers, most of them care workers, than many decision makers. In a nutshell, the future of paid care work is dependent on the outcome of an economic and social power conflict—which has not become easier by the amounts of money now earmarked for militarisation, which can be considered the ultimate antithesis to care. Both the budgetary implications (reduced budgets for other public goods) and the impact of this move on the public attitudes toward care work, both remunerated and unpaid, remain to be seen.

Unpaid care work in the society at large is in a different but equally precarious situation; in particular, the mental load (a significant share of care work consists of organizing) is often becoming almost unbearable (Ruffles, 2021). The overall time dedicated to chosen family and community care work has been shrinking and is expected to continue doing so, without being compensated by an increase in paid care work. At the same time, since the financial crisis of 2007–2012, the impression of personal threat has intensified even among the better-off (if and how the collectively perceived threat of the Ukraine war will modify this is not yet detectable). This has led to a lack of solidarity among the upper classes, devaluation of socially weak groups and the preservation of vested interests at (almost) any price. "Civilized, tolerant, differentiated attitudes in higher income groups seem to change into uncivilized, intolerant—brutalized—attitudes" (Heitmeyer, 2010). Such attitudes flourish in a society with loosening social cohesion, probably not least to a care deficit, a process they further boost. Distrust in authorities and institutions including science grow, and selfish, partly short-sighted and unreflected behavior prevails, as in the case vaccination refusal and violent protests against COVID-19 policies (without giving up the right to care in case of being infected).

Against these tendencies, a crisis-proof stabilization of the social-ecological infrastructures must be enforced, including robust social security systems, to cater not only to the unemployed, but also to protect people who consciously do not participate in paid work. Only resilient societies glued together by sufficient levels of care will be able to withstand foreign challenges. While care work is anything but "voluntary" and "self-determined," the engagement of unpaid care workers, often performing a considerable part of provisioning work or community work (whether out of intrinsic motives or as a result of social role attribution, placing particular responsibility on women), will be of increasing, but not necessarily recognized, importance for sustaining the fundamentals of inclusive democratic societies.

That the rightly demanded better "recognition" of care work is neither self-sustaining nor sufficient has been shown again by the Corona pandemic (clapping, but no bonus). The vast majority of the professions identified as "essential" were those of professional care work and the role of unpaid care and community work, from home schooling to (chosen) family nursing was highly praised in the pandemic crisis. However, the verbal praise for the "essential professions" did not lead to the provision of either the necessary equipment or adequate pay if it was not gained through industrial action. As a result, between 2019 and 2020, 421,000 care workers left the sector, driven by low pay, poor working conditions and a lack of recognition (Federation of European Social Employers, 2022)—at a time where aging societies would require an increase, not a decrease of the number of care professionals. Consequently, staff shortage in paid care work is increasing across Europe with 85% of responding organizations in a poll by the Federation of European Social Employers reporting staff shortages, with 1/3 suffering from more than 10% unfilled positions, with professional care for the elderly most affected. In the area of unpaid care, much was reported about the family burdens, but the fact that a retraditionalisation took place in the process and that care work was to a large extent imposed on women was not in the foreground (Power, 2020).

In the short and medium term, it is to be feared that these tendencies will continue: already today, there are more and more (neoliberal and right-wing conservative) voices calling for a post-COVID austerity to reduce the national debt incurred in the crisis, i.e. the dismantling of state services from health to environmental protection. In doing so, they are counting on being able to replace these with the mobilization of unpaid social care work, if only this is sufficiently verbally recognized and praised. The crisis of reproductive work thus threatens to intensify to such an extent that social cohesion as a whole would be endangered: sufficient and good anchoring of care as unpaid work and improved working and payment conditions in paid work are in this respect an important prerequisite for civilized coexistence, for social sustainability in a comprehensive sense.

In the medium and long term, societal reproduction requires enabling and supportive formal and informal institutional structures to end the crisis of care. In particular, besides paid and unpaid care for the chosen family, the volume of work dedicated to the social and natural environment needs to grow to safeguard social cohesion and sustainable development. This in turn requires both a crisis-proof organization of paid work, social security for unpaid care work, and a shift of societal values:

- ➢ First of all, in times of increasingly frequent patchwork biographies, in which unemployment and extended vocational training or retraining interrupt employment, an unemployment insurance is necessary that safely carries those affected through these intermediate employment phases, i.e., does not expire after too short a time. These periods should be increasingly used to acquire qualifications, also and in particular in care work.
- ➢ Secondly, a functioning welfare state needs a poverty-proof basic income of whatever model, but including a minimum pension above the poverty threshold. In Germany, for instance, 60% of all married women have a work income below thousand €/month and are hence at risk of old age poverty (Zykunov, 2022). In this context, the catalog of benefit-free qualifying periods, such as education, social service and parenthood, should be gradually extended to other areas of unpaid care work and be combined with publicly funded health and accident insurance for times in care work. Already today, in some countries the pension insurance system fakes periods of membership for bringing up children and caring for them, and, like for military services, pays tax-financed allowances, etc. Hence in these countries, the social security coverage of unpaid but socially important care work is an established part of the pension system, but it should be expanded with a view to the socially necessary provisioning, nursing and community work.
- ➢ Thirdly, it makes sense to recognize and support care work through qualification certificates which are also recognized in the employment sphere and gradually become a prerequisite for certain leadership functions. This would not only enhance the permeability between paid and unpaid work, but could contribute to better working environments throughout the production sector. For example, proven participation in reproductive work (e.g., caring work in the charitable sector) for women and men could be evaluated as a qualification necessary for professional management tasks and classified as social insurance-relevant work with pension entitlement. It would also be the basis for better management, emphasizing the care in work, and increasing the work satisfaction (which in turn would reduce unnecessary compensatory consumption). It could also help introducing gender and care sensitive forms of work organization in the industrial and broader service sectors.
- ➢ Fourthly, paid care work must be made more attractive by reducing working hours, making work easier and increasing wages while making them mandatory for all employers, also in order to end the "flight from care" (Whillans et al., 2017). This should be accompanied by improved access to technical and financial assistance for care and community work, strengthening the complementarity of the different forms of care work instead of ever increasing substitution. Simultaneously, it is necessary to rethink the organization of formal work which so is often designed to fit to individuals, mostly male, with no caring obligations, but cannot accommodate single parents.
- ➢ Finally, as the assumption of permanent economic growth and ever rising standards of living will be disappointed by the effects of increasing environmental crises, new attitudes will emerge, worse or better. As Nisa et al. (2021) have shown, securing a good level of all kinds of care could contribute to attitudes which help overcoming not only the prevailing environmental, but also the social crises and enhance the resilience of societies—a process which would be facilitated by focussing on a different philosophical basis in education and everyday life than the prevailing utilitarian world view (Whiting et al., 2018).

On this basis, non-professional care work could make a decent contribution to the social security of individuals and to the overall standard of living. To this end, as shown, it is necessary to free it from its function of being a vicarious agent of paid work and to make it an just as attractive option as paid work. A contribution to this would be to simplify the switching between paid and unpaid work according to the concept of mixed work. Such an increased permeability between the different spheres of work would allow the individual to make a life-stage-specific choice regarding the respective composition of his/her work, choosing from different forms of paid and unpaid work, without precluding future choices for a different composition (Hildebrandt, 2002).

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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EDITED BY
Aurianne Stroude,
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REVIEWED BY
Rachel Eike,
Iowa State University, United States
Tadhg O'Mahony,
University of Turku, Finland

*CORRESPONDENCE
Viola Muster
viola.muster@tu-berlin.de

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The cultural practice of decluttering as household work and its potentials for sustainable consumption

Viola Muster[1]*, Samira Iran[2] and Marlene Münsch[3]

[1]TU Berlin/Chair of Economic Education and Sustainable Consumption, ConPolicy and Technical University Berlin, Berlin, Germany, [2]TU Berlin/Chair of Economic Education and Sustainable Consumption, Technical University Berlin, Berlin, Germany, [3]ConPolicy, Berlin, Germany

Popular literature and guidebooks on minimalism and decluttering have brought the idea of "less is more" into the mainstream. Although decluttering constitutes a central household chore in consumer societies, it is rarely communicated as work within the current popular minimalism discourse, but rather as an expression of self-care. Whether and to what extent this "lifestyle minimalism" can contribute to sustainable consumption has – with a few exceptions – not yet been studied in detail. In this article, decluttering is first conceptualized in between housework and self-care. Based on this work, potentials and limits for the promotion of sustainable consumption are outlined. Finally, initial insights from an ongoing citizen science project on decluttering in Germany are presented. The qualitative results from two workshops and two reflection exercises show that the main motivation for participants is the dissatisfaction with their multitude of possessions and the desire for fewer material possessions in the future. The decision to declutter can be understood as a window of opportunity in which individuals are willing to reflect on and realign their possessions and desires for goods. Thus, we argue that decluttering can be a relevant starting point for changing consumption behavior toward (more) sustainable consumption. At the same time, it remains unclear whether and to what extent the participants' willingness to change regarding possessions and consumption actually leads to more sustainable consumption behavior after decluttering. It is even conceivable that the newly gained space will stimulate additional consumption. Decluttering would then rather function as a catalyst for further consumption (and would have no or rather a negative contribution to sustainability goals). Further research is needed to shed light on this.

KEYWORDS

decluttering, lifestyle minimalism, sustainable consumption, household work, care

Introduction

Modern consumer societies are characterized by households that are filled to the brim with products and goods (Baudrillard, 2018). Consumers accumulate things–they collect, store and stow them away (Belk, 1982). However, hardly anyone knows the total number of goods or can remember every single thing in their possession. As Belk (1988, p. 160) points out "we are what we have and [...] [this is the] most basic and powerful fact of consumer behavior." In most households, however, the spatial capacities for storing goods and things are limited. To address this issue, people either try to gain additional storage space (e.g., through purchasing additional wardrobes) or they start to declutter. Such practices enable them to continue consuming regularly and to actively take part in consumer society.

Sorting out and decluttering goods are central household tasks in consumer societies. In recent years, decluttering has increasingly received attention, especially through the publications of Marie Kondo (Kondo, 2014) and numerous follow-up self-help and guidebooks, blogs and magazine articles on this topic. In popular literature however, decluttering is no longer pictured as simple housework, but rather as an expression of self-care (Lee H.-H., 2017; Ludwigsen, 2019; Chamberlin and Callmer, 2021). Even though concepts and movements such as voluntary simplicity or minimalism have been known for decades (Etzioni, 1999), this so-called "lifestyle minimalism" (Meissner, 2019) of Marie Kondo and Co has brought the idea of "living with less" into the mainstream. The central promise of "lifestyle minimalism" is that having less possessions promotes well-being. In recent years, numerous researchers have examined the link between minimalism and well-being (for an overview see e.g., Hook et al., 2021). However, whether and to what extent the practice of decluttering, as a specific method to achieve a minimalist life, can contribute to more sustainable consumption in the long term has not yet been sufficiently explored. In a study on the KonMari method Chamberlin and Callmer (2021) provide initial promising qualitative evidence that decluttering can have positive effects on sustainable consumption. They show, for instance, that practitioners of the KonMari method reflect on their goods and the question of what satisfaction they experience from their material possessions. They also show that the practitioners express less interest in new acquisitions. Building on these initial results, a further consideration – both conceptually and empirically – of possible potentials and limitations of decluttering for sustainable consumption is considered important.

On the one hand, it can be argued that decluttering guidebooks provide diverse impulses for reflection and learning that might help consumers question their needs, existing possessions, and the necessity of new acquisitions. Decluttering guides often describe methods for decluttering very clearly and give concrete suggestions for implementation. The resulting positive effects of "liberation from excess" (Paech, 2012) can be experienced directly after decluttering and might motivate people to own fewer things in the long term. Further, communicating decluttering as a form of self-care can potentially help to promote a positive perception of living with reduced possessions and thereby attract new target groups for sustainable consumption (even if unintentionally). On the other hand, decluttering is focused at getting rid of as many goods as possible in the shortest feasible timeframe. Since sustainability-oriented practices of passing on goods, reselling or repairing them are rather slow and time-consuming, they can hardly be implemented in the rather fast approach of decluttering. Also, decluttering guides usually only address so-called "peanuts" of sustainable consumption, but rarely the most environmentally relevant areas of consumption [e.g., space and heating, mobility, meat consumption (Bilharz and Schmitt, 2011; Geiger et al., 2018)]. In addition, there is a certain risk of relapse into old consumption patterns, as the newly created space might stimulate new purchases.

Against this background, the article at hand takes a close look at the phenomenon of decluttering, illustrates its characteristics within general household work, discusses its potentials and limits for sustainable consumption and presents initial results of participatory research components from an ongoing research project. Firstly, the article describes how the cultural practice and meaning of decluttering has changed in recent years. We thereby shed light on the emergence of decluttering as a method within the framework of "lifestyle minimalism" and locate decluttering in between the spectrum of housework and (self-)care. Secondly, we develop our reflections and conceptual considerations on potentials and limits of decluttering for the promotion of sustainable consumption. Thirdly, we present first qualitative results from our ongoing citizen science research project. To be able to better classify the results, we first explain our participatory research approach. Then we present the results of two workshops and the evaluation of two reflection exercises, which have been answered by the citizen scientists. In doing so, we provide first qualitative evidence from a selected group of citizens in Germany for the discussion on potentials and limits of decluttering for sustainable consumption.

Decluttering: A method for lifestyle minimalism and household work

In a first step, we outline the development of minimalism as a lifestyle concept and decluttering as a central method to achieve a minimalist life. In a second step, we show that this lifestyle-related, pop-cultural understanding of decluttering is closely related to a reframing of housework as self-care.

The evolution of minimalism as lifestyle concept and the role of decluttering

Looking at human history, various cultures and religious communities (e.g., Hinduism and Buddhism) have associated a "good life" with limiting possessions or avoiding excessive consumption. However, these historical movements were not concerned with a reduction of possessions in the context of affluence, but rather with a forward-looking avoidance of "too much" as well as an adequate use of resources that were perceived as limited for each individual. During recent decades, terms such as voluntary simplicity, simple life, minimalism, or anti-consumption have been used to describe lifestyles that focus on reduction of material possession (Rebouças and Soares, 2021). Etzioni (1998, p. 620) for example, describes voluntary simplicity as "the choice out of free will [...] to limit expenditure on consumer goods and services, and to cultivate non-materialistic sources of satisfaction and meaning." Alexander and Ussher (2012, p. 66) understand "the Voluntary Simplicity Movement [. . .] as a diverse social movement made up of people who are resisting high consumption lifestyles and who are seeking, in various ways, a lower consumption but higher quality of life alternative." So-called voluntary simplifiers usually reflect on the influence of overconsumption and/or overwork on their personal wellbeing and "prefer to determine what is enough for themselves and earn only what they need to get by" (Grigsby, 2012, p. 1). Besides, the process of downshifting can be seen as an act toward voluntary simplicity (Aidar and Daniels, 2020), which aims at increasing one's well-being by decreasing work-load, income, and the total consumption level (Tan, 2000; Schor, 2008; Chhetri et al., 2009). All these downshifting practices within the context of voluntary simplicity, simple life or minimalism have the potential to contribute to sufficiency. Sufficiency is considered a key sustainability strategy – which, unlike consistency and efficiency – is behaviorally oriented and focusses on the absolute reduction of resource consumption (Schneidewind and Zahrnt, 2014).

Even though there was and is a lot of scientific interest in downshifting concepts and their potential for reduced consumption, they remain niche phenomena in Western consumer societies. Much has been written about it, but the actual implementation of a minimalist life is more imagination than reality for the majority. However, it seems that this has changed to some extent with the great popularity of Marie Kondo in the public (Kondo, 2014). Her reception of minimalism and especially the combination with "decluttering" has brought the vision of "happiness through less" into the mainstream. Vladimirova (2021, p. 112) argues that the success of the method of decluttering was not accidental, but rather timely: "The book appeared exactly at the moment when the disorder caused by excessive consumption, including fast fashion, reached a new peak". Khamis (2019) describes Marie Kondos KonMari method as part of a broader trend of minimalism and alternative consumption that emerged after the global financial crisis in 2008 and the growing awareness of the negative effects of capitalism.

A closer look at Marie Kondos approach reveals that it is not only a guide for clearing out and decluttering. Rather, it promises nothing less than a life-changing impact (Kondo, 2014). As Marie Kondo writes in the introduction of her work (Kondo, 2014, 2/3): "A dramatic reorganization of the home causes corresponding dramatic changes in lifestyle and perspective. It is life transforming." Based on the "life-changing" perspective on the benefits of decluttering and the holistic approach, numerous guidebooks, blogs, video-blogs (vlogs) and magazine features emerged in the following years. In contrast to earlier (scientific) publications on the topic of minimalism, voluntary simplicity or sufficiency, these guidebooks are characterized by being practical and easy to understand. They contain concrete suggestions that seem to fit well into everyday lives of consumers and convey the feeling that anyone can use the method and start immediately. Further, simple and minimalistic designs are used to showcase content and exercises. The suggested techniques, tips and exercises are comprehensive and versatile. They do not only cover decluttering and tidying up the house, but also, for example, the reorganization of communication and work routines (Meissner, 2019).

Lifestyle minimalism and decluttering are characterized by a central "promise of happiness": In contrast to the basic assumption of consumer society (more goods make happy), the opposite assumption is propagated (fewer goods make happy) (Biana, 2020). This promise corresponds with a contemporary mindset in which exhaustion and overload due to consumerism and over-consumption are widespread in the mainstream of society. Studies also confirm the negative effects of overconsumption and clutter on well-being (Roster et al., 2016; Swanson and Ferrari, 2022) while showing clearly positive effects of decluttering on well-being (Hook et al., 2021). However, the political, economic, and cultural framework conditions that cause or contribute to the accumulation of clutter and the corresponding exhaustion are hardly even considered within decluttering guides (which in turn comes along with the positive observed effect of simplified content that reaches a larger target group). The focus of lifestyle minimalism and decluttering lies on the "aestheticization of individual restrain" within the existing economic system (Khamis, 2019). Since the focus is to achieve more joy, happiness, and well-being through decluttering, the "work character" of decluttering is concealed. Decluttering as a central household task, however, is much older than the lifestyle trend of minimalism and decluttering suggests. In the following, we will therefore elaborate on decluttering in the context of household work.

Decluttering as housework and care

Even though the available living space has steadily increased in Western countries over the past decades (e.g., in Germany alone between 1995 and 2004 an increase by about 13% even with a stagnating population, trend is still upwards, UBA [German Federal Environment Agency], 2010), space for the accumulation and storage of goods is finite. Similar to the "scarcity of time" due to an increase in time-consuming activities (Rosa, 2003), space in flats and houses is limited and can only be expanded very slowly, if at all. Practices of sorting out, decluttering, giving away and disposing of goods are accordingly regular and necessary activities to continue to take active part in consumer society. It is therefore almost surprising that companies that make a big advertising effort to sell new products do not offer much advice and support for consumers in getting rid of things. Furthermore, it is remarkable that decluttering is a rather "young phenomenon" (see The evolution of minimalism as lifestyle concept and the role of decluttering) and not an established issue in research on household work. One reason for this might be the limited recognition of consumption work as household work.

With the emergence of consumer societies in the mid-20th century, consumer work became central tasks of households (Glucksmann, 2016; Wheeler and Glucksmann, 2016). Contrary to what the term suggests, consumption is always productive and thus involves work. Consumption work can be defined as "all work necessary for the purchase, use, re-use and disposal of consumption goods and services" (Glucksmann, 2016, p. 881). Consumption work is necessary because the mere acquisition of consumer goods is rarely sufficient to completely satisfy consumer needs. Goods must be adapted and further processed to be individually valuable (e.g., a pleasant dinner requires not only the purchase of food, but also, for example, cooking and table setting). Many of these consumption-related activities are usually understood as household work. However, they are not sufficiently linked to the conditions and challenges of a consumer society yet. Research on household work still has a strong focus on the social recognition of unpaid household work and its gender-specific distribution (Thébaud et al., 2021). Moreover, there is an emphasis on the variety, quantity, and duration of household work, but less on individual, selected activities. The causes, functions, and conditions of individual household activities in the context of a consumer society play a subordinate role. This becomes particularly obvious with the example of decluttering. To the best of our knowledge, sorting out and decluttering activities, hardly play a role in the analysis of household work (Sweet, 1988; Keith Bryant et al., 2004; Eichler, 2008; Moreno-Colom, 2017).

In the following, we therefore aim to bring in an alternative understanding of decluttering as household work. According to Eichler (2008, p. 15) "[h]ousehold work consists of the sum of all physical, mental, emotional and spiritual tasks that are performed for one's own or someone else's household and that maintain the daily life of those for whom one has responsibility." Household work thus always has two dimensions: an activity- and thing-related dimension (housework) and a more relationship-related dimension (care) (Eichler, 2008). Both dimensions are directly linked to each other.

Before decluttering becomes relevant and necessary, sorting, organizing, and storing goods are the preceding central household tasks. As Collins and Stanes (2021, p. 4) point out, storage is a "central routine practice in the organization of everyday life [. . .] [and] presents a range of practical solutions to managing material accumulations." Cwerner and Metcalfe (2003, p. 229) illustrate, that storage is the "key to understanding how people create order in the home" and even in their life. The authors argue that storage is much more than the simple physical-material arrangement of things but in fact an expression of caring for people and goods (Cwerner and Metcalfe, 2003; Collins and Stanes, 2021). There are various forms and ways of storing and the "right degree of tidiness" is a very subjective one. Nevertheless, it can be argued that there are strong cultural notions and implicit norms about how "filled with things" a home should be. The impact of these implicit norms is particularly evident in the social exclusion and devaluation of so-called hoarders (Newell, 2018). Hoarders are characterized by owning more things than they can adequately store and the inability to let things go. They overcrowd their houses with things that–according to current norms-belong in storage or in the garbage. This makes hoarders "reclassified as belonging to the 'outside' of deviancy, as someone incapable of maintaining themselves" (Newell, 2018, p. 4). Within the tension of successful, almost invisible storage on the one side and hoarding on the other side, the need to declutter arises. The practice of decluttering thus serves the central function of preservation and regeneration in households. Assuming the continuous accumulation of goods, and at some point, a filled storage space, practices of decluttering enable households to repeatedly acquire and successfully store goods. Even if it seems obvious and rather simple to get rid of things, when the quantity of goods becomes too much, decluttering often poses a great challenge. As Lee H.-H. (2017, p. 454) illustrates, "consumers often attribute the cause of having 'too much' to the overall volume rather than specific objects, which makes it hard to choose what to discard." In addition, many things are not "neutral," but people have multiple emotional ties with them.

Apart from the analysis of specific decluttering methods such as KonMari (Lee H.-H., 2017; Chamberlin and Callmer, 2021), there is–to the best of our knowledge–still a lack of research on the frequency, arrangement and gender-specific distribution of decluttering as a task of household work. It can be assumed that there is a wide range of decluttering practices that people use. While some people might repeatedly sort out single things at short time intervals, others might take more time to dispose of a larger number of things and do this at larger time intervals. Even if people declutter in short intervals, decluttering is not a daily chore. With regard to the different types and frequency of housework (daily housework includes e.g., food preparation, dish washing or laundry; occasional housework includes e.g., construction and repairs, gardening or shopping) decluttering can be understood as occasional housework (Moreno-Colom, 2017). From research on housework it is well known that women are more involved in daily housework, while men are more likely to do the occasional chores (Moreno-Colom, 2017). Whether and to what extent this is transferable to decluttering is not yet known.

Decluttering as housework involves a variety of mental and physical activities. As Roster (2001) already shows for the disposal of goods, the psychological "process of dispossession" can be rather complex. Moreover, different notions of tidiness and cleanliness might influence the decluttering process (Dion et al., 2014). In a first step of the decluttering process, even if only for a few seconds, goods are selected, examined, and reflected upon in terms of their usefulness and (personal) value. In this step, it is often necessary to consider the value of goods for other members of the household. This can be accompanied by negotiation processes about whether to keep things or not. In a second step, some of the goods are removed from their usual place of storage, while others are put back. Often, the returned goods are then re-sorted and re-ordered. After this selection process, the phase of disposal or transfer takes place as a third step. While a large part of the goods will probably be disposed of, it is also conceivable that goods are resold or given away. It can be assumed that there are very different contexts and situations in which decluttering takes place. However, unlike other occasional household chores, decluttering seems to have some frequent overriding occasions, such as the change of seasons, moving house or redecorating the home. In this respect, too, empirical data would be fruitful.

While decluttering is hardly considered as housework work in both scientific research literature and the decluttering guidebooks, the second dimension of household work, namely (self-)care, is emphasized to a large extent (Ludwigsen, 2019; Casey and Littler, 2021; Chamberlin and Callmer, 2021). This raises the question of how consumption and care are generally connected. As Godin and Langlois (2021) discuss, consumption often implies multiple care-giving activities for oneself and others within households. With reference to various studies, they illustrate how consumption activities often involve anticipating the needs and preferences of others. In addition to regular care activities through consumption (e.g., cooking, laundry etc.), there are numerous consumption practices that express caring also on a symbolic level (such as cooking soup for the sick, ironing a shirt for a spouse's important appointment, leaving lights on for family members coming home late) (Godin and Langlois, 2021). In the context of care and sustainable consumption, gender inequalities always become apparent. As still more women carry out care-giving activities in the household (as just mentioned, e.g., cooking), women are also more likely to practice more sustainable forms of these activities (e.g., buying organic food for cooking) (Bloodhart and Swim, 2020).

The analysis of consumption activities regarding their care dimensions can also be applied to decluttering. From this perspective, decluttering can be understood as a care-giving activity as it ensures the (re)production of a well-organized and pleasant home. Decluttering ensures that the household is not filled to overflowing, that household members feel comfortable, that household members save time looking for their goods, and finally, that the routine consumption practices can continue.

Decluttering, however, is mostly not communicated or marketed as care in general, but as *self*-care and *self*-help (Lee H.-H., 2017; Ludwigsen, 2019; Meissner, 2019; Ouellette, 2019; Casey and Littler, 2021; Chamberlin and Callmer, 2021). The WHO [World Health Organization] (2018) defines self-care as "the ability of individuals, families and communities to promote health, prevent disease, maintain health, and to cope with illness and disability with or without the support of a healthcare provider." Self-care includes a comprehensive set of different activities that can entail both therapeutic (e.g., medication administration) and personal care (e.g., daily living activities such as bathing, eating, exercise) (Godfrey et al., 2010). Decluttering as self-care assumes that clutter has certain negative psychological and even physical implications (e.g., stress, discomfort, and overload). These negative effects–so the assumption–can be reduced by liberating the home, and even the whole life, from too much stuff and clutter. Decluttering as a process of reducing (material) possessions might therefore help to increase well-being, balance, and happiness (Kondo, 2014; Lee H.-H., 2017; Chamberlin and Callmer, 2021). Accordingly, decluttering techniques (and also other cleaning and tidying "lifehacks") are not only seen as "a quicker route to completing mundane drudgery, but a means of achieving a better emotional and affective state" (Casey and Littler, 2021, p. 10). Following this understanding, decluttering is not only an externally directed, thing-related activity, but also has a strong introspective meaning. "Tidying [and also decluttering] is [presented as] a dialogue with oneself. Through one's possessions, one is actually conversing with oneself. What one wants to own is how one wants to live life" (Biana, 2020, p. 83). Regardless of the question of how much decluttering can actually contribute to successful self-care and well-being (Roster et al., 2016; Swanson and Ferrari, 2022), there are numerous critical assessments of the concept from a socio-economic perspective. Casey and Littler (2021), for instance, see the interpretation of decluttering, contributing to women continuing and willingly taking on the greater share of housework. Ouellette (2019) argues similarly and understands decluttering as a "neoliberal technique" that depends in particular on work by women. She argues that the "happiness-promise" of the KonMari-method is problematic as it obscures structural problems of the consumer society and the distribution of housework. Meissner (2019, p. 193) criticizes that the understanding of decluttering as a form of self-help highlights the current shift of societal responsibility to individual self-responsibility and encourages "entrepreneurial practices of self-development and 'life-maximization'".

Building on this understanding (and critique) of decluttering as housework and self-care, the following section will outline possible chances and risks decluttering entails for the promotion of sustainable consumption.

Potentials and limits of decluttering for sustainable consumption

Sustainable consumption can be defined as "individual acts of satisfying needs in different areas of life by acquiring, using and disposing goods and services that do not compromise the ecological and socio-economic conditions of all people (currently living or in the future) to satisfy their own needs" (Geiger et al., 2018, p. 20). Sustainable consumption combines all three sustainability strategies (consistency, efficiency, and sufficiency), which are often not clearly separable from each other in everyday consumption practices. Sufficient consumption, however, takes on a prominent role in the realization of sustainable consumption (Schneidewind and Zahrnt, 2014; Gossen et al., 2019). Only if resource consumption is significantly reduced in absolute quantities, consumption styles of the Western hemisphere will be transferable to all currently living and future generations. This also leads to the conclusion that the focus on individual products and individual areas of consumption obscures the fact that sustainability can only be achieved if societal consumption patterns and lifestyles as a whole are taken into account. At the same time, it is valid, that not all consumption activities are equally relevant for an effective reduction of negative environmental (and social) impacts. There are specific consumption areas (housing, mobility, nutrition) and selected measures in these areas that have a significantly greater environmental impact than others (Bilharz and Schmitt, 2011; Geiger et al., 2018). To promote sustainable lifestyles, it is thus important to focus on the most relevant measures in the most relevant consumption areas.

Sufficient consumption can be realized through three different types of action, which are ideally combined with each other: (i) number: absolute reduction of the number of purchases of new products; (ii) dimension: use and purchase of (smaller) products with lower resource intensity (iii) frequency of usage: less frequent use of resource-intensive products and services (Jenny, 2016; Gossen et al., 2019). Regardless of which "reduction practice" is applied, it is important for sufficient consumption to achieve an absolute reduction in resource consumption without replacement. That means that rebound effects are avoided, in which financial resources saved in one area of consumption are used for more purchases in another area. This also means that short-term abstinence or temporary reductions in consumption are not sufficient. Rather, consumption routines and practices need to stabilize in the long-term in order to be qualified as sustainable.

Potentials for sustainable consumption

Decluttering and minimalism guides–as shown already–are characterized by being very practical and concrete. They are so-called "self-help books" (Lee M., 2017; Ludwigsen, 2019). Most of them explain step-by-step how to reduce one's possessions. The guides often include exercises, tips, and practical examples. These concrete instructions and their high practical relevance make it easy for anyone to get started. It seems advantageous here that the focus lies on what already exists, namely on the possessions in one's own home. Thus, the central aim of decluttering is not to think about and reduce diffuse, future consumption, but to start in the "here and now." The so-called "liberation from excess" (Paech, 2012) becomes concrete through the practice of decluttering. This also has the advantage that positive effects of decluttering can be directly observed and experienced in the present and can possibly motivate to own fewer things in the future (e.g., direct relief from having to take care of fewer things, more clarity and order). A potential perceived increase in overall well-being (Roster et al., 2016; Swanson and Ferrari, 2022) might also have a positive influence on owning fewer things in the future. Following studies on the relationship between perceived self-efficacy and sustainable consumption (Hanss and Böhm, 2010), it can also be argued that the experience of successfully decluttering in one's own household can have positive effects on future sufficient consumption activities.

Furthermore, decluttering exercises are often combined with self-tests and reflection tasks that encourage the reflection on material possessions and consumption practices. One exercise that is suggested before actually sorting out goods, for example, instructs people to first estimate the quantity of the goods owned and to then count the actual number. This stocktaking exercise encourages people to closely look at their own possessions. Other frequently suggested exercises address the question of what is important in life or to what extent material goods are important (Morgan, 2017; Madsen, 2021). Reflection can also be stimulated during the decluttering process itself. The KonMari method, for example, is characterized by taking each object into one's hands and evaluating it in terms of the resulting feeling of happiness (Kondo, 2014). We argue that these reflection exercises can help people to develop reflection competencies and stimulate awareness and insights into existing needs and preferences, which then become relevant for starting the change process toward more sustainable consumption patterns. Competencies to reflect individual needs and cultural orientations are understood as key competencies for sustainable consumption (including knowledge of how preferences are culturally contextualized, ability to critically engage with commodification processes and willingness to explore and scrutinize one's own aspirations, wants and needs) (Fischer and Barth, 2014; Frank et al., 2019). These reflection competencies are typically conveyed in an educational context. Recently, the importance of mindfulness training for sustainable consumption has been discussed in particular (Fischer et al., 2017; Stanszus et al., 2017; Frank et al., 2019; Geiger et al., 2020). Mindfulness and decluttering are both techniques that are advocated in the context of self-help and self-care. Both promote introspection and reflection on needs. Building on existing studies on mindfulness and sustainable consumption, it can therefore be argued that decluttering likely contributes positively to establishing more sustainable consumption patterns.

Research shows that individuals do not necessarily decide to apply decluttering methods (such as KonMari) for ecological or ethical reasons, but rather for egoistic ones (Vladimirova, 2021). This is likely promoted by the fact that decluttering is communicated as a form of self-care and a variety of ego-related benefits are emphasized (see Decluttering as housework and care). However, this could also be seen as an unintentional way toward promoting sufficient consumption (Callmer, 2019; Kang et al., 2021). While, for instance, sufficient consumption is still perceived as a loss or a restriction by many population groups, decluttering and lifestyle minimalism guides shift the feeling of guilt or loss and promote the idea of enjoyment in the process of reducing material possession instead (Chamberlin and Callmer, 2021). Chamberlin and Callmer (2021, p. 25) "suggest that the increased focus on people's feelings about their material environment and its impact on their well-being can be associated with the unintentional slowing down of consumption among participants and that this, in turn, could provide an important way to engage mainstream consumers with a sufficient circular economy." In sum, it becomes clear that there are relevant chances for sustainable consumption.

Limits for sustainable consumption

However, some risks and limits of decluttering for sustainable consumption are to be mentioned.

Kondo (2014) proudly mentions the number of belongings that her clients discarded as a sign of success for her method. "The number of things my clients have discarded, from clothes and undergarments to photos, pens, magazine clippings, and makeup samples, easily exceeds a million items. [...]. I have assisted individual clients who have thrown out two hundred 45-liter garbage bags in one go" (Kondo, 2014, p. 2). Most consumers might want to see such quick results in their homes with the help of decluttering guidebooks. As already explained, a central chance of decluttering is that the associated measures can be implemented directly, and success becomes immediately visible. However, this also implies that there is a certain interest in implementing decluttering as quickly as possible. It's about achieving quick results and getting rid of stuff. This focus on speed stands in conflict with the necessary management of goods after sorting out, which can be very time-consuming when sustainability aspects are considered. Instead of just throwing things away quickly, it is of relevance to pass goods on and thereby give them a new purpose (Cooper, 2005). Passing on goods, e.g., to charities, second-hand shops, or simply other private individuals, however, often requires time and effort. In case goods are not passed on, but are disposed of in a sustainable way, they need to at least be appropriately separated and recycled. However, as Cooper (2005) shows, consumers often lack interest in investing time in the care and repair of goods in the use phase. Also, recycling, for example, is perceived as work. It is therefore hardly plausible to assume that decluttering promotes a sustainable after-use-phase. Instead, it can be assumed that decluttering simply results in the disposal of many goods that could still be used.

It seems that decluttering as an activity is mostly done at a specific time-period and does not require a fundamental change in the daily lifestyle of individuals. For instance, it does not imply a change in their commute to work or a change in location for grocery shopping. Therefore, it is usually seen as a (fun) project to do now and then and not as a demanding lifestyle-change toward sustainable consumption (which–as described already–also represents an opportunity). Adding to this, it is currently simply fashionable to choose minimalist consumption options. As Schneidewind and Zahrnt (2014, p. 146) state: "A new purism is taking hold in many areas of life, from single speed bikes to minimalist interior décor." But this does not necessarily imply any changes in consumption routines. Besides, unless consumers become aware of the (mental, ecological, or financial) benefits of having and keeping a minimalistic lifestyle in the long term, they are unlikely to contribute to sustainable consumption at the end.

Decluttering primarily addresses the reduction in quantity of goods but does not necessarily touch on the reduction of regular consumer goods (e.g., food) or goods and services that induce particularly high resource consumption. Further, highly relevant consumption areas are often not targeted (e.g., space and type of heating, mobility, animal products), (Geiger et al., 2018) and resource-intensive activities and services remain unconsidered (e.g., holiday trips). Accordingly, "frequency of use" and "dimension" (i.e., two of the three action types for sufficient consumption) may not be promoted by decluttering at all. Regarding the third dimension of decluttering, "absolute reduction of new purchases," even the opposite effect may occur. As decluttering reduces possessions, new space is created for new consumption. Decluttering would then rather be an accelerator or catalyst for further consumption rather than contributing to a reduction in new purchases. In decluttering guides, consumption practices *after* decluttering receive little attention. Even though some guides provide suggestions and exercises on how to prevent new purchases and consume less overall (e.g., through so-called no-shopping lists, avoidance of advertising, etc.). However, in our view, the difficulty of reducing consumption in the long term is not sufficiently considered. Even though Chamberlin and Callmer (2021) show that participants following the KonMari method no longer had the wish to purchase goods, it is unclear whether this effect holds in the long-term. Since it is plausible and obvious that the newly won space motivates to be filled again and consumers are tied into long practiced routines of consumption, this presents a central risk for sufficient lifestyles.

This possible relapse into old consumption patterns is closely linked to the previously discussed criticism of decluttering as a "(neo-)liberal, capitalist method" for more growth and acceleration (Meissner, 2019; Ouellette, 2019). Accordingly, the recommendations to reduce possessions on the one hand and the stimulation of further consumption actions on the other are not contradictory, but rather mutually dependent. Households can only consume new goods through the newly created space. As Meissner (2019, p. 186) argues, "growth hegemony remains largely unchallenged" [...] [and] shows capitalism's tendency to appropriate and commodify its own counter-culture.

Research approach and initial qualitative insights into decluttering motives

In the following, we aim to shed light on motives for decluttering and associated reflections of wishes and needs by presenting first insights into the results of an ongoing citizen science research project from Germany. The project[1] addresses the question of whether and to what extent decluttering practices can help to promote sustainable consumption and at the same time avoid the unwanted return to old patterns of consumption and accumulation after decluttering. To be able to better classify the initial research results presented below, our research approach will be illustrated in the next step. Afterwards the selected methods and the results will be presented. Finally, a discussion and presentation of the limitations and an outlook on further research will follow.

Exploring consumer behavior and decluttering in the context of citizen science

There are numerous definitions and interpretations of citizen science. However, at its core it always involves an active participation of the public in scientific research (Haklay et al., 2021). This means, that volunteers can take part in all phases of a research process, starting with the development of the research design, data collection, data evaluation and the derivation of recommendations for action.

While citizen science is particularly widespread in the natural sciences, there are fewer examples of consumption research by citizen science (Hielscher and Jaeger-Erben, 2021). From our point of view, the participation of citizen scientists in investigating the relationship between decluttering and sustainable consumption offers three key advantages: (i) Through open exchange and collaboration with citizen scientists, the research field can be broadly explored. This is valuable as there is rather little empirical evidence on our research question to build on. (ii) Secondly, the citizen scientists are very interested in finding out more about themselves and their relationship to their goods and are therefore motivated to provide insights into their consumption practices and decluttering experiences by using the cultural probes provided in the project. (iii) Thirdly, the citizen scientists have easy access to their peers to interview others about their decluttering and consumption experiences in a confidential and protected setting.

The research process is also characterized by the fact that, in addition to the collection of "conventional" quantitative and qualitative data by the academic scientists of the project, we collect and evaluate different streams of qualitative data together with the citizen scientists. Over the course of the whole project, this participatory, qualitative data consists of (i) six workshops, which take place at three different points in the course of the project, (ii) a set of cultural probes (Gaver et al., 1999), which consist of different (reflection) exercises and suggestions for reflecting, documenting and decluttering as well as for avoiding additional consumption, (iii) semi-structured interviews conducted by the citizen scientists with their peers about the experiences and effects of decluttering. The three phases of our research process and the different types of data collection streams are presented in Table 1.

In the following we only focus on the results of the first two workshops (of the six workshops in total) and the results of the first two reflection exercises (as part of the cultural probes set) (displayed in color in the table).

Participation in the project was advertised online and offline through various communication channels. The main online communication channels were the mailing list of an NGO providing information on energy saving and climate protection (co_2 online) and the mailing list of an NGO on sustainable fashion (Fashion Revolution Germany). Offline, the project was advertised *via* posters in a university and supermarkets. In total, more than 1,000 participants from all over Germany were recruited. Citizen scientists had to be 18 years old or above and live in Germany, in order to be qualified for participation.

Description of selected methods

As shown above, the project took up a mixed methods approach in combining conventional quantitative and qualitative methods together with a participatory research approach, that closely involved citizen scientists in collecting data. In the following, we present selected methodologies from

1 The project "Mein Ding-Ich bin, was ich (nicht) habe" (My Thing-I am what I (don't) have) is funded by the German Federal Ministry of Education and Research (BMBF).

TABLE 1 Course of the research process and type of data collection (The highlighted data are presented in this article).

Research phase	**Type of data**	
	Conventional quantitative and qualitative research data: academic scientists collect and evaluate data	**Participatory research data (qualitative): citizen scientists and academic scientists collaborate to collect and/or evaluate data**
Preparation	Pre-survey	Two workshops on motivations, expectations, and experiences
Implementation		Two self-reflection exercises answered by citizen scientists
		Documentation of possessions, decluttering and self-reflection exercises answered by citizen scientists
		Less buying and self-reflection exercise by citizen scientists
	Post-survey I	Two interim co-evaluation workshops to discuss experiences and results
	Interviews with citizen scientists	Citizen scientists recruit others to do the decluttering exercises and conduct interviews on decluttering
Evaluation	Post-survey II	Two co-evaluation workshops to discuss experiences and results

only the participatory research, i.e., (i) the first two online workshops and (ii) two first reflection exercises, which are part of a larger cultural probes set developed as an intervention for the citizen scientists–and later–the larger public. The two workshops took place as online-workshops *via* Zoom in total with 51 citizen scientists (36 female, 15 male) in March 2022. Apart from gender, no other socio-demographic data was collected from the workshop participants. Each workshop was 2 h long. One workshop took place in the afternoon and one in the evening, to allow for flexible participation. Each workshop was moderated by one of the researchers and supported by another project team member. The workshops focused on the motivation and expectations of the citizen scientists for decluttering and offered an interactive exchange between citizen scientists. In the first part of the workshops, citizen scientists were intended to get to know each other in a round of speed dates and shortly reflect on the reasons for participation in the project.

In the second part of the workshops, citizen scientists were asked to engage in an exchange on the challenges and desires in dealing with possessions in more depth. The workshops explored three key questions in particular: (i) Why do participants want to declutter? (motivations); (ii) What do participants expect from decluttering? (expectations) and (iii) What experiences do the participants already have with decluttering? (experiences). We asked participants to elaborate on these key questions in three smaller subgroups and documented the key workshop results on a digital whiteboard. The outcomes of the discussion then provided valuable insights for the development and design of intervention materials (cultural probes set) of the project.

The two reflection exercises–as the first part of the cultural probes set–were carried out by the citizen scientists in April 2022. By using the information gathered in the first accompanying online survey (see Table 1), the participants who completed the reflection exercises can be characterized as follows: A total of 426 citizen scientists filled out the two reflection exercises. Among them, around 30% were male, while around 70% were female. Besides, more than half of the participants (59%) were between 51 and 70 years old, indicating that rather older generations participate in the project. Most of the participants were holding a university degree (70%), followed by 17% that had high school degree. Almost half of the participants (52%) who completed the reflection exercises were employed at a company and around 22% were already in retirement.

The first reflection exercise of the cultural probes set focused on peoples' general wishes in life. Participants could add up to five aspects (material or immaterial things) for each question and write down their answers in an unstructured manner. Participants received the following questions and sub questions to reflect upon:

1. What do you really want in life?

1a. What would you like to have more of in your life?

1b. And what would you like to have less of?

The second reflection exercise of the cultural probes set focused on selected goods from five household areas that people could claim to value the most. Participants received the following questions, that they could answer in an unstructured manner:

2. What Is "your thing"?

2a. Which goods in your household have a special value for you?

2b. Why are these goods important to you?

The questions for reflection in the cultural probes set were stated open and therefore participants were free to interpret them individually and add aspects that deemed important to them. The qualitative results of this reflection exercise were then analyzed with a software tool for qualitative content analysis (MAXQDA). For the analysis of the first exercise, a list of broad categories and identifiers for analysis were determined by using guiding literature (YouGov., 2015; Statista., 2021) to define the most important wishes in life. The initial set of themes for the first exercise was: relationships and love, health, money, recreation, experiences, success, creativity, and spirituality. The themes were applied to the material in a deductive manner. The raw data set was then coded by using this scheme. Later on, the category system was back-tested based on the concrete material in an inductive manner and categories were summarized and refined. Since the second exercise entailed quite specific questions, that could not be related to a theory, themes were developed only by proceeding in an inductive manner. We generally followed content-analytical procedures suggested by Mayring (2019) to analyze results and work out recurring patterns of answers and structures of meaning. The results were lastly interpreted in the light of the main research questions. In the following, results are presented mainly by referring to overarching themes that were mentioned. Additionally, the results are illustrated by using selected direct quotes of citizen scientists. Hereby, citizen scientists are cited by using an abbreviation and their unique ID (e.g., CS 1).

Results

Results from the workshops

Motivations

In both workshops, participants mentioned the problem of overcrowded houses. On the one hand, they report that this state of abundance (coupled with disorder) makes it difficult to find things that they need, but also constantly confronts them with objects that are not actively used anymore. Participants also expressed the desire to have more space in their home as well as achieve more clarity, order, and fixed places for the goods in their household. In the long run, participants mentioned that they hope to limit the number of objects they own, and thereby create a clearly arranged living environment. On the other hand, participants explain that the mere visibility of physical clutter in households puts mental load and a sense of stress on them. Adding to this, they mention that the number of goods even increases over time in most households, which may cause a feeling of loss of control over the situation. Against this backdrop, participants clearly articulate the need to find ways to reduce their stress, possibly by finding a long-term solution to better manage the number of goods they own.

Expectations

The participants mentioned that they seek mental freedom, peace of mind and psychological relief by decluttering. Also, simply having more time for other important things in their lives is a main reason for people participating in this project to start decluttering.

Experiences

Workshop participants mentioned to already have experience with decluttering, however, not necessarily by using a specific method to declutter. Although this task is regarded important in order to keep an overview and create a comfortable home by the participants, decluttering is described as being quite challenging in the past. One of the reasons for this mentioned is that a lot of objects have a strong emotional value for people, making it hard to let them go. Also, the participants report about the fact that decluttering objects with an emotional value in a shared household often involves negotiation processes with other family members, that people do not know how to approach. In other cases, participants illustrate that they are uncertain about whether they will still need particular everyday objects again in the future. They therefore seek specific evaluation and prioritization methods, to learn what is important to them, what they really need and how to clean out. Furthermore, participants mention their strong retention to clean things out because they don't want to just throw them away. The question of how to reuse decluttered items in a useful manner is mentioned as a major challenge in the application of decluttering methods.

Results from the first two reflection exercises

In the first reflection exercise of the project, participants were asked to think about what they really want in life. More specifically, they had to reflect what they wish for in life and what they wish less of. The main interest behind this reflection exercise was, firstly, to find out to what extent people focus on non-material or material things, and secondly, to what extent they reflect or problematize their own material possessions and consumption behavior.

A graphical overview of the overarching results, showing the main themes and the frequencies of terms mentioned in that categories are displayed in Figures 1, 2. The same main themes were identified and used for the two sub questions, however, for the first sub question the themes refer to positive aspects, while for the second sub question themes refer to negative aspects. Figure 1 displays the most important themes participants wish for in life, while Figure 2 displays the most important themes participants wish less of in life, both sorted in descending order. Further, Table 2 displays a list of the main themes with corresponding subthemes for each question in ascending order of frequency.

The results show that citizen scientists participating in the project most frequently mention good "relationships" as

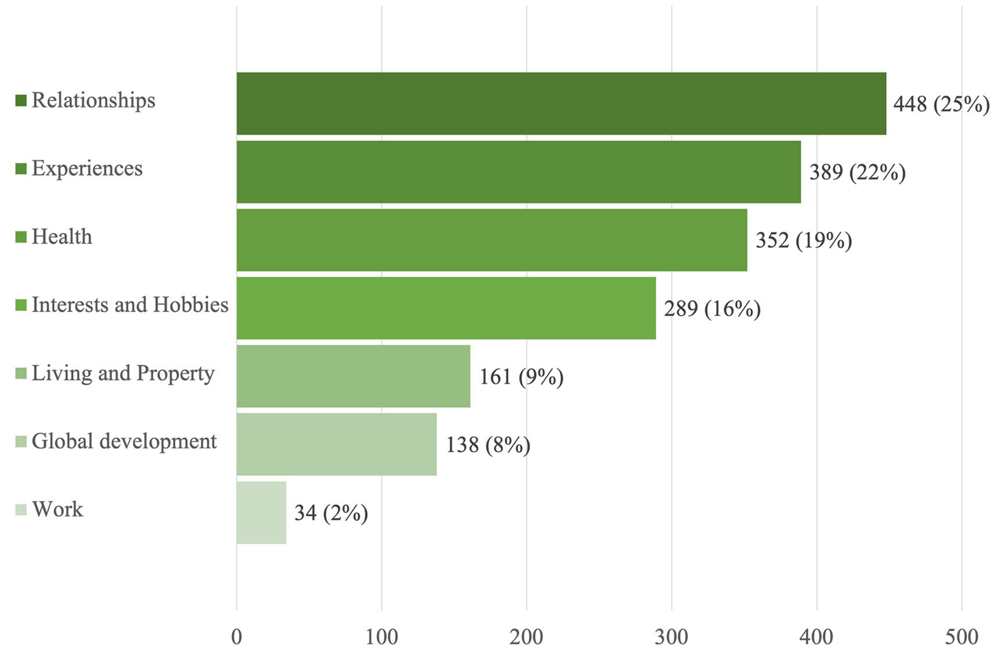

FIGURE 1
What do you wish for in life: Number of mentions and percentages in each category.

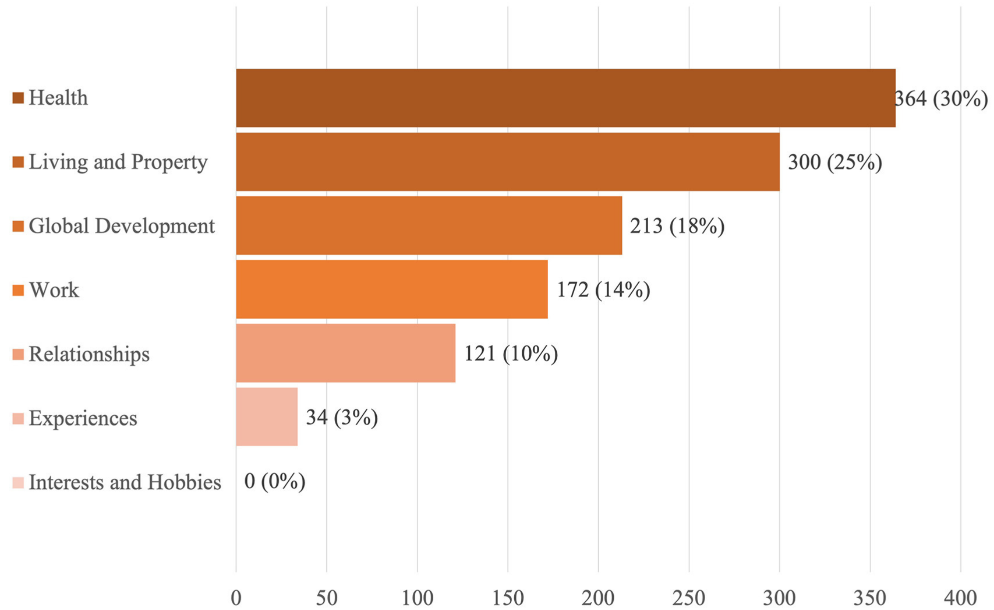

FIGURE 2
What do you wish less of in life: Number of mentions and percentages in each category.

an overarching theme that they wish for in life (25% of all mentions, see Figure 1). More specifically, they mention the wish to have time to maintain and cultivate their relationships with friends and family. One citizen scientist desired "moments of connectedness with my friends" (CS 360) while another person wished for more "time for our son and grandchildren" (CS 69). The citizen scientists further long for safety and love, but also wish to establish new contacts and get to know

TABLE 2 Overview of main categories and corresponding subthemes identified in reflection exercise 1.

Main categories	Subthemes	
	What do you wish for in life?	What do you wish less of in life?
Relationships	Friends	Dispute
	Family	Negative encounters
	New contacts	Egoism
	Tolerance	Violence
	Partnership	Discrimination
	Love	Hate
Experiences	Holidays	Media use
	Excursions	
	Nature	
	Doing nothing	
	Variety	
Health	Relaxing	Stress
	Health	Fear
	Time to oneself	Disease
	Satisfaction	Weight
	Energy	Loneliness
	Patience	Tiredness
	Ease	Impatience
	Spirituality	Sadness
		Alcohol
Interests and hobbies	Movement	
	Gardening	
	Learning	
	Time for hobbies	
	Music	
	Culture	
	Reading	
	Creativity	
	Handwork	
	Inspiration	
	Art	
Living and property	Money	Burden
	Tidiness	Mess
	Consumption	Consumption
	Better living situation	Financial worries
	High-quality owning	
	Self-Sufficiency	
Global development	Environmental protection	War
	Peace	Climate change
	Infrastructure	Waste
	Justice	Injustice
	Global Health	Global health
		Hunger
		Poverty
Work	Meaning	Profession
	Fixed working hours	Housework
	Professional success	Administration
	Pleasure	
	Further training	
	Security	

people. In contrast, negative aspects of “relationships” (10% of all mentions, see Figure 2) that participants wish to avoid are mentioned, such as dispute and trouble with friends, family, and neighbors, but also societal issues such as selfishness, discrimination, hate and violence. For example, one citizen scientist called for “less violence against children (CS 298).

An aspect that is also mentioned frequently as a wish in life is the interest in “experiences” (22%), such as traveling, excursions, spending time in nature but also having sufficient un-scheduled moments for doing nothing or enjoying free time. One citizen scientist expressed the wish to “travel by motorcycle-individually or in groups” (CS20). For quite some participants, having more time to pursue one’s own “interests and hobbies” is also one of the wishes for the future (16%). The “interests and hobbies” mentioned by the citizen scientists include, inter alia, sports, gardening, learning new skills, listening to and making music. For example, having “time for practical music exercise” (CS 422) was mentioned by one person. Other citizen scientists sought to be creative, and thus hoped for “more time and space for creative activities” (CS 295) or “time for my artistic work” (CS 389). Additionally, the wish for time to enjoy arts and culture is expressed, for example, one citizen scientist would like to “visit cultural events” (CS 407). For some, having more time for experiences and time to pursue interests goes hand in hand with spending less time on “work,” which is gainful employment and housework (14%). Citizen scientists, for example, demanded “less physically poor working conditions” (CS 280) and hoped for less “duties (cleaning, tidying, organizing, etc.)” (CS 45).

Furthermore, participants reflect on their physical and psychological “health” when it comes to the question of what they want in life (19%, see Figure 1). The desire for more rest and relaxation was mentioned particularly often, followed by the wish for better mental and physical health both for themselves and those close to them. Other frequent wishes relate to improved life satisfaction, more time for themselves and increased energy. For instance, one citizen scientist longed for “energy to consistently implement a health exercise program” (CS 28) and another mentioned the wish for “inner peace and serenity for some issues that upset me” (CS414). Conversely, poor “health” and especially stress and mental load, illness, anxiety, fear, and loneliness as well as body weight, are mentioned as the most prevalent things worrying people (29%, see Figure 2). One citizen scientist communicated “I would like to have less stress at work” (CS 351)) and another person lamented the “feeling of being isolated” (CS 258).

Compared to the most frequently mentioned terms, material needs (mentioned within the theme “living and property”), such as money and financial security, an organized, big and nice-looking living space, and consuming high-quality objects (e.g., a new car or high-quality clothing) are not among the most important wishes for citizen scientists in this project, but they are still mentioned by a few (9%, see Figure 1). Exemplary for the theme “living and property” is the wish by one citizen scientist for a "stylish apartment with seating outside" (CS 81). In contrast, it becomes clear that the load of unused clutter and disorder in the living space (mentioned within the theme "living and property") burdens many of the citizen scientists that take part in the project (25%, see Figure 2). One citizen scientist, for example, reported about "mountains of stuff lying around everywhere and constricting the usable living space" (CS 28), someone else felt the "burden of inherited goods from parents and grandparents" (CS 47). Some participants explicitly want to spend less time searching for items in their household and taking care of them. Many participants indicate that they have already identified an area in which they own too many things, such as clothing, paperwork, or electronic items, they want to get rid of. Furthermore, some participants problematized current consumer society and the resulting constant temptations coaxing them into consuming more goods, that later often turn out to be mispurchases or items they do not really need. Therefore, some citizen scientists expressed the wish for less pursuit of possession.

Lastly, participants addressed issues of politics and "global development." Primary concerns that they wish less of in life, referred to war, social inequality, climate change and waste issues as well as issues relating to global health and the pandemic (18%, see Figure 2). For instance, one citizen scientist criticized the "destruction of nature for so many unnecessary things that are manufactured" (CS 27). On the positive side within the theme of "global development" participants stated the wish for more environmental protection, peace, and social equality as well as the improvement of infrastructure in their surroundings (e.g., improvement of bike lanes) (8%, see Figure 1).

In the second reflection exercise in the project, citizen scientists were asked to reflect their possessions and think about their favorite goods in different household areas that they use and value the most and about the function the good serves for them. The questions were assigned to four separate domains in which individuals tend to accumulate the most things, clothing, stationary, kitchen items, and technology. The main interest looking at the results of this exercise was to shed light on the unique relationship people have with their goods and the reasons people decide to keep (or even accumulate) things.

The main reasons mentioned by participants for why these goods are important to them are summarized in a graphical overview in Figure 3.

In summary, the results show, that participants often value objects because they serve a particular function or because objects have a particular trait that makes them valuable (see Figure 3). The most often mentioned functional value of goods relate to "convenience" (12%), that is goods that make everyday life more comfortable and easier. For example, people appreciate their goods because they help them simplify daily tasks such as cooking or cleaning. Further, people mention access to "information" (8%), "communication" (8%), "facilitation of work" and organization (2%), or an "entertainment" purpose (3%). Beyond the merely functional aspect, superficial or emotional properties make the goods stand out for participants. The most often stated reason for valuing goods related to goods giving "joy and pleasure" (15%). Further, some were said to have a particularly nice "appearance" (8%), some have been gifted or inherited and possess a "memorable value" (8%). Further aspects, that were mentioned less often, are displayed in Figure 3.

Discussion

These preliminary results from the ongoing research project give first indications for the discussion about potentials and limits of decluttering for sustainable consumption.

We have shown in our previous chapters that decluttering and minimalism are very much considered in the context of promoting well-being and quality of life so far (Roster et al., 2016; Hook et al., 2021; Swanson and Ferrari, 2022). Looking at selected decluttering methods (such as KonMari method), one can observe their emphasis on achieving happiness and satisfaction through decreasing the amount of material possessions (Kondo, 2014). The findings from the two workshops conducted within the project clearly demonstrate similar insights. Here, participants also associated decluttering with the hope of relief and increased well-being. This is further supported and supplemented by the results of the reflection exercises that show that people tend to not want more material goods, but rather wish for enriching relationships, fulfilling experiences and improved health and well-being in their life. Only very few mention the wish to acquire high-quality goods.

Moreover, we conceptually deduced that decluttering, on the one hand, is hardly considered in the discourse on consumer work and household work. On the other hand, decluttering is mainly communicated and marketed as a form of self-care (Ludwigsen, 2019; Ouellette, 2019; Casey and Littler, 2021), rather than work. Our results from the two workshops show that participants perceive decluttering as demanding and difficult. Participants are looking for help and support in implementing decluttering practices. Even though the participants do not explicitly refer to decluttering as work, it is nevertheless apparent from their comments that they perceive decluttering as a necessary form of effort. In addition, the results show that decluttering often requires coordination and exchange with other household members–which clearly highlights the care dimension of decluttering. Also, the perception of decluttering as a form of self-care is evident in various statements made by participants, such as when they articulate that they hope to achieve more mental freedom, peace of mind and psychological relief by decluttering.

We conceptually elaborated in our paper that decluttering can provide an opportunity to reflect on previous consumption patterns and potentially realign them in the future. Following

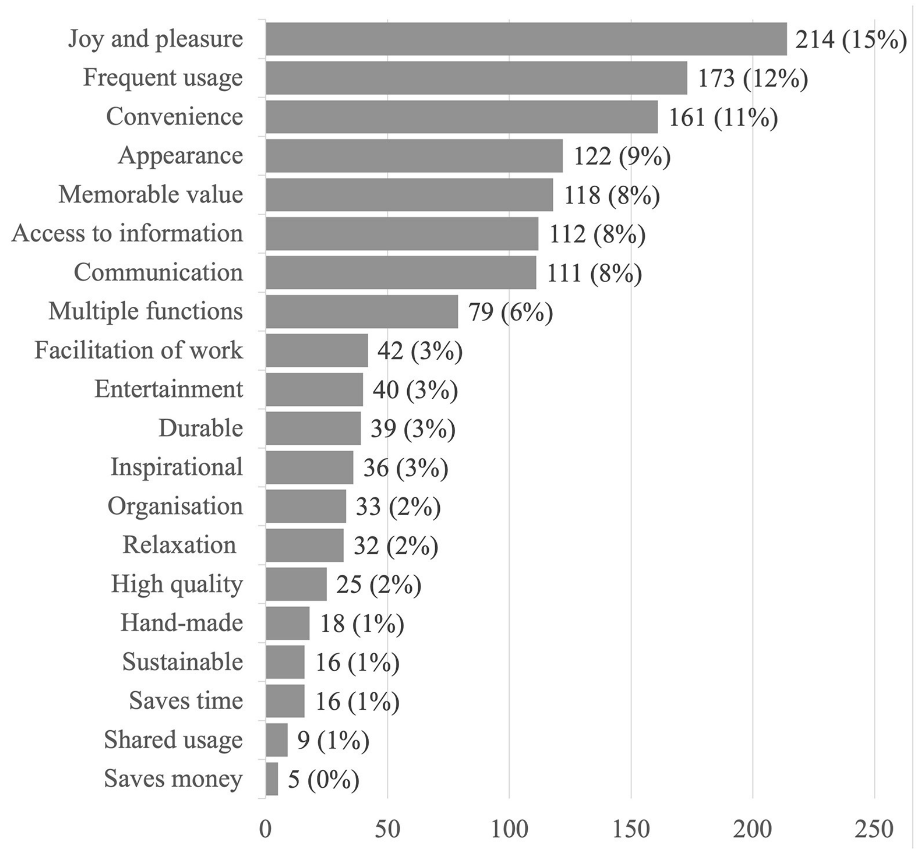

FIGURE 3
What makes the good important to you? (percentage refers to mentions of terms in each category in relation to the total number of mentions).

studies on mindfulness (Frank et al., 2019; Geiger et al., 2020)–we have argued–methods used for decluttering could also be an appropriate opportunity for introspection and reflection. Looking at the empirical findings, they confirm that decluttering can be an opportune time for realignment. Participants in the project mentioned to associate negative feelings with the multitude of things they own and feel burdened by unused clutter. They have already realized for themselves that the promise of happiness through more consumption no longer works for them. Some actively problematize consumer society that constantly induces them to buy more. The second reflection exercise shed light on the reasons why people value and keep things, i.e., goods that simplify their life, enable them to get information, communicate with each other or have a specific emotional value. It can be assumed, that learning to consider the functional and emotional properties of goods in future consumption decisions, can prevent people from buying new (unnecessary) things. Whether the reflection and decluttering exercises offered in the project actually provide the desired solution and help to limit consumption, is still to be shown during the ongoing research within the citizen science project.

Although the participants of the workshop have not yet practiced decluttering methods at that point in time, they have already shown similar attitudes and perceptions as described in the study by Chamberlin and Callmer (2021). Participants showed a high awareness of the problem and expressed the willingness to change something in dealing with possessions and consumption. They felt a lot of problem pressure and were looking for practical ways to relieve it. Thus, it can be argued that participants have already taken the first step in the direction of sustainable consumption. Participants are looking for change and are interested in solutions. Accordingly, it could be assumed that it is not so much about the actual implementation of decluttering. Rather, it could be concluded that people who are interested in decluttering may be particularly open to changes in the way they deal with possessions.

The special composition of the project participants in terms of age, gender and education is on the one hand certainly related to the pre-selected communication channels used to advertise the project. On the other hand, it shows that highly educated, older women seem to have a particularly pronounced interest in the topic. The greater participation of women in the project may indicate that, overall, more women than men are interested in decluttering. This fits with the observation that women continue to do more household work than men (Moreno-Colom, 2017). Also, women seem to be particularly receptive for content about decluttering that is marketed as self-care (Ludwigsen, 2019; Ouellette, 2019; Casey and Littler, 2021). As discussed before, this bears the risk of women being pushed back into traditional roles (Ouellette, 2019). In this regard, our research contributes to current research on gender and care. Furthermore, the age of the participants seems especially interesting to us and is a fruitful complement to other research looking at the effects of clutter and decluttering in different age groups (Swanson and Ferrari, 2022). It can certainly be assumed that older people have more time to actively participate in such a research project and generally for decluttering. However, older age could also indicate that the pressure of suffering from too many possessions increases with age. On the one hand, this assumption is contrary to the results of Swanson and Ferrari (2022) that show that clutter has stronger negative effects on younger adults than on older adults. On the other hand, the following arguments seem also plausible to us: More and more things are accumulated with advancing age, which might increase the problem pressure. Furthermore, a "sandwich effect" might occur at the ages of 50 and above. While the children of the 50-year-olds slowly move out and leave many things behind in the parental household, the households of the senior parents often must be dissolved because of their moves to retirement homes or deaths. Besides, in some categories the number of accumulated things is simply so high that this age group might feel overwhelmed and in need of specific methods for decluttering. There may therefore be a particularly big need for decluttering in this age group.

Limitations and future research

As already mentioned, the results presented here are part of an ongoing research project. They will be supplemented by further qualitative and quantitative data in the near future. In particular, we will take a closer look at the effects occurring after participants used decluttering methods. While qualitative data on a population sample may not be generalizable, it does provide relevant insights into a specific sample. In this case, these are adults from Germany who voluntarily participate as citizen scientists in an online participatory project. For recruiting participants various platforms of NGOs who are active in the sustainability areas have been used. Besides, offline advertisement (e.g., using flyers and posters in the neighborhoods, etc.) was employed to attract more diverse citizens for this project. However, the researchers of this study need to highlight the fact that at the end no representative sampling could be achieved for this project. As already shown, the sample is characterized by the fact that the participants tend to be older, more highly educated and more likely to be female. Further research should therefore focus on other population groups. Regarding the gender-specific unequal distribution of housework and (self-)care, possible gender differences in the topic of decluttering should also be looked at more closely. It could also be interesting to compare different age groups in order to be able to better understand whether and to what extent perceptions of overload due to the presence of too many possessions increase with age or not.

Citizen science and transdisciplinary research always face the challenge of balancing practicality on the one hand and accuracy in the scientific approach on the other. This challenge was also evident in our project. Thus, the workshops at the start of the project were primarily intended to be enjoyable for the participants and to promote exchange. At the same time, we wanted to collect initial data on motivations and expectations. Accordingly, the data collected is not as detailed as we would have liked.

Both the workshops and the reflection exercises are based on self-reported assessments and wishes of the citizen scientists. As the citizen scientists were aware of the link between decluttering and sustainable consumption and knew the objectives of the project, it cannot be excluded that they were influenced by this in their answers. Further research could therefore contribute by looking – without knowing the research context – at problem perception before decluttering and (long-term) consumption effects after decluttering. In particular, the possible discrepancy between stated attitudes and behavioral intentions and actual behavior should be considered. This could be done in particular through participatory observation in the households.

Conclusions

This article has illustrated decluttering as being a cultural practice between household work and self-care and has discussed the potential of decluttering methods for promoting sustainable consumption. We showed that decluttering has hardly been considered in research on household work so far, although decluttering is a basic prerequisite for being able to consume continuously in view of limited spatial capacities of households. However, while the work character of decluttering is hardly mentioned, decluttering is mainly communicated as a form of self-care. The central promise is that fewer possessions contribute to greater well-being and happiness. In addition to this promise of happiness, there are other features of decluttering guides that may contribute to promoting sustainable consumption. These include, for example, simple language and a non-political framing. On the other hand, there may also be relevant risks or limits for the promotion of sustainable consumption. It can be assumed, for example, that decluttering guides promote a throwaway culture and even faster-moving consumption cycles. Empirical evidence on the effects of decluttering on sustainable consumption is still scarce. First results of a citizen science research project show that people are interested in decluttering because they feel weariness and discomfort due to the excessive accumulation of goods. This leads to the conclusion that decluttering can be a window of opportunity for people to reflect on their consumption behavior and make it more sustainable in the long term.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethics review and approval/written informed consent was not required as per local legislation and institutional requirements.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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EDITED BY
Barbara Smetschka,
University of Natural Resources and Life Sciences Vienna, Austria

REVIEWED BY
Jasenka Gajdoš Kljusurić,
University of Zagreb, Croatia
Vezirka Jankuloska,
UKLO-Bitola, North Macedonia

*CORRESPONDENCE
Margot Dyen
✉ margot.dyen@univ-smb.fr

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Social ties and sustainability in neighborhood canteens: A care-based approach

Margot Dyen[1]* and Maxime Michaud[2]

[1]Laboratory IREGE, University of Savoie, Chambéry, France, [2]Institut Paul Bocuse Research Center, Ecully, France

Introduction: This article proposes to study the mechanisms by which food, and particularly commensality, generates social ties.

Methods: It mobilizes the conceptual framework of care, and is based on a qualitative methodology inspired by ethnography, to study neighborhood canteens. Two non-profit organizations were investigated, both having in common the willing to generate social ties between people living or working in the same neighborhood through the sharing of meals. We conducted participant observations and two sets of semi-structured interviews with stakeholders of the structure, either managers, employees or members. The first series aimed at describing the experiences of the participants and their sociocultural background. The second series used the projective method of collages, in order to go deeper in the understanding of the relationships between the members and with the structures.

Results: The results show that there are different postures toward neighborhood canteens, between a desire to receive care and a desire to give care.

Discussion: We thus identify that the search for care is based on the need for recognition, valorization and reassurance and that the kind of social ties created and experienced by the stakeholders is highly dependent on the compatibility of their expectations regarding care.

KEYWORDS

social ties, care, neighborhood canteens, qualitative study, food, sustainability

1. Introduction

In its definition of a Sustainable Food System, the Food and Agriculture Organization (FAO) is insisting on the fact that it is supposed "to generate positive value along three dimensions simultaneously: economic, social and environmental" (Nguyen, 2018, p. 4). In the last years, one of the positive impacts of food, often related to sustainability, is its capacity of creating social ties and contributing to fight social isolation. Eating together, sometimes named "commensality," is thus considered of having the quasi-magic property of automatically generating positive relationships and conviviality (Jönsson et al., 2021). Several studies investigated this question of the quality of the social ties created around food, for example in school canteens, and thus contribute to better understand this social dimension of sustainability. Some show that these shared meals tend to foster children's social skills (Lalli, 2017), while others show that there can also be some feelings of exclusions (Morrison, 1996; Berggren et al., 2020). More broadly, the existing literature on commensality sometimes suggests a positive impact of shared meals on nutritional quality of meals and/or on the wellbeing of the participants, but there are no identified causal links and it mostly underlines the diversity and the complexity and of the social ties generated (Jönsson et al., 2021). Yet, various commercial and non-commercial settings are pretending to use commensality to foster social ties between different populations, and these settings are often valorized and promoted either by public institutions or by mainstream media and literature. Therefore, in a social sustainability perspective, there is a need for a better understanding of the mechanisms linking commensality and social ties. To do so, this study borrows the theoretical framework of care (Tronto, 1993), which can be considered as a kind of social tie as we argue in the literature review section. We apply it to the study of neighborhood canteens, which are non-profit organizations aiming at creating social ties through commensality, offering people that lives or work in the same neighborhood to share meals and/or cooking times. They are quite recent in France, and do not constitute a common and clearly identified kind of place. They are different initiatives, which are part of the development of *third places* since these last 20 years (Oldenburg, 1999) and rely on the traditional model of French "associations," which are non-profit charity organizations. From an ethnographic study based on participant observations and on 2 steps of semi-directive interviews, we show that various types of care co-exist in the canteens studied, and that food, and even more organic food, is a cement to practice several forms of care between members and/or employees. By mobilizing the concept of care, this paper contributes to the literature on social ties, by attempting to explain the mechanisms at work in its creation. Thanks to Tronto's framework (Tronto, 2013), which offers a processual vision of care, the contribution of this study is to offer detailed levers to foster care (and thus social ties) through commensality. We discuss these recommendations in the end of the paper.

1.1. Commensality and social ties: An *eldorado*?

Food intake in humans tends to be particularly socially codified, taking place in specific spatiotemporal contexts. One of the major elements of these codifications is a preference, most of the time, for eating together in the same place at the same time–whether or not the food itself is shared (Jönsson et al., 2021). This tendency to eat together, also known as commensality, is nowadays socially valued in many countries through media and political discourses, which is particularly noticeable in relation to the family meal (Le Moal et al., 2021). In many programs promoting sustainable food, encouragement of commensality complements recommendations for improving the nutritional balance and limiting the environmental impact of the diet. This is notably the case in France with the Programme National Nutrition-Santé (PNNS), a public health program aimed at improving the diet of the French, which valorizes "the conviviality of a shared meal." (Ministère des Solidarités et de la Santé, 2019, p. 16, translated by the authors).

However, when looking more closely at these recommendations, it is not always clear what specific benefits are expected from commensality. Similarly, while several scientific works suggest links between commensality and physical or psychological health benefits, none specifically demonstrate a causal link (Jönsson et al., 2021; Le Moal et al., 2021). One hypothesis for establishing a logical link between commensality and its benefits on wellbeing/health/eating quality is that commensality generates social ties, which would mediate these positive effects (Fournier, 2012). Yet, discourses warn against a trend toward the disappearance of commensality, perceived as an evidence of a progressive "individualization" of society (Fischler, 2011, 2015), which would in turn justify the need to recreate social bonding and fight against "social isolation" (Bouima et al., 2019). From then on, it would be relevant to better know the diversity of forms of social ties in order to foster them, but this diversity is rarely taken into account in the discourses (Genestier, 2006). In the literature, the "social tie" is considered in different ways. For some, it is seen as the mere presence of others (Sobal and Nelson, 2003). For others, it is sometimes inferred from the relationships that individuals have with each other. For example, Bachman et al. (2002) and Bellows-Riecken and Rhodes (2008) argue that social ties have an effect on consumption during pairing. The establishment of social ties can hardly be defined, but we suggest here to consider it as a benevolent relationship between individuals, including a form of interdependence of individuals for their respective wellbeing, for the accomplishment of their tasks and for their integration in society. It is within this framework that the present study questions the mechanisms by which commensality can generate social ties. We thus aim to fill the knowledge gap on the plurality of forms of social ties, and to characterize the way they are established in order to formulate recommendations to encourage social ties through commensality.

1.2. Neighborhood canteens as a transformative site

Institutions which, beyond selling food, have the objective of creating social links can be considered as services, in the sense that they offer non-material benefits to their users. According to Transformative Service Research, it is then relevant to look at how these services impact the lives of individuals (Sherry, 2000), and in particular how the interactions between service entities and consumer entities influence the wellbeing outcomes of both (Anderson et al., 2013). For example, Rosenbaum (2006) shows that older people can benefit from using a third place, relying on Oldenburg's (1999) definition: "public places that host the regular, voluntary, informal, and happily anticipated gatherings of individuals beyond the realms of home and work" (Rosenbaum, 2006). In the advantages listed, Rosenbaum (2006) stresses in particular the importance of the social support at work in these structures, defined as a resource, formal or not, from which individuals can benefit in order to cope with events. Thus, the vision adopted is that of a form of coping strategy (Lazarus and Folkman, 1984): social support is a resource for dealing with a specific demand. By investigating the notion of social ties, we propose to understand the more diffuse interdependencies of the relationship, less targeted than a social support would be to face a delimited difficulty or problem.

To the authors' knowledge, very few studies have focused on neighborhood canteens, despite the fact that they constitute third places (making them relevant research objects for Transformative Service Research), and that they have the specificity of putting food at the heart of both their market activity (selling meals) and their service activity (creating social links *via* commensality). Finally, an interest in neighborhood canteens offers interesting avenues both in terms of public health policy and the fight against isolation, since they constitute local food supply sites, anchored in a given territory.

1.3. The process of care as social ties

As evidenced in the previous section, social ties remain a quite fuzzy concept, and previous work tends to assert social ties from proxy. Here, and in order to address the dynamic construction of social ties, we suggest to consider social ties through the ethics of care (Tronto, 1993). In what follows, we discuss this point, we introduce Tronto's conceptual framework of care (2013), and we review how this framework has been used previously in the literature. We conclude by asking how social ties, understood here as care, are enacted in neighborhood canteens throughout Tronto's model of care.

In her seminal work published in 1993, Tronto describes what the ethic of care should be, which she envisions as a societal project. Beyond this political ambition, we will return in this section to the way Tronto delineates care, and how this allows us to mobilize this framework to translate the establishment of social ties. Care is "a way of living one's life and resolving personal conflicts that is driven by feelings of responsibility for enhancing the wellbeing of others and a sensitivity to the interpersonal consequences of one's actions and choices" (Thompson, 1996, p. 401). More concretely, caring for someone or something means being involved in meeting their needs, and taking part in the burden they carry. In this, Tronto explains, care differs from the mere interest that one can have in things or people, since it goes beyond simple concern and supposes turning to action in an involved way. Tronto explains that care is both a disposition and a practice. Knowing this, what can be characterized as care and what is not? To answer this question and to facilitate the mobilization of the concept of care, Tronto suggests a 5-step framework for analysis (Tronto, 2013). The first step, entitled "care about," consists in a care giver identifying and recognizing the needs of one other. The second step, "care for," consists in the care giver recognizing that they can assume a part of the identified needs (i.e., endorse a part of the burden). The third step, called "care giving," consists in acting to meet the needs. In the fourth stage, called "care receiving," an evaluation of the care provided takes place, since this stage consists in a form of acceptance by the care receiver. Finally, the "care with," which can be considered as thinking about the effects of multiple care processes on trust and respect, translates the fact that a care action is anchored in a more global context, and that an action cannot be considered as care if it penalizes the respect of some while meeting the needs of others. In short, "care with" ensures that there is an overall coherence between the care performed and more general values of respect. As a conclusion, care as described in Tronto's model consists in identifying the needs of others, feeling concerned by these needs, and acting to meet the needs in a way that is not deleterious to anyone or anything. This 5-step model conceptually describes how care is constructed, but in practice the steps may be more intertwined and not follow such a rigorous chronology.

Based on these definitions, how can we say that care partly translates the establishment of social ties that we wish to study here? As seen above, the establishment of social ties can hardly be defined, but we suggest here to translate it as a benevolent relationship between individuals, including a form of interdependence of individuals for their respective wellbeing, for the accomplishment of their tasks and for their integration in society. In this, this article considers that taking care of the needs of others, without a relationship of dependence between a care giver and a care receiver, translates the idea of establishing social ties. Adopting Tronto's model of care thus allows to question the mechanisms of creation of social ties.

By studying how associative catering structures contribute to the establishment of social ties, our work is positioned in the literature of services. In this part of the literature, and although Tronto emphasizes that everyone is a giver and a receiver of care, the notion of care has been mobilized to understand how providers of a service care for the populations to whom the service is directed [e.g., in solidarity institutions such as food banks (Surman et al., 2021)]. However, Transformative Service Research emphasizes that both service providers and recipients contribute to the relationship established in a service and, in this, that both could deliver care. Despite this, to the authors' knowledge, there is no work that has made it possible to identity what we would call "reciprocal care relationships" between the providers of a service and those who benefit from it. However, such an analysis of reciprocal care relationships within a service is essential, when we realize that a top-down relationship of care runs the risk of domination by the least needed toward the most needed. Using the case of people with disabilities, Tronto (2013) illustrates this point: "caring for disabled people often slips into a paternalistic discourse in which the views of the disabled people themselves are muted or muffled." Other research has been interested in reversing the unidirectional and linear conception of care, notably by questioning how consumers (and not always producers) exercise care in their consumption actions. Shaw et al. (2017) apply this reflection to ethical consumption, and Midgley (2018) shows that when vulnerable people recognize and are open to their own vulnerability, it enables them to engage in care relations and interactions within a community café.

However, what is now missing is a representation of how producers and consumers of a service jointly care for each other. This would be a translation of how social ties establish between various stakeholders using a service.

2. Methods

This study is using a mixed-methods ethnography based on participant observation and two waves of interviews with users and employees of two neighborhood canteens (see Figure 1 for an overview of the methodology). The structures were chosen according to a judgment sampling, in order to study (i) the care mechanisms between the beneficiaries and the providers of a service, (ii) the different forms of care according to the relationships between individuals, and (iii) the role of food in the implementation of care.

2.1. Characteristics of the neighborhood canteens studied

As a reminder, the objectives of the study are to characterize how commensality in neighborhood canteens allows for the generation of social bonds between all individuals who frequent these canteens (employees and users). To meet these objectives, we selected canteens with relevant organizational modes, namely: (i) criterion 1: to have the objective of creating social links, in particular with the ambition of bringing together people who would not necessarily meet otherwise, (ii) criterion 2: to have an operation that does not limit users to being beneficiaries of the service, and that offers them the possibility of taking part in the activities and investing in the operation of the structures, (iii) criterion 3: to put food at the heart of the activities. Table 1 presents the two structures studied, and specifies how they meet each of the selection criteria listed above.

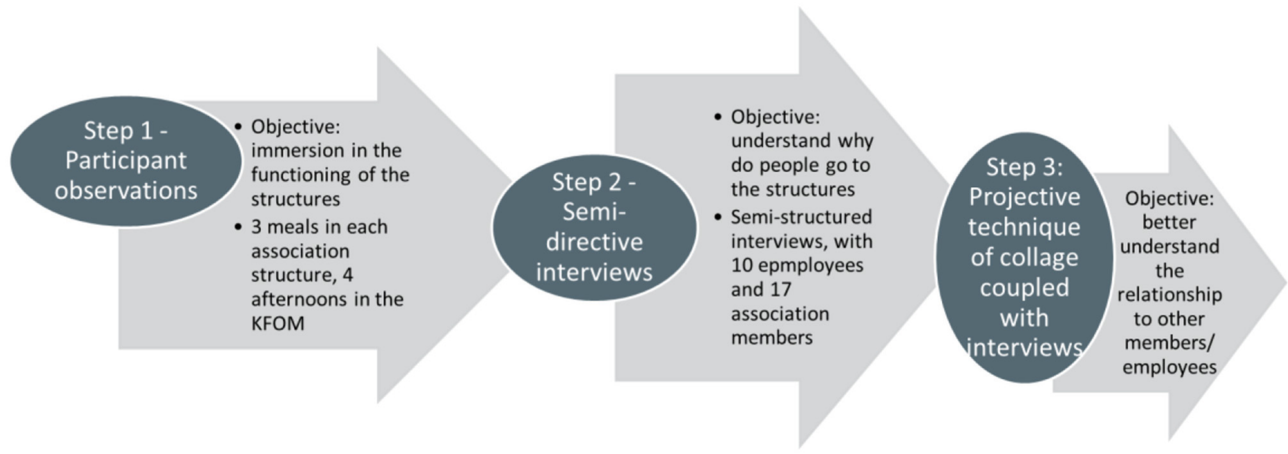

FIGURE 1
Overview of the qualitative three-stages methods.

TABLE 1 Characterization of the canteens studied.

Name of the neighborhood canteen[a]	General description	Objective of the canteen (criteria 1)	Role of users (criteria 2)	Activities around food (criteria 1)
My dear canteens (MDC)	A non-profit network of 6 neighborhood canteens. These canteens are located in different cities in France, in neighborhoods characterized as "mixed," i.e., that are frequented by individuals belonging to different social-economic and cultural backgrounds. The employees are in charge of coordinating the supply of food and managing meal registrations.	Through activities related to the meal, these canteens aim to bring together individuals who would not otherwise meet, and to generate mutual aid networks within a neighborhood.	Users can either help cooking before sharing the meal, or come just to eat. Diners welcome each other and meet.	The canteen offers to cook, set the table, share the meal, as well as tidy up and wash the dishes ("like at home"). The menus are decided collectively according to the food available and the preferences of the kitchen team.
The family coffee (FC)	A non-profit canteen, located in a district of a large French city. The neighborhood is gentrified, which implies that a historically modest population is now living side by side with a new, more affluent population. The canteen proposes activities around food as well as extracurricular activities, since its ambition is to offer a place to live that meets the needs of families.	To create a place for families to meet, live and share, offering convivial times around food.	The project was always built around strong values: "living together" and "doing together." During the meals in the coffee restaurant, the individuals are active since there is no service by employees, and they are solicited for the service tasks. They interact directly with the staff. In the school canteen, each parent is asked at least once a quarter to help the canteen staff.	Coffee-restaurant serving meals, an alternative school canteen that alternately hosts students from different schools in the neighborhood, mixing classes to blend the populations of the different schools.

[a]Names have been changed.

2.2. Participant observations–Step 1

Notes were taken during the participant observation phases. One of the researchers participated in several meals at each facility, in meal preparations, and acted as a parent volunteer at a children's canteen. The observation grid met several objectives. As the researchers did not know the structures before conducting the research, the first objective was to become familiar with the structures and to understand their functioning. The second objective, which was more related to the study's problem and less inductive, was to identify elements corresponding to Tronto's model of care, in particular the needs/expectations of the individuals and the actions undertaken to take care of each other (care about, care giving).

2.3. Semi-directive interview–Step 2

The 27 respondents in the semi-structured interviews were members and employees. They were selected according to a judgmental sampling (Parsons et al., 2021) logic (see Appendix 1A for a description of the sample). Thanks to contacts among the employees of each structure, we have listed the desired profiles, described according to their seniority in the structure and their status (employees or users). These criteria were established according to the logic of illustrative sampling (Turrentine and Kurani, 2007), the principle of which is to vary the characteristics that have an influence on the phenomenon we wish to study. This is relevant in the context of a qualitative study, where we are looking for analytical representativeness and therefore diversity of situations. In this case, the criteria of seniority in the structure were chosen to guarantee diversity in the relation of individuals with the canteens, in order to study the different forms of care according to the relationships between the individuals. We also took care to vary the age, gender, and type of employment. The interview guide was structured around four main themes: the reasons for attending the canteen, the evolution of the relationship with the canteen, and the pleasant and unpleasant moments experienced in the canteen. In each theme, we went into greater depth in relation to the stages of the care model. We opted for a non-directive interview guide and for a progressive focus in order not to induce answers on the social ties, as this is a theme with a strong symbolic impact that can generate a social desirability bias. The interviews lasted an average of 45.2 min ([min. 21min; max. 81min]).

2.4. Semi-directive interview—Step 3

The 12 respondents in the semi-structured interviews were members and employees of the organizations (different from those interviewed in phase 2). As before, they were selected on the basis of judgment sampling, following the same logic as in phase 2 (see Appendix 1B for a description of the sample). The purpose of the interviews conducted in this phase was to further explore the relationships between individuals in the organizations. One of the main challenge regarding this theme lies in making people talk about their potential negative judgment on others, especially in this context of participation to structures claiming a pacified and respectful relation between members. That's why a specific method using collages was used. Projective method of collage allows, "like any projective method, [...] to attenuate consumers' psychic defense mechanisms and to reveal the representations, the imaginary, the evocations associated with a concept" (Cottet et al., 2008). Thus, it is used because it is conducive to the expression of representations in a derivative way, which can reduce some cognitive barriers (Valette-Florence and de Barnier, 2009). Projective method of collage is used to be combined with interviewing (Rook, 2006). In our study, the interviews took place in two phases:

- Phase 1: individual interview with 6 people from each structure (including 2 employees for each structure), during which respondents were asked to make a collage representing the people they did not want to interact with in two conditions: to eat (PC and FC), for the 10-year party (FC) or to wash dishes (PC). Also, respondents were instructed to make a collage representing the structure if it was a person (Figure 1). At the end of this collage creation moment, respondents were interviewed to describe their collage. The interviews lasted an average of 30 min [min.16–max.61].
- Phase 2: Individual interviews with the same 6 people for each structure, during which the collages of the other 5 people were presented to them. The aim was to generate new opportunities for exchange around relations to others, by asking respondents to react to the collages of others. The interviews lasted an average of 40 min [min.14–max.54].

2.5. Data analysis

We integrally transcribed the interviews of phase 2. The phase 3 interviews were recorded but not transcribed. However, they were replayed with synchronous note-taking on the elements relevant to the study. Four pages of notes emerged. These textual data from phase 2 and 3 have been analyzed thematically using meaning unit-based categorization (Spiggle, 1994; Miles et al., 2020) with a grid designed a priori based on Tronto's conceptual framework. Thus, the interviews from phase 2 and 3 were coded by identifying the needs and expectations to which the structures and/or their members meet (care about), who takes care of them (care for), and what actions are implemented to manage the identified needs (care giving). In addition, the analysis identified what kind of care individuals perceive they are receiving (care receiving), and in what value system care is anchored in the structures (care with). The observational data were used to triangulate the discursive data, and to enrich our interpretation with additional examples of situations reflecting the existence of care. On top of it, a particular focus was put on food dimensions, in order to identify to what extend they are contributing to actions of care (which can be translated as ≪ care giving ≫ in Tronto's model).

3. Findings

Tronto's framework has made it possible to characterize the different mechanisms by which care is implemented in the structures, particularly in relation to the people concerned, whether they take care or benefit from care (which is not exclusive one from another). The analyses also reveal the role of food and meals, which can be seen as a support for care actions. In order to account for these different care mechanisms in the canteens studied, the results are organized in four sub-sections. The section first describes the care that individuals come to seek for themselves within the structures; the second one characterizes the care that people seek to give to others through the structures; and the third one reveals the interpersonal conditions that limit care between individuals.

3.1. Care for oneself

Analysis of the data shows that some of the respondents go to a neighborhood canteen to benefit themselves, putting themselves in the position of beneficiaries of care in relation to needs that they manage to identify. One of these needs is the need to belong to a group, a project, or even a community of people who share the same values: "*It corresponded to the values I had, I thought it was great when I heard about it, I wanted to find out more, and then I liked it, I like what it has to offer.*" (Pascale, MDC)[1]. This feeling of belonging can go as far as the feeling of existing thanks to the structures, which would give a sense: "*Because I was doing nothing and I had to find an activity. And this place gave me something. It is to do something, to exist, through work, through occupation.*" (Fabienne, MDC). We understand that the structures and the people who use them meet their needs in various ways, notably through

1 All the quotations from the respondents are translated from French to English by the authors.

the participatory and inclusive dimension (especially in the case of MDC): "*the regulars also participate in this welcoming atmosphere. I've done it very often, going up to the others, talking to them, encouraging them to talk, explaining the concept to them so that it goes well. It's already a good way to start, when someone doesn't know, well we explain how the association works, and it's a bit of an introduction, a way to break the ice that you don't necessarily have in a traditional restaurant to meet people*." (Arthur, MDC). Similarly, and especially in the case of FC, needs can be met through a form of reassuring homogeneity between the people who the canteens. In fact, at FC, the feeling of belonging seems to extend to the whole neighborhood, through the fact of rubbing shoulders with parents both at FC and in other places and activities. Thus, one of the specificities of FC is to offer the possibility of reinforcing already existing relationships: "*for example, some parents from the school whom I met through the school but through distant links, and the fact of seeing them, of being together during general assemblies at FC, etc., brought me closer to them, closer to parents that I might not otherwise have met or that I would have met less often*" (Sarah, FC). Moreover, FC seems to play a role of refuge, for some respondents who are looking for a different but complementary space to their daily lives. This was expressed in particular by young parents, for whom FC is a way of getting away from the daily and sometimes lonely routine. The need here is to seek company and a change of environment. In addition, FC offers a place adapted for young children, which meets the need for security and serenity, which one would not necessarily find in a classic café: "*My first memories are of going there with my very small children, with a baby, to have a coffee and see a few people during maternity leave when you don't see many people*." (Sarah, FC). At MDCs, the feeling of belonging seems to be more restricted to food-related activities, during which a real collective cohesion is encouraged, although this hardly extends beyond the canteen doors: "*They are acquaintances. I mean, they're people I'm good with, but they're just acquaintances, they're not friends, I don't see them outside the canteen*" (Brigitte, MDC). Beyond the feeling of belonging, some of the respondents expressed a need for recognition, particularly to demonstrate some of their skills: "*Well, at the beginning, we were each... we were both trying to set ourselves up, uh... all three of us, and then, when I was tired, they realized that I was getting tired, so they told me "you can go home, you don't have to come all the time." And it's true that I felt good, so useful in this establishment, that I came... I didn't come to eat, I came especially to contribute with my knowledge of catering, and the pleasure of being with other people*." (Fabienne, MDC). This can be seen in both structures, which offer members and employees opportunities to contribute by exercising their skills at the service of the collective. The care consists here in creating a participative framework that allows employees and users of the canteens to highlight their skills, responding to this need for recognition. Such a mechanism can be understood as a form of (re)valorisation through action. This is particularly marked in MDC, where everyone is involved in cooking, preparing the table, washing up, serving and clearing away. During the observations, one respondent explained to us how her participation in the activities and organization of the canteens contributed to the fact that she had an important place in the canteen, a form of valorization.

Finally, some respondents seem to see the neighborhood canteens as a response to a need to challenge themselves. This involves confronting others in times of loss of confidence, or leaving one's comfort zone to acquire new skills or abilities: "*Yeah, I think so, because I'm not naturally inclined to reach out to others. Here it's because the opportunity leads me to it, but I wouldn't dare to discuss with someone if I went for example to a restaurant... the person sitted next to me, no, I wouldn't dare! Whereas here, it's fine*." (Simon, MDC).

In summary of this section, we can say that the canteens meet various needs felt by the respondents, who approach the structures with different forms of quests in mind. However, a distinction can be made between the two canteens, in which the respondents do not seem to seek the same forms of care. MDC can be characterized as a refuge which allow to improve and/or valorize personal skills, while FC is more of a refuge consisting in a practical and comfortable place.

3.2. Giving care to others

In contrast to the results seen in the previous section, in which people come to the canteens to find care from members or employees, this section highlights that respondents also come to meet the needs of others, and therefore are more in the position of care giver: "*If at some point the person comes to me and I actually feel that they have expectations, needs, that they want to talk and that we are in a one-to-one moment, there for the time being I don't have any difficulties in talking with people, and so, yeah, it would be more like if people come to me and I feel that they want to be listened to and that they need to talk, I will respond to them but I will not necessarily encourage them to do so*." (Natacha, FC). This can be observed in interpersonal care relationships, by coming to someone's aid, or by giving them their place when some respondents express the need to put others first: "*I found myself cooking with people who had been in prison, with blind people, with deaf people, I had a public that was really...And every time it went well*." (Maxime, MDC). Moreover, beyond interpersonal relations, we observe care expressed as a more general attitude, as if the actions carried out in the canteens allowed a form of "fair reward," a way of taking care of others by offering them the possibility of taking advantage of the place: "*I knew nothing at all about associations, social, all that . On the other hand, in terms of cooking, well, I sold myself like this: "what I can bring is more organization, more culinary workshops"*." (Maxime, MDC). *"The fact that I said yes when they asked me if I wanted to be on the board of directors, that's a sign of investment, that I want to do something and not just consume*." (Paul, FC) This can concern people in general, but also in a more specific and close way, especially for one's own children. This was explained by a mother who saw FC as a way of offering her children an opening toward others, to get them out of the "self-segregation" in which they were involuntary immersed in their daily lives.

Here again, there are differences between the canteens. Since MDC has an even more pronounced social dimension than FC, the fact that people go to the canteens in search of care to give to others especially expressed: for many respondents, it is a question of opening up to the differences of others and respecting them, or even valorizing them. At FC, the search for care to give to others seems to respond to more specific needs (helping with a particular event, listening during a difficult period) whereas at MDC, the respondents feel that they are helping to meet more chronic needs, such as isolation, economic insecurity, and physical or mental disability.

TABLE 2 Criteria describing people to whom respondents do not engage in care.

Criteria	Detailed description of the criterion
Personality (of the other)	Someone who lacks benevolence (Damien, MDC), Someone who show some duplicity (Damien, MDC; Vincent, FC; Nicolas, MDC), Someone who occupy all the physical and/or audio space or discussion (Damien, MDC; Hélène, MDC; Anne-Laure, MDC; Mathieu, FC; Laura, FC), Someone who is bossy (Hélène, MDC), Someone who shows virility (Hélène, MDC; Amandine, MDC; Damien, MDC), Someone who gives off a feeling of superiority (Damien, MDC; Cyril, FC; Anne-Laure, MDC; Vincent, FC)
Convictions, political ideas (nature, intensity and willingness to convince)	People with sexist/racist/homophobic comments (Anne-Laure, MDC; Hélène, MDC), Woman who strongly expresses her vegan/feminist/eco/alternative-education commitments (Suzanne, FC)
Respect for rules, good manners, task skills	People who talk a lot but do nothing and take advantage of the structure's display to enhance themselves without participating (Damien, MDC; Mathieu, FC; Hélène, MDC), Someone who will be in disrespect of the rules (Mathieu, FC; Cyril, FC), People who lack recognition for work done (Hélène, MDC; Amélie, MDC), Posture: slouching, occupying all the space or turns one's back (Cyril, FC; Laura, FC), People connected to the outside world with phone or computer (Mathieu, FC; Cyril, FC; Vincent, FC)
Mood	Someone who is anxious, shadowed by their problems (Suzanne, FC)
Physical appearance	Obese people (Hélène, MDC), Someone wearing a suit (Nicolas, MDC)
Sex	Men's table (Amandine, MDC, Hélène, MDC)
Age	Children (Amandine, MDC)
Wealth (€)	Someone who shows off signs of wealth (Cyril, FC, Vincent, FC)

3.3. Avoiding care with certain people

Despite of the general benevolence expressed by all respondents, we managed to identify categories of criteria that explain why a *care* process may be difficult to initiate with certain people (Table 2). The gathering of this information was especially made possible thanks to the specific methods chosen for the third step of the study. The criteria mainly relate to the description of others, but most of the respondents underlined the link with personal experiences that justify an apprehension for the different profiles. For example, Mathieu (FC) explained that, due to his rejection of the bourgeoisie, he was afraid of being associated with people who can be characterized as "bobos." Similarly, Anne-Laure (MDC) expressed that her experiences with men created a total apprehension of the relationship of domination by *"white male with higher social status."* Suzanne (FC) described her dislike of the new generation of feminists, from whom she feels judged, even though she "*also burned her bra in May '68.*" Damien (MDC) expressed apprehension about people who might judge him or seek to gain an advantage over him, linked to bad experiences in his previous job. Summing up this mechanism quite well, Anne-Laure (MDC) emphasized during the second interview that what we do not appreciate in others reveals aspects of ourselves, often link with past experiences. Moreover, other respondents explain that their apprehension to go toward some others comes not from experiences but from their own character. In this sense, Laura (FC) explains: "*but that's not people's fault, I'm the one who is... you could say with a kind of shyness yeah.*" In terms of care, this can be translated as a reluctance from some respondent to perceive the needs of certain individuals, and therefore a blockage to engaging in the first stage of care. The detachment linked to bad experiences also hinders feeling responsible for the needs of these individuals and generates negative feelings.

In summary, the fear of domination seems to be the common feature of these obstacles to involvement in care. This domination is generally embodied by clothing attributes or by referring to socio-demographic categorizations ("bobos," "senior executive," "the surgeon," "the man in suit," etc.). These features represent witness the domination expressed by external signs of wealth, attitudes disrespectful regarding others (disrespect for rules, non-adherence to the participatory process, attitude perceived as superior), or a desire to impose his ideas.

The arguments used, however, sometimes reflected the interviewees' own judgments and feelings of superiority. For example, Floriane (FC) denounced gender stereotyping, but agreed with the idea of not approaching a man wearing an expensive watch or a "Ralph Lauren shirt," which was depicted on another participant's collage. Faced with the same poster, Laura (FC) replied "*I don't agree, tolerance works in all directions, otherwise it means we all have to be dressed as bobos with a linen shirt and flowers in our hair.*" This simple situation underlines a "direction" of care, suggesting that care would be more easily directed toward people like oneself or over whom one can potentially have a form of domination.

4. Conclusion and discussion

This paper intended to better understand the mechanisms linking commensality and social ties, in order to contribute to the social dimension of food sustainability. Using the conceptual framework of care, we show that there are different postures toward neighborhood canteens, between a desire to receive care and a desire to give care. We thus identify that the search for care is based on the need for recognition, value and reassurance. Such a result echoes the work of Shaw et al. (2017), which shows, among other things, that individuals need spaces to contribute to the world, despite of the feeling that there are too many needs that should be met to build a better world. Canteens thus seem to be a place to express this care toward some of the world's needs. At the same time, coming to the canteens to seek relations meeting one's own needs (need for companionship, reassurance) constitutes a form of self-care, which implies an acceptance of one's own vulnerability (Midgley, 2018). The study also reveals how engagement in care is still dependent on certain relational and value conditions: respondents express an aversion to social bonding with anyone they perceive as potentially seeking to dominate them. All of the processes described above have been understood using Tronto's model of care, which reflects the idea that care consists in identifying the needs of others, feeling concerned by these needs, and acting to meet the needs in a way that is not deleterious to anyone or anything. One of the contributions of our study is to show the reciprocal and intertwined nature of care processes, which is translated here as the establishment of social ties. Indeed, our study shows that caring for others is also a need (for reassurance, self-esteem), hence the fact that we characterize the expressions of care as *intertwined*. For example, an individual in search of a feeling of usefulness can find it in taking care of someone who isolated and who was himself in need of benevolent social relations: this constitutes a form of complementarity and intertwining of care systems. This enriches Tronto's model, which assumes a unidirectionality of care for a given action–although ethically and philosophically this model assumes that no one is a care giver or care receiver *per se*. We highlight that a care action can instead be two-in-one, when it meets complementary needs between two individuals.

Intentionally, the analysis did not distinguish between employees and members, in order to see if this trend emerged spontaneously. The results show that there is no difference between the two types of actors, which is a major result to reflect the fact that care, in this type of service, is carried out by and for any actor, regardless of their role in the structure. One perspective of this work could be to further explore this result, by questioning the role of otherness and similarity in establishing social ties.

Despite of the fact that the question of care is associated with gender dimensions (Bateman and Valentine, 2010), a limitation of this work could be that these dimensions were not addressed. The main reason is that they were almost not highlighted by either employees or users of the canteens. So, following the inductive method, we decided not to focus on it in the study–which do not prevent a particular focus for a complementary study. Another limitation lies in the fact that we were not able to dig deeper into the potential excluding effects of sustainable food as a common base of values. Indeed, if sustainable food is bearing altruistic, respectful and benevolent values, it can also contain for part of the population the idea of something not affordable and elitist, mainly because of the high prices of this type of food. Thus, the importance of sustainable food in this structures can exclude people who don't feel involved. Future research could interview people who do not, or no longer, frequent the structures because of a different perception of sustainable food.

In conclusion, at a broader point of view, this study brought an additional perspective on the question of the creation of social ties through commensality. It underlines that the experience of participants is highly dependent not only on their own expectations but also on those of the others. In other words, the quality of the social ties generated around meals is a resultant of the complementarity of participants' expectations and visions of care. This contributes to explain the difficulty to generalize the effect of commensality, as even one same particular setting can generate different experiences.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements. Written informed consent was not obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

MD: conceptualization, methodology, software, analysis, investigation, writing—original draft, writing—review and editing, visualization, and project administration. MM: conceptualization, methodology, writing—review and editing, supervision, project administration, and funding acquisition. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

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EDITED BY
Diana Gregory-Smith,
Newcastle University, United Kingdom

REVIEWED BY
Pallavi Singh,
Sheffield Hallam University, United Kingdom
Alex Hiller,
Nottingham Trent University, United Kingdom

*CORRESPONDENCE
Stefan Wahlen
stefan.wahlen@uni-giessen.de

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Sustainable consumption, resonance, and care

Stefan Wahlen[1]* and Aurianne Stroude[2]

[1]Department of Consumer Research, Communication and Food Sociology, University of Giessen, Giessen, Germany, [2]Department of Social Work, Social Policy and Global Development, University of Fribourg, Fribourg, Switzerland

Consumption is a key issue for more sustainable development. In our quest to understand the role of care for more sustainable consumption, we make use of the concept of resonance. Resonance assists in explaining the role of care for more sustainable consumption, emphasizing the relationships people have with the world. Through resonance, we add to debates on sustainable consumption that focus on the good life. Resonance describes a responsive mode of being-in-the-world and therefore depends on how we (passively) experience the world and how we (actively) appropriate or assimilate it. It is a reciprocal relationship between the individual and the world through which both are shaped. According to Hartmut Rosa, resonance as world relationship can be detected on three axes on which individuals relate to the world: (1) horizontal (people and politics), (2) diagonal (things), and (3) vertical (collective singulars such as nature, art, history, and religion). Using these axes as heuristic, we analyze solicited journaling method as well as in-depth interview data. Caring relationships can be detected along the three axes of resonance. Resonance thus helps to advance the characteristics of care as not limited to relationships between humans but also for things or collective singulars such as nature. Resonance also highlights how caring relationships support sustainable consumption in a positive way by focusing on its relational and reciprocal dimensions.

KEYWORDS

care, sustainable consumption, resonance, world relationship, caring

Introduction

Sustainable consumption has figured prominently in policy and public debate. The detrimental consequences of excessive consumption patterns have led to increased attention and the need to gain insights and shape action toward a reduction in such impacts (e.g., Middlemiss, 2018). Research and politics on sustainable consumption often focus on the environmental dimension of sustainable development with regard to the environmental impact of consumption. However, the social and economic dimensions are relevant as well (Fuchs et al., 2021). The social dimension of sustainable development emphasizes social inequality and social justice, while the economic dimension affords economic equality and systems of provision to be more durable. In this study, we acknowledge the contested nature of sustainable consumption and the heterogeneous debates on the phenomenon. By fathoming care relationships as a way to better understand consumption in terms of environmental, social, and economic sustainable development, we underscore not only all three dimensions and the embeddedness of consumption in day-to-day mundane processes but also move away from the perspective that markets will provide appropriate solutions for the impact of consumption.

This study contributes to sustainable consumption debates that foreground the role of the good life for more sustainable development (Fuchs et al., 2021). To live a good life is often the normative goal of everyday mundane processes. For the good life, some resource consumption is a necessity: For instance, consumers need to eat appropriate amounts and qualities of food or live in adequate shelter. The good life also means that a few privileged people should not live too excessively as resources are limited. Even though the normative concept of the good life has many facets, it resolutely addresses the quality of relationships we maintain with the world we live in. Emphasizing the relationships of human subjects being positioned in the world, this article builds on the good life as associated with the concept of resonance (Rosa, 2018). Resonance can be described as caring relationships, coming across with transformative qualities that might be necessary for more sustainable development to emerge. The aim of this article is to explore resonance as a concept that elucidates why care is relevant for more sustainable consumption. Central to our argument are relationships, and we start with the assumption that a caring relationship is a resonant relationship. Care might accordingly be considered a prerequisite in promoting more sustainable consumption through resonating relationships with people (i.e., the social world), materials (e.g., as in resources), and collective singulars (such as the environment). Accordingly, our research question asks: how can the concept of resonance assist in explaining the relevance of care for more sustainable consumption? We add to the literature on sustainable consumption and care (see Shaw et al., 2017; Godin and Langlois, 2022) by emphasizing caring relationships people have with the world. Consequently, resonance assists in shedding novel light on care for more sustainable consumption.

Caring relationships are often understood as care in social relationships. Conceptualizing caring relationships as resonant relationships moves beyond such focus. Care also involves caring for the environment, caring with and for other people, and caring about the economy. All of these caring relationships have lots to do with sustainable consumption: Godin and Langlois (2022) describe care as the maintenance of wellbeing of the self and others (human and non-human) emphasizing three key characteristics of care—vulnerability, interdependency, and responsibility. Some consumers are more vulnerable than others. We live in a world in which we rely on other people and also on more than human entities, and we are interdependent and relate to other humans, things, and other entities. In addition, consumption comes across with consequences for which we are responsible. These three key characteristics of care, namely vulnerability, interdependency, and responsibility, point toward relationships. The concept of resonance emphasizes world relationships and the interdependence of humans, things, and other entities. Fisher and Tronto (1991, p. 40), in their often-cited definition, understand care as "*a species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible.* That world includes our bodies, ourselves, and our environment, all of which we seek to interweave in a complex, life-sustaining web." This means that the key characteristics of care, i.e., vulnerability, interdependency, and responsibility, should be considered as enmeshed not only in human relationships but also in a broader conception of world relations. Reading Fisher and Tronto's definition with regard to sustainable development raises the question of what the world consists of or how the environment is understood. This is where we bring in resonance: The complex, life-sustaining web described by Fisher and Tronto (1991) can be considered as the world relationships theorized by the concept of resonance (Rosa, 2018).

We suggest that this life-sustaining web can be understood as resonating relationships. This aligns well with what Godin and Langlois (2022) propose: Relationships are central in a way that such an understanding of care can convey sustainable consumption in two ways: first, but not only, with regard to the marketplace and economic relations and, second, with relations in social reproduction. Building on these ideas, we consider that the concept of resonance can help in understanding the relational dimensions of care. Emphasizing marketplace, economic and social relations, as well as caring for the environment, resonance assists in explaining why care is relevant for more sustainable consumption. The following section outlines the principal ideas of resonance that will help us to explain why care is relevant for sustainable consumption. Then, we present the methods and data we used for this article, a solicited journal method plus in-depth interviews and how we analyzed them. In the result section, we describe different axes of resonance that assist us in better understanding the role of care for more sustainable development. In the discussion and conclusion, we answer our research questions and outline ways forward.

Theoretical background: Axes of resonance

As a social science concept, resonance has been introduced by sociologist Hartmut Rosa (Rosa, 2019) foregrounding the good life in resonant subject–object relationships (Rosa, 2018). The concept is borrowed from physics, which understands resonance as a mutual vibration between two entities. It is thus a relational concept used to describe how two entities "mutually affect each other in such a way that they can be understood as *responding to each other*, at the same time each *speaking with its own voice*" (Rosa, 2019, p. 329). Such a relational understanding can be used to scrutinize how the complex, life-sustaining web of bodies, selves, and environment, takes shape. Rosa considers resonance as the conceptual counterpart to the critical theory concept of alienation. Resonance thus signifies a mode of *being-in-the-world* through which the subject relates to the world, to others, and to its objects. This justifies why resonance helps us to elucidate why care advances more sustainable consumption. In the following paragraphs, we emphasize those aspects of resonance that assist in better understanding care as a way to advance more sustainable consumption. We take resonance as a heuristic concept that sheds light on the relational and qualitative dimensions of care.

Resonance as relations between entities involves four different elements (Rosa, 2020). *First*, relations between entities must entail a *contact*, one is affected or touched by a friend, an idea, a music, or a landscape, it is an appeal or a call, and the world is not muted or reified anymore. Resonance exists when this contact entails a response, which involves a physical reaction, an emotion. *Second*, relations need an experience of *self-efficacy* as it allows a movement outwards. Such a responsive encounter is the core of the concept of resonance. However, such an encounter has to provoke a *transformation*, which is the *third* element of a relationship. "[A] change in how we relate to the world is constitutive of resonant experience" (Rosa, 2020, p. 34). Finally, resonance cannot be controlled, accumulated, or provoked. Its *uncontrollability* (*Unverfügbarkeit*) is thus the *fourth* and last element of relationships. Resonance cannot be provoked or guaranteed in a given situation, even if the contact happens, the response might not arise, or the transformation could be inexistent. Thus, resonance is neither a simple encounter with something beautiful or touching (which would mainly involve the first element, being affected), nor can it be described as a state of harmony or fusion with the world (which would not consider the relationship between the two entities).

As a mode of relating to the world, resonance encompasses interactions of a very different nature. Hartmut Rosa (2019) presents three main axes of resonance on which individuals can construct and experience resonant relationships: (1) *horizontal* (family, friends, and politics), (2) *diagonal* (material world, objects, things, and activities), and (3) *vertical* (collective singulars such as nature, art, history, and religion). We use these axes as heuristic to explain why care (along these axes) advances more sustainable consumption. The delineation of the axes can be considered somehow arbitrary: work relationships can also involve friendship, and religious practices also engage social interactions and relationships to material buildings and objects. Nevertheless, these axes allow us to highlight how the salient way of relating to the world is experienced in differentiated spheres of action. These serve to better understand the complexity of the life-sustaining web of our relationships with the world, which are central to care. Even though resonance can only exist within a subject, these axes are not merely individual, they are also socially structured. Each social formation "forms and prestructures how subjects relate to the world in these three ways, establishing specific cultures, spheres, or spaces of resonance in which its members can discover and construct more or less individual axes of resonance" (Rosa, 2019, p. 391). This means that even if the experience is embedded in the subject, its relationships with the world are culturally and socially rooted. A given society at a given time will influence specific types of resonant relationships.

Resonance is a quite young concept in social science and is so far mainly credited to Hartmut Rosa. It has nevertheless been widely discussed and also criticized (see, for example, Haugaard, 2020; Susen, 2020; Voirol, 2020). Our aim in this article is not to examine the limits of the concept of resonance but to use the concept as a possible way to elucidate why care is relevant for sustainable consumption. Resonance is thus considered a heuristic and resonant relationship that explains how and why care can enhance sustainable consumption. We will specifically focus on the three axes of resonance to explore how care can foster more sustainable consumption with regard to these three axes. In the following paragraphs, we present the axes proposed by Rosa in more detail.

Horizontal axis: People and politics

The so-called horizontal axis encompasses the social relationships of the subject. In late modernity, the focus lies on three different spheres of interactions: family, friendship, and politics. Family is often considered the main space for resonant relationships. Whether within a couple or a parent–child relationship, everyone expects a positive and responsive relational experience. If studies show that these relationships are the locus of many resonant moments—i.e., the love encounter or the first steps of a toddler—the high expectations on this specific sphere are also feeding many frustrations and family conflicts. Friendship, on the contrary, appears as a less constrained place of resonance. Unlike the family sphere, friendships are not constrained by rights and duties and are seen as non-exclusive. Friendship is thus a place of resonance with a lot of freedom, in which many contemporary subjects experience responsive relationships.

The involvement of citizens in the political and administrative order can also create a "zone of civic resonance" (Rosa, 2019, p. 430). Politics is here understood in broad terms as the arena where citizens can interact and participate in the shaping of their own world. The current political system, with its many administrative layers and power struggles, is often seen as establishing a non-resonant or mute mode of relating to the world. Nevertheless, many examples of citizens engaged in new forms of actions and organizations, such as cooperatives or citizen-led initiatives, can be considered attempts to develop resonant relationships in the political sphere.

With regard to sustainable consumption, environmental movements have been involved in such politics because they care for the environment. As resonance is the counterpart of alienation, late modern consuming subjects can be considered alienated from their producing counterparts. As a world that is demarcated by commodification, the relationship between producer and consumer has vanished. This might explain why some initiatives try to (re-) establish the link between producer and consumer, as, for example, in community-supported agriculture. Such a re-establishment of the link is considered to advance more sustainable patterns of production and consumption.

Diagonal axis: Things and activities

The diagonal axis indicates relationships to the material world and to things in general as well as to activities. It encompasses our relationship with objects with which we can develop a resonating or mute relationship. Rosa (2019) draws on examples from anthropological research: Objects can "talk" to us and transform us. These interactions are well exemplified in work and education but also in terms of consumption: the carpenter and their wooden boards, the baker and their bread, the researcher and their books, the eater and their food, the driver and their car, the gardener and their plants, and birds and other species. All can in certain conditions experience a resonant relationship, in which the object is not just a mute resource or product but interacts with the subject in a responsive and transformative way. School and education can also allow for such a resonant mode of relation. It is an interaction between a teacher, a student, and a material to which each of the entities is related. This triangle can be a zone of alienation in which "teacher, students, and material effectively have nothing to say to each other and, moreover, confront each other as indifferent or repulsive and hostile" (Rosa, 2019, p. 479). It can also be turned into a zone of resonance if the material is resonating with both the teacher and the students, "talking" to them and transforming them into a mutual interaction making the material evolve. This resonating educational experience is not limited to some materials that would have a specific characteristic but is the result of the creation of a resonant learning context, which involves all stakeholders.

Adding to these different examples, Rosa (2019) presents sports and consumption as other possible spheres of resonance in the diagonal axis. Sports, as an activity of enhancing the dialog between body and mind, can foster a resonant relationship with the world. Many subjects engage in sports, either as athletes or even as spectators, looking for this experience of responsive and transformative mode of relating. Consumption then can also be, to some extent, considered as a possible resonance sphere. Purchasing things as commodities or making use of a service is a quest toward the *promise of resonance* (Rosa, 2019, p. 501). Nevertheless, this promise can be fulfilled in the case that the object will effectively affect the subject who can experience his own self-efficacy in using and interacting with the object.

If consumption is considered a mundane day-to-day process that involves things and their use (i.e., activities), it becomes obvious that this diagonal axis is relevant when it comes to a caring relationship in terms of sustainable consumption. Living a (good) life involves the material world, the food we eat, and the bicycle we ride, all of which might involve resonant relationships. Such resonant relationships not only assist in explaining why some more sustainable practices prevail but also why less sustainable consumption patterns matter to people. Driving a fast car might involve a resonant relationship, even though it might not be as sustainable as traveling by train.

Vertical axis: Collective singulars such as nature, art, history, and religion

The vertical axis refers to what could be described as a transcendental relation to the world. It is a relation to the world itself, to life and existence in a broad sense. This axis encompasses collective singulars with which subjects can experience responsive relationships. Nature, religion, history, or art all are seen as spheres of vertical resonance. Whether arriving at the top of a mountain during a hike, feeling touched by something superior while entering a religious building, being moved to tears by music, and feeling overwhelmed while visiting an historical site, individuals experience resonant moments with these entities very often. The mountain is "talking" to the subject who will feel transformed by this experience. Resonance on this vertical axis is bringing together the inner and the outer world. The moment of resonance happens in the "momentary perception of their constitutive, dialogic connectedness" (Rosa, 2019, p. 597).

Sometimes overlooked in sustainable consumption research, this axis is nevertheless important to understand (un)sustainable consumption. The relationship with nature is central to the motivation of people to embrace sustainable consumption. Some research also demonstrates a link between sustainable consumption and spirituality, as many individuals and collectives bring some spirituality in their quest for more sustainability (Léger and Hervieu, 1983; Stroude, 2021). Conversely, shopping centers are also sometimes described as "cathedrals of consumption," showing that in unsustainable consumption a transcendental relationship can also be experienced through collective consuming environments.

Methodology

To explain resonant relationships and their role in better understanding how care contributes to more sustainable consumption, we draw on qualitative fieldwork conducted in Ireland during spring 2021. The data derive from a research project focusing on sustainable practices and how people transform their relationship with the world. Characterized by a very recent and exponential economic development, the Republic of Ireland is a very interesting place to focus on sustainable consumption. Consumption of goods and services has exploded in the last two decades, and the reduction in unsustainable consumption is a big challenge as it is often experienced as a newly acquired prosperity. Focusing on people that are already enacting sustainable practices allows us to detect the nuances of resonance to explain the role of care for more sustainable consumption.

The fieldwork was carried out during one of the COVID-19-related lockdowns in Ireland. The data were collected through a solicited journaling method and final in-depth interviews. Journaling methods have been used in different contexts and disciplines (Hyers, 2018) and have gained interest over the last decade. It is an adequate approach to collect in-depth data during the lockdowns as it provided a space for introspection on daily activities and experiences (Sahakian et al., 2022). Participants have been recruited through social media and associations promoting sustainability. A total of 20 participants, describing themselves as adopting sustainable practices, engaged in a 1-month solicited journaling exercise. They received a set of questions on Mondays and were asked to provide their answers by Sundays. The data collected include texts (between 4 and 10 pages per participant, handwritten or typed) and pictures provided by participants to visually support their written answers.

Each week was designed around a specific theme. The 1st week focused on materials and objects involved in their sustainable practices. The 2nd week invited them to recall a specific moment during which they felt they were "resonating" with their environment and acting in a meaningful way in relation to their ecological concerns. The 3rd week was centered on their idea of a "good life" and their need to achieve wellbeing. The fourth and last week was a visualization exercise of three different futures 5 years from now. At the end of the prompted journaling exercise, a qualitative in-depth interview has been conducted with each participant, either online or walking outdoors. Interviews allowed us to explore specific elements of the journal entries and discuss some of the ongoing analyses and hypotheses. They were then fully transcribed with a transcription program. During the analysis of these data, the link with care appeared to be very significant and recurring especially linked with experiences of resonance. These data were then used to nourish a theoretical ongoing discussion between the authors of this article.

For this article, these data are thus used as empirical vignettes to reflect on how resonance can help to understand the role of care for more sustainable consumption. As the data only account for subjective experiences of people willing to adopt sustainable practices, they do not allow to assess the role of resonance in unsustainable consumption practices (which might be relevant too), but the importance given to care in the participant experiences served as an impetus for the theoretical elaboration presented in this article. In the following section, we present the data that we used, drawing mainly on the 2nd week of journaling and exploring experiences of resonance. Relevant data emerging from the interviews and from other weekly entries have also been considered and included in the result section.

Results

In this result section, we present different examples of resonant moments arising from the fieldwork, which can be considered as caring relationships with regard to sustainable consumption. Drawing on these examples, we show how resonant relationships are embedded in caring relationships. The results are presented through the heuristic of the three axes of resonance theorized by Hartmut Rosa. Nevertheless, many examples weave the different axes together, providing a more complex understanding of the interrelatedness of the different resonant relationships and how they might contribute to more sustainable consumption.

Caring with others, caring for each other: A resonating experience

The horizontal axis emphasizes the resonant relationships with people and politics. It thus encompasses experiences of resonance with other human beings, whether in the circle of the family, with friends, in the community, or in the political arena. Our respondents engaged in sustainable practices, where these relationships with other people and politics appear to be fundamental. Resonance in this axis is often experienced through a common practice of repairing, maintaining, or creating.

> *"I was picking buttons to repair a crocodile teddy bear with my 7-year-old daughter. She's just learning to sew. My friend and her two-year-old twins were with us, marveling at the delightful 'treasures'. (...) It was a very connecting experience both with my daughter and my friend and her children" Cristina, journal, second week*

In this example, the activity of mending the teddy bear is meant to build a relationship, in order to connect and share skills between mother and daughter. The activity itself could be seen and experienced as a chore. Therefore, it is not a "special" or resonating moment as such, but it is experienced as a resonant moment through the relation between the persons involved. They gather for repairing the teddy bear, sharing competencies and positive, joint emotions. Care is involved as the activity is based on a willingness to take care of the teddy bear, by repairing it. But resonance is not experienced here in the relationship with the teddy bear (it could), it is experienced between the people engaged. Even if their activity is about caring for this teddy bear, it is through caring for each other that they create a space in which a positive resonant relationship can be experienced.

In this horizontal axis, daily experiences of resonance within a community are also often recounted. These experiences are linked to a sense of belonging and commitment to a place of residence and the people living in the close surroundings.

> *"Since we bought a house and have decided to settle down, I can see myself engaging with the neighborhood and the community. I often have the feeling that the energy that I put to care for this place flows back to me." Deirdre, final interview*

Three participants that took part in the research were living in an ecovillage. They described their community as a place based on resonant relationships:

> *"Last week I went for a walk in the ecovillage and stopped many times to talk with my neighbors. (..) I feel connected and rooted to this place. I value the diversity of the community, the challenges we face are many but we meet these together. I feel grateful that I am here, although I don't earn much I have a rich life and celebrate having a community." John, journal, second week*

These examples of resonant relationships within the community are closely intertwined with care as the relationships cannot be purely instrumental and must be ingrained in care for each other and for the shared space.

> *"some of the work that we're doing here in the ecovillage will be better framed with the idea of sustainable wellbeing. So it's about our health and wellbeing of the people, the land, the communities. (...) what we're doing here isn't providing care. What we're doing here is instiling a sense of care for each other." John, final interview*

These examples describe resonant relationships in care processes that manifest in the experience of people engaged in sustainable practices. On this specific horizontal axis, care is not just limited to a narrow conception of "caring for" someone. By caring together for something (like a teddy bear, a neighborhood, a community, or a political cause), resonance can be experienced collectively and is supported by a sense of care for each other. This collective resonance in practices of caring for people also points and is intertwined to care for things, which we turn to next.

Caring for things and activities: A responsive relationship

Encompassing experiences of resonance with things and activities, the diagonal axis appears very important in the journey toward a more sustainable life. As for the mending of the teddy bear, repairing or doing things by oneself is not only valued because of the achieved goal but also experienced as positive when the person is alone to carry out this activity.

> *(Talking of her son having sewn fruit bags himself) "it's not just the making, but it's the fact that he made it himself. He's so invested in it, wants to use it at every opportunity. He's so proud of them every time we're in the shop. And I think there's a big connection when you make something by yourself, or repair it, you have a special connection to the object." Isabel, final interview*

Being involved in creating things is associated with more resonant relationships such as caring for these things. The process of making is closely linked to emotions. If purchasing an object can be seen as a quest toward the *promise of resonance* that can only be met if the object affects the subject, making or repairing is not just more sustainable from a resource consumption point of view, and they provide a possibly more resonant relationship. By enabling the person to experience self-efficacy, making and repairing practices carry one of the major characteristics of resonance, setting the stage for more resonant relationships on a diagonal axis.

In addition to these types of activities doing things themselves, other activities that aim at caring for the environment are also often seen as resonant, even though some are not pleasurable as such. Litter picking appeared in different journals as an activity that could trigger positive feelings.

> *"(...) instead of just looking and complaining, I started collecting all the cans and bottles. I filled 4 big rubbish bags, and there was still more. But it felt good knowing that I prevented 200 cans from blowing into the river, and I'm sure the swans that were supervising my litter picking were happy too." Mariana, journal second week*

Moreover, activities on the diagonal axis seem to encompass gardening, feeding birds, or protecting wildlife. For example, Faith explains in her journal how she carefully grew tree saplings and then went to plant them in her community, experiencing a very resonant moment through this activity

> *"The sun was shining, hope was in the air and I felt for a time at one with the world, shovel in hand, trees in pots, selecting space, digging the holes and carefully handling roots and placing and planting trees for a healthy habitat, for birds, insects and biodiversity and potentially for future generations to hopefully enjoy."*

> *She then finds a young tree sapling in another field, which had managed to grow by itself even though the soil was full of concrete debris. "(. . .) I gathered other small stones to encircle it, to protect it from being trampled underfoot and to highlight that there is a tree growing there and I will do my best to care for it. ≫ Faith, journal, second week*

In these examples of diagonally resonant relationships, sustainable practices encompass very different activities such as upcycling and making, litter picking, and planting trees. Through these activities, care is deployed toward material elements of the world that become responsive and allow for a resonant experience: the bags that are valued and valorizing, the clean public space is considered a common and appears thankful through the look of a swan, and a young tree sapling as a witness of appreciation of the replanted land.

Being with nature: A vertically resonant relationship

Beyond these resonant experiences related to people and activities, other descriptions relate to a more general conception of a locus of resonance. Due to the framing of the research, the vertical axis is mainly about nature but does also encompass a sense of historical responsibility, a stance for arts, and beauty, and the spiritual dimension is often recognized.

> *"I felt really connected (. . .) to nature as well, just a sense of interconnectedness as we were able to take in other people from afar, the animals we saw, the plants and other creatures, the beach, the woods. In particular, I felt very drawn to the woods somehow; there is something almost mysterious about them, and by being in that setting, and witnessing the fallen tree, for example, it just brought home to me the power of nature. There was also a sense of the timeless, of being connected to others who, generations before, may have had a similar reaction or feeling when being in this space." Ann, journal, second week*

As stated in this example, the connection with nature is experienced as relational, as if nature itself was "talking" and "reaching" oneself. It is also here connected to a sense of history, of being connected to the past. History as a collective singular can indeed explain why past experience (in the short-term as well as in a more long-term perspective) leads to more resonant relationships. If past experiences have been resonant or alienating, those might affect future developments. Moreover, resonance is experienced when both entities mutually affect each other so the connection to nature is grounded in a stance toward nature, a willingness to engage and to care for nature.

> *"It was a moment of presence, of being with nature, of being in the calm, stillness of a lovely April evening. I was standing at the door of my garden shed over from the budding sycamore tree & hearing the birdsong of my favorite, beloved birds—robin, blackbird & many more.*

> *The situation was me opening the lock of the shed door to go in for peanuts to fill the 4 bird feeders I have in the garden, just outside my living room window. I stood for a brief while, to be in the moment & savor the fleeting joy of the evening. Then I went into the shed & filled the feeders.*

> *I thought of all the times I have watched the many birds on the feeders & my efforts to identify them. I noticed how the numbers have increased in recent years" Kathleen, journal, second week*

Being "with" nature does here describe the specific mode of *being-in-the-world* evoked by Hartmut Rosa. Through a presence that is both active but also open to being touched, Kathleen is engaging with nature and not just using it or taking it as a given. Caring for the birds, feeding them, and trying to identify them can be seen as the premise for resonance. They do not necessarily trigger resonance but do open the space for it. Kathleen might have fed the birds many times in a very automatic way, but this caring stance did set the stage for this resonant moment she experienced on this specific evening.

The vertical axis then encompasses experiences in which nature is the locus of resonance. Caring for nature is not only an active practice here but also an openness to being touched and moved by it. This caring stance thus opens the possibility of resonance as an experience of the interconnectedness, the being "with" nature. As in Patricia's account, this experience is often connected to a more explicit spiritual dimension. Asked to describe an object that best describes her journey toward more sustainable practices, she mentions a spiritual daybook called "Gardening the Soul" by Sister Stanislaus Kennedy. Each morning, she wakes up and reads the quote of the day:

> *"It highlights for me, our interconnectedness with the universe and nature, connecting our inner journey and our outer one. (...) it makes me aware that we are all part of the whole, all an integral part and the onus is on each of us to care for our world, in whatever way we can. (...) I am reminded daily that there is a power, a source that has always been there and to trust this source and cycle of life to help me live sustainably, in harmony with myself, others and nature." Patricia, journal, first week*

If caring for nature has sometimes been described as stewardship (Mathevet et al., 2018), these examples show that it cannot be considered a one-way relationship. Caring for nature is a mutually responsive relationship and is experienced as an important sphere of resonance, often connected to a sense of history or to a spiritual experience.

Discussion

The results presented here give some first empirical illustrations of how caring relationships can be described as resonating relationships. The three axes of resonance are socially constructed (Rosa, 2019) and have been considered heuristic rather than clear-cut entities to locate care in resonant relationships. The empirical vignettes also highlight the extent to which these caring relationships might be used to better understand ways forward toward more sustainable consumption. People engaged in caring practices resonate along the three axes with and for others, as well as with and for things or nature. Our respondents describe how they act in a more sustainable way, and how these practices are in fact reshaping their relationship to the world on these different axes of resonance (people and politics, things and activities, as well as collective singulars) that might explain the role of care for more sustainable consumption. Our vantage point was an understanding of care that follows the thinking of Fisher and Tronto as activities that *"maintain, continue, and repair our 'world' so that we can live in it as well as possible"* (Fisher and Tronto, 1991, p. 40). Our results indicate that looking at care through the lens of resonance allows us to better define our "world," considering it as the interrelation of the three axes proposed by Rosa (2019). In addition, by discussing the link between care and resonance, our results also deepen the understanding of the key aspects of care, proposed by Godin and Langlois (2022): interdependency, vulnerability, and responsibility.

If sustainability is often understood as care for nature, our empirical illustration of resonating relationships suggests that sustainable consumption is not limited to a sense of care to such collective singulars as nature (the vertical axis). It is rather a mode of relating to the world in different ways that can be understood through the three axes of resonance, including people and politics as well as things and activities. Understanding care through the lens of resonance can be seen as underscoring a relationship with people, objects, and activities, as well as with more general entities such as nature or history, emphasizing **interdependency**. Through developing caring relationships on those different axes, people engaged in sustainable consumption practices transform their way of relating to the world. The experience of resonance cannot be made available, but care can be seen as one of the components of resonant relationships. Thus, caring enables the possibility of resonance as it entails both the willingness to reach, maintain, and repair the world as well as an openness to being touched, moved, and transformed by the encounter.

In the last few years, vulnerability has gained interest in the literature around care (Fineman, 2010; Vaittinen, 2015; Laugier, 2016; Engster, 2019). This reframing of care around vulnerability has broadened the scope of our analysis, focusing less on the caregivers or the caring activity itself but rather acknowledging the universal condition of vulnerability that makes care essential to human relationships with the world. As Engster (2019, p. 104) puts it "vulnerability encompasses real and potential, short- and long-term threats to our wellbeing that arise simply from being in the world and living in relation to others". Care is thus a recognition and a response to these threats, and it is what is done to prevent or "reduce human beings' susceptibility or exposure to harm, needs, loss, coercion, domination, and other unwanted conditions or events" (ibid. p. 106). In this perspective, vulnerability is not an individual characteristic but a shared condition of human (and non-human) beings.

The lens of resonance expands these analyses by broadening the understanding of vulnerability. To allow resonance to happen, both entities must be vulnerable so that they can be touched by each other and resonate together. Our empirical illustrations emphasize that vulnerability is not a weakness, a lack of security, or a risk to be harmed. Instead, it can also be understood as an openness to being touched that does entail the risk of being harmed. It is a common condition, a sensitivity to potential threats to our wellbeing. Bringing vulnerability back to care and sustainable consumption, vulnerability is a shared condition of both entities involved in caring relationships. However, vulnerability does not exclusively relate to human beings. Resonance and care both entail non-human entities such as highlighted through the different axes of resonance. A tree, a bird, or a neighborhood can be considered vulnerable. Vulnerability is, thus, a key starting point for reconsidering sustainable consumption as in caring relationships.

Dodds highlights dependency and vulnerability as the core of many care theories, but the distinction between concepts is often lacking (Dodds, 2014, p. 181). Dependency can be defined as a form of vulnerability "that requires the support of a specific person (or people)—that is, care" (p. 183). In this view, dependency is the premise for the caring relationship. If both entities are vulnerable, but are not dependent on each other, then there is no care. Care is the ability to provide the answer to one's needs and to answer to the vulnerability of each other. Going further if vulnerability is a shared condition, then dependency is not a fixed state. "Rather than being dependent or independent, people are, at different points of their lives, both responsible for and reliant on the caring of others" (Bowlby et al., 2010, p. 38). Resonance, as a concept, helps to grasp this two-sided dynamic relationship in which vulnerability—understood as the openness to be touched, moved, and thus harmed—is on both sides and in which the dependency is mutual and evolving. People, objects, and nature itself can all be caring and cared for.

Vulnerability and interdependency are closely linked to responsibility from the care perspective. As in the sustainability discourses, responsibility is often tied to moral issues. To be a "good" citizen, one must act in a responsible way and care for other people or adopt sustainable practices. This does raise a lot of issues and criticisms (see, for example, Friedman, 2009) on the possibility to generalize such behaviors as they are always taking place in specific social contexts. By reframing the responsibility to care around vulnerability, many moral issues can be overcome. As vulnerability is a shared condition, not merely linked to a specific stage of life, and is highly dependent on the social contexts, institutions, and norms, the responsibility cannot be seen as relying on individual moral values. The responsibility to mitigate this common vulnerability is shared (Engster, 2019), and it is a political stance for social justice and equality, described as "caring with" by Tronto (2013, p. 23).

In the discourses about sustainable consumption, the focus often lies on responsibility, solidarity, acting in a "good" way, and ethical pressure on consumers (see Shaw et al., 2017). Responsibility has been problematized as focusing too much on individual consumers. Considering responsibility in care terms and linking it with the concept of resonance broaden the perspective. It also entails a response-ability. It is the ability to respond to the vulnerability of another human being, object, and collective singular. This means that it is not a one-sided movement—caring for a tree sapling—but a two-sided dynamic relationship in which both entities resonate and are transformed in this caring relationship. Based on these observations, we would then like to raise the idea that the three axes of resonance can help better understand care as a mode of relating to people, to things and activities, and to collective singulars such as nature or history. Framing sustainable consumption as grounded in caring relationships on those different axes allows to understand better the entanglement of material, symbolic, and social relationships involved. It also allows to deepen the understanding of care as a dynamic relationship, involving vulnerability, interdependency, and responsibility.

Conclusion

The aim of this article was to explore resonance as a concept that elucidates why care is relevant for more sustainable consumption. Resonance considers relationships on three different axes that we deployed as heuristic and illustrated empirically. In the discussion, we reflected on the key characteristics of care, namely vulnerability, dependency, and responsibility, and how resonant relationships might be explained as caring relationships. Such an endeavor allows us to consider resonance as a prerequisite for care and vice versa. In this conclusion, we would like to move back to our research question and outline what care thinking (in terms of resonant relationships) means for more sustainable consumption. We do not aim to come up with practical guidelines but rather ways of approaching and thinking about sustainable consumption as a phenomenon. Care as resonance moves the thinking about sustainable consumption not only away from market activity but also opens up novel vistas for thinking about sustainable consumption, as, for example, with regard to the good life (Fuchs et al., 2021). In addition, resonance also allows us to better understand why some more unsustainable consumption practices prevail, simply because people also care for (un-) sustainable practices. The good life with resonating relationships is a sort of qualitative fulfillment, feeling better about daily life with sustainable consumption—a good life could be explained through resonance and resonating relationships. Resonant and caring relationships accordingly do not only assist in understanding sustainable consumption but also why unsustainable practices prevail.

Understanding caring relationships as resonant relationships emphasizes the link between sustainable consumption and the good life. The good life might be as highly contested as sustainable consumption. Both might be perceived differently by individuals, yet in consumption practices, consumers are well aware of what is resonating. Care can be understood not only as an activity but also as an ethic, as a set of virtues "that offers a way of thinking about what is necessary for human wellbeing, flourishing, and indeed survival" (Barnes, 2012, p. 5). Ecofeminist scholars have highlighted the conceptual link between care and environmental concerns (Merchant, 1996; Mellor, 2000). For these scholars, earth is considered a household in which ecological systems and human activities are seen as mutually interactive. They might not consider earth as a collective singular, but the perspective of resonance might well do so. Care understood in resonating relationships is thus not an individual stance toward others or toward nature, but it is the experience of a specific relationship between people and nature (Macgregor, 2006). Wellbeing and the good life are thus the goal of care which is not limited to people but also encompasses things and activities, as well as nature and other collective singulars such as history or spirituality.

The framing of care as in resonating relationships also draws some new perspectives on sustainable consumption. Resonance affords a critical reflection on care and its current commodification. It moves away from the understanding of consumption as tight to the market and commodity exchange. Resonance also points to the good life as it aims to offer an alternative to the mainstream conception of the good life based on the availability of resources and the controllability of the world. It posits that the quality of life "depends on the ways in which world is or can be passively experienced and actively appropriated or adapted" (Rosa, 2019, p. 63). Resonance thus invites a reframing of care and sustainable consumption. Caring for others or for the environment is not merely a moral stance or a duty, but it is a mode of being-in-the-world that allows for more resonant relationships. Our results demonstrate that sustainable consumption is not just about lowering carbon footprints or reducing waste, but it is about aspiring a good life and experiencing resonance on the different axes, through a caring relationship to social, material, and symbolic surroundings. The quality of relationships with the world is less discussed in sustainable consumption research. Nevertheless, our results show that consumption cannot be seen as a specific practice and must be understood in a web of relationships, that should be caring and resonant, to foster sustainable consumption.

Our perspective on resonance and the good life is thus a way of exploring sustainable consumption. If theories of needs and satisfiers have been gaining momentum and do point to some useful distinctions, they are still somehow entrenched in economic thinking with a focus on market activities. To advance strong sustainable consumption, we need to understand why people are driving a car or eating meat because these might be resonant relationships too. Thus, resonance itself does not necessarily open to sustainable consumption, but when it is experienced through a caring relationship, it fosters another way of consuming and relating to people and politics, things and activities, as well as collective singulars. If resonance is the positive counterpart to alienation, could care be the positive counterpart to consumption?

Data availability statement

No restrictions. Requests to access these datasets should be directed to aurianne.stroude@unifr.ch.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

Author contributions

AS was responsible for gathering the data. AS and SW jointly drafted the manuscript from developing the framework, toward finalizing the manuscript. Both authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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EDITED BY
Mariarosaria Lombardi,
University of Foggia, Italy

REVIEWED BY
Christian Bux,
University of Bari Aldo Moro, Italy
Erica Varese,
University of Turin, Italy
Caterina Tricase,
University of Foggia, Italy

*CORRESPONDENCE
Barbara Smetschka
✉ barbara.smetschka@boku.ac.at

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Time to care—Care for time—How spending more time for care than consumption helps to mitigate climate change

Barbara Smetschka[1]*, Veronika Gaube[1] and Katharina Mader[2]

[1]Institute of Social Ecology (SEC), University of Natural Resources and Life Sciences (BOKU), Vienna, Austria, [2]Department of Economics, Vienna University of Economics and Business (WU), Vienna, Austria

Mitigating climate change requires urgent reductions in emissions. Demand-side measures focus on footprints (direct and indirect emissions) of consumption. Analyzing time use brings a novel perspective to discuss the carbon implications of everyday life and the potentials and limitations for decarbonizing consumption. In this study, we show how time-use studies can serve as a bridging concept between sustainability studies and the analysis of human wellbeing for all. We introduce a functional time-use perspective differentiating personal, committed, contracted, and free time. We calculate the average carbon intensity of everyday activities in Austria in 2010 combining the Austrian Time-use Survey and Austrian Household Budget Survey with Eora-MRIO. We find that these activities differ widely in carbon intensity. Personal time is relatively low-carbon intense, while free time activities show large variation in terms of CO2e footprint/hour. The traditional gendered division of labor shapes the time-use patterns of women and men, with implications for their carbon footprints. Reassessing and sharing unpaid reproductive caring activities are the basis for solving some urgent ecological and social problems. The way household members use their time, the resource demand of households and infrastructure, and the services provided by communities entail each other. Time use, time prosperity, and especially time scarcity determine our quality of life. Caring activities as "time to care" play a crucial role in pathways toward socio-ecological transformation and gender equality. Further research in the field of time, care, and gender studies could be based on this framework and add new perspectives on research on sustainable development.

KEYWORDS

climate change, gender studies, quality of life, sustainable consumption, time use, unpaid work, carbon footprint

1. Introduction

Mitigating climate change to achieve the goal of staying below 1.5°C of warming requires urgent reductions in emissions. Demand-side measures mostly focus on the footprints of consumption, considering direct and indirect emissions of CO2e. Analyzing society–nature interactions and pathways for a socio-ecological transformation is based on a perspective on everyday practices within specific societies and their specific environmental consequences (Haberl et al., 2021; Plank et al., 2021). Time-use studies provide data on everyday activities and their implications on wellbeing (Gershuny, 2011), the environment (Adam, 1997), gender relations (Sullivan, 1997), or the organization of work and care (Schor, 2000, 2010) to name but a few authors and fields of research. Ecological economics and climate sciences provide insights into the carbon footprints of these activities (Minx and Baiocchi, 2010; Wiedenhofer et al., 2018).

In this perspective article, we discuss how time-use studies can serve as a bridging concept between sustainability studies and the analysis of human wellbeing, especially when addressing caring activities. This represents a novel and original approach, which is interdisciplinary as it combines time-use research from social sciences with concepts of quality of life and just transition discussed in humanities and political ecology with the aim to find a method to quantify CO2e emissions of the everyday practice of households in line with climate sciences.

Care has hitherto not been discussed a lot in its relation to sustainable consumption. This new interdisciplinary pioneering research field can draw from different angles and approaches to start a fruitful discussion on a topic that will gain a lot of importance in near future. Therefore, here we present both an assessment of recent works on the question of care, time-use, and climate change and a new perspective on time-use data analyzed for the case of Austria, trying to show how this can contribute to the evolving topic of "Sustainable Consumption and Care". The last time-use survey for Austria was conducted in 2010, providing the base for our analysis of the carbon footprint in everyday activities (Smetschka et al., 2019). We hereby lay the ground for further discussion and analysis with newer data (i.e., the next round of time-use surveys in Austria 2023 and international compilations). The recent pandemic brought a disruption in time use and the need for caring activities, thereby giving even more importance to future analysis.

The relevant conceptual approaches of socio-ecological transformation and time-use studies and their link to questions of sustainable development, care, and gender equality are presented in chapter 2, followed by the discussion of the results of research on CO2 footprints per activity and the findings from a recent literature assessment in chapter 3.

2. Relevant concepts adding to a new perspective

This study proposes to address sustainable consumption and care from a time-use perspective. We base this approach on concepts of socio-ecological transformation (section 2.1) and sustainable development and time (section 2.2) and within the context of time-use studies and gender relations (section 2.3). In section 2.4 the concepts of functional time-use and carbon emissions are introduced referring to a case study analyzed for Austria in 2010.

2.1. Socio-ecological transformation

Social ecology—as a scientific approach developed at the Institute of Social Ecology in Vienna (Haberl et al., 2016)—aims to describe the interaction between social and natural systems. Two concepts, social metabolism and colonization of natural systems, constitute the core of the socio-ecological theory. Social ecology is based on the concept of overlapping and interlinked natural and cultural systems, showing a system's dynamic in which social development is not independent of the natural environment and ecological and societal structures and processes are interlinked. Society is understood as a hybrid based on both the natural and the cultural sphere, therefore, cannot be analyzed as a whole exclusively from a natural or a social science perspective (Fischer-Kowalski and Weisz, 1999). One core feature of societal interventions in natural systems is that they require human working time (Fischer-Kowalski and Haas, 2016) in the form of paid and unpaid work, which is a focus of interdisciplinary time-use studies.

2.2. Sustainable development and time

The long-time scale of environmental changes such as climate change, biodiversity loss, or soil degradation is in its very logic conflicting with short-term reward and economic interests. Rhythms and synchronization of everyday life affect human wellbeing via the notion of time scarcity or prosperity. Conflicting demands on individuals who have to produce and reproduce all spheres of their lives add pressure. Resource use is linked to economic demand and grows irrespective of production or regeneration rates (Hartard et al., 2006; Biesecker and Hofmeister, 2010; Biesecker et al., 2012).

In scientific and political discourse often the quest to dematerialize everyday life is linked to promoting a more frugal lifestyle. Here, we argue that a socio-ecological time-use perspective can work better than promoting austerity to achieve reductions in resource use. Spending a good time with low-carbon activities, for example, can enhance human quality of life and lower carbon emissions at the same time (Schor, 2010; Reisch, 2015) providing eventually both: more care and climate justice.

Time use is a concept used in sustainability discourses, mostly within research on degrowth and wellbeing. Fischer-Kowalski defines three types of decoupling as shown in Figure 1: welfare, efficiency and consumerism, which all comprise a time component. Time use is an important aspect of wellbeing and welfare, when asking the question of how to measure wellbeing beyond monetary indicators and how to provide necessary caring activities. The critique of consumerism links to questions of sustainable consumption: how much goods or services and how much time do we need for wellbeing? The third question is whether efficiency gains can make up for straining demands on ever-faster living and its impact on wellbeing on the one hand and for higher demands on resource use through additional efficient production on the other hand.

Speed is as important a factor in our economy as efficiency. Typically, both translate into "no waste of time" rather than "no waste of material." On the contrary, speed and efficiency tend to lead to the substitution of slow low-carbon activities and home production with high material and energy-intense technologies, goods, or practices. Here, general physics applies: the faster you move, the more energy you need. 'Having no time for anything' as the epigram of modern life leaves no time for concerns about climate change or other environmental or societal issues (Rosa and Trejo-Mathys, 2013).

When the goal is to achieve wellbeing for all in an ecologically and economically sustainable way, the question of an adequate understanding of wellbeing or quality of life (QOL) is central to sustainable development. In sustainability sciences, it is, therefore,

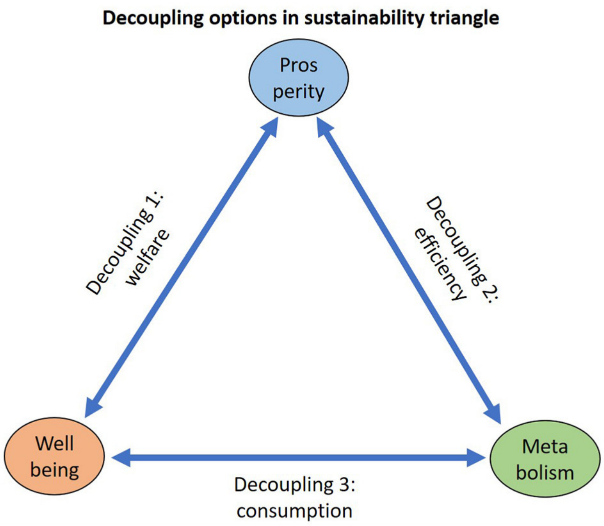

FIGURE 1
Decoupling options, adapted from Fischer-Kowalski et al. (1997).

TABLE 1 Functional time-use categories, adapted from Ringhofer and Fischer-Kowalski (2016).

Re/production of system	Functional time-use category	Encompasses activities from time-use surveys
Person	Personal time	Personal care and sleep
Household	Committed time	Household and food; family, care and support
Economy	Contracted time	Employment, study, agricultural production
Community	Free time	Social activities, politics, culture, leisure

important to find indicators to assess the quality of life and changes therein adequately. Time use is an integrative aspect of many facets of quality of life and is considered essential in its monitoring (Carlstein, 1981; Moe, 1998; Mischau and Oechsle, 2005; Mückenberger and Boulin, 2005; Schaffer, 2007; Fischer-Kowalski and Schaffartzik, 2008; Garhammer, 2008). The terms "time scarcity" and "time affluence" (Rinderspacher, 2002; Heitkötter, 2006; Kränzl Nagel and Beham, 2007; Schor, 2010) are used to link economic and social factors and to find alternatives to a solely economic notion of growth and development beyond a more sustainable consumption (Sanne, 2002; de Graaf, 2003; Jackson, 2005; Kasser and Sheldon, 2010). Finally, the European Statistical Office (Eurostat) states that we need a measurement of QOL beyond GDP (Eurostat, 2018) and plans to include time-use data in future European Union Statistics on Income and Living Conditions (SILC) surveys. Furthermore, addressing care justice in the discussion on quality of life can improve the understanding of climate justice.

2.3. Time-use studies and gender relations

Human and societal reproduction are areas where gender studies and sustainability studies have a common interest. Failing to take reproductive work into account adequately is one major critique from gender studies toward economic and social analysis. Demography and population growth are central to the sustainability discourse. Focusing on production and leaving aside reproduction should not swap from economy to ecology (Littig, 2002). Ecological problems can be associated with a disturbed reproductive capability of ecological systems and with the impact of societal reproduction on these systems (Adam, 1997; Spitzner and Hofmeister, 1999). The amount of time invested in childcare differs highly among cultures and time in history. Only contributing an analysis of the reproductive sphere of human activities allows us to grasp the whole impact of human activity in society–nature interactions.

Women's studies and feminist research have been focusing on "unpaid work" since the 1960s addressing the invisibility of unpaid (women's) work as well as the particularities and characteristics of this work, like the associated "female socialization and the question of how it comes about that women do so much more unpaid work than men" (Madörin, 2010). Since the 1990s, we have seen an increased focus of research on "care" and "care work." This shift of focus from unpaid work to care and care work reflects a change in emphasis within feminist theory in general toward focusing on the analytical category of gender, the socially constructed gender-specific role attributions, and expectations that essentially structure the lives of women and men.

Unpaid care work has been devalued as reproductive in the course of the development process of modernity as a whole (Werlhof et al., 1988; Biesecker and Hofmeister, 2006; Rulffes, 2021). Additionally, unpaid activities with emotional relationship aspects like caring are the least likely to be perceived as work, especially when measured against paid work. Feminist research focuses on unpaid care work also in connection with "precautionary economics" (Biesecker et al., 2000; Biesecker and Hofmeister, 2006) and in recent debates on feminist post-growth ideas (Kuhl et al., 2011; Bauhardt, 2013; Dengler and Lang, 2019; Knobloch, 2019). Gender budgeting approaches and the need for feminist complements to the Green New Deal are planned in some countries (Cohen and MacGregor, 2020). If they aim at analyzing public spending in terms of gender and climate justice, this opens up possibilities to save emissions in the care sector as well (Schalatek, 2012). Spatial, urban, and transport planning must also consider care work in order to enable emission reductions. In a "city of short distances" or "15 min city," neighborhoods should be planned in such a way that the distances between the place of residence and kindergartens/schools, shopping, and employment opportunities are short and can be covered on foot or by bicycle. Public transport should be geared more to the times and needs of care work. Feminist research calls for development away from the car-oriented city toward the people-oriented city (Bauhardt, 1995). Time banks, for example, show a way to relate care work and paid employment and, thus, create more socially and climate-friendly working time quotas (Schor, 2010; Bader et al., 2021).

2.4. Functional time-use and carbon emissions

Time-use studies comprise all daily human activities and their organization in societies. Human time is a resource necessary for the production and reproduction of a person, family, economy, and community (Table 1). This systemic approach translates into functional time-use categories used widely in time-use research and encompasses activities from time-use surveys. Social structure and institutions, and gendered and unequal division of work shape individual time-use patterns as much as household size and distances to be covered. Communal infrastructure and public services available make a difference in time use. Changing time-use patterns are, therefore, rather a question of changing practices than of individual behavior. Time use, time prosperity, and especially time scarcity determine our quality of life (Rosa et al., 2015; Sullivan and Gershuny, 2018). Only few studies investigate how time-use patterns develop in industrial society and what this means in terms of environmental pressure (Jalas, 2002; Druckman et al., 2012; Smetschka et al., 2019).

One example is the case of Austria 2010, where we analyzed carbon footprints of everyday activities in Austria, linking data from the Austrian Time-use Survey and the Austrian Household Budget Survey with the Eora-MRIO for 2009–2010 in order to estimate the household carbon footprints of all time-use activities (Wiedenhofer et al., 2018; Smetschka et al., 2019). Results show that personal, household, and caring time is relatively low-carbon intense, while leisure activities show large variation in terms of CO_2e footprint/hour. The traditional gendered division of labor shapes the time-use patterns of women and men and at the same time has implications for their carbon footprints and the organization of care and work in everyday activities.

3. Discussion

Both time-use research and research on socio-ecological transformation and climate change provide new perspectives on questions of sustainable development and care. A focus on time use can help to (a) cross disciplinary boundaries for gender and sustainability studies, (b) provide analysis that goes beyond economic reduction, and (c) show the importance of care and climate justice for research on sustainable consumption.

(a) Time-use research provides a new perspective on gender differences (Druckman et al., 2012; Smetschka et al., 2019) across disciplines. The next step should be to analyze other social inequalities, such as age, employment status, or family size beyond but not ignoring the specific financial situation. In particular, the aging society faces new challenges. A higher amount of older people with ample leisure time and money available may result in a relatively high environmental impact. At the same time, the growing demand for caring for older people will change the time scarcity of persons responsible for caring. A growing part of society living as singles in urban areas will raise carbon emissions if not met with appropriate measures, such as smaller flats, better insulation, sharing of services, and amenities. Differences in household size are important, as carbon footprints are lower when several persons share living space and amenities.

Time-use research can contribute to sustainability studies with new perspectives on degrowth, equality, and quality of life. Time-use patterns and changes therein can be analyzed as options for a low-carbon and energy society. For further analysis time-use data with relevant socioeconomic data (income) are necessary. Reliability and comparability of time-use data is an important issue discussed in the time-use research community. National commitments to regular surveys along the Harmonized European Time Use Survey (HETUS) Guidelines every 5 years, would be very important for further research.

(b) A perspective on human society and their carbon footprints beyond economic reduction and a perspective on environmental problems have to include all types of human activities. Time-use studies make caring activities visible as societal necessary work and enable discussion on everyday life and gender relations. Social inequality and everyday activities have an impact on society–nature interactions, which can be measured when linking human activities to energy or material use or carbon emissions, and therefore provide a link to research on socio-ecological transformation and the search for pathways to a climate-friendly society.

Functional time-use categories help to focus on action possible at different levels and pathways toward a low-carbon society. For a good quality of life, personal time should not be reduced in hours, but the environmental impact can be lower if less material and energy are required. If more caring time is necessary for an aging society or with less national welfare available, we have to find pathways to organize these tasks with as little environmental impact as possible. Work time reduction is widely discussed as having three dividends (Buhl and Acosta, 2016) of lower environmental footprints, higher life satisfaction, and more equal social distribution of work, but only if it translates to sharing work, time, and money among more persons. Leisure time is mostly discussed as consumption time. Adding a time perspective helps to discern other ways of spending long hours of free time with little environmental impact which mostly relate to caring and resonance: relaxing, meeting and caring for family and friends, engaging in community work, kissing, singing, and playing music.

(c) A perspective on care and climate justice is an important focus of sustainable consumption. Time to care can be important on many levels: Caring for one's own self, relatives and (expanded) household members, and societal issues needs time. Additionally, unpaid care work needs more visibility in order to be shared more equally. Reassessing unpaid reproductive care activities and other forms of (paid) work is the basis for solving some of the most urgent ecological and social problems (Biesecker and Hofmeister, 2006; Haug, 2008; Hofmeister and Mölders, 2021; Winker, 2021).

Acceleration (Rosa and Trejo-Mathys, 2013) and time pressure (Sullivan and Gershuny, 2018) are determinants of quality of life and of the climate impacts of everyday activities, especially in the area of unpaid care work and care (Shove et al., 2009; Schor, 2010). Time cultures, for example, the handling of speed and waiting times and the evaluation of the short or long life of products, are seen as important factors for sustainable resource use (Rau, 2015). They are at the same time important factors in care work and housework. Sufficient time is necessary to lead a healthy life with recreation, exercise, and sport (Haas et al., 2018; Görg et al., 2023). Time wellbeing as an immaterial form of wellbeing contributes to more climate-friendly choices (Rinderspacher, 2002; Rosa et al., 2015; Großer et al., 2020). The climate impacts of care work surely have to be discussed further (Görg et al., 2023).

The quality of care work depends on interaction and thus on time. Structural constraints lead to a shortage of time or a lack of time sovereignty. Time scarcity often requires consumption with increased resource and energy consumption—as far as this is financially possible. In addition, higher incomes lead to higher demands, for example, in the household sector (kitchen equipment, higher hygiene standards, increasing wellness requirements). Climate-friendly time policy (Reisch and Bietz, 2014) and care-oriented time policy (Heitkötter et al., 2009) focus on time as a lever for policies and combine the two concerns: If people have more time disponible and care work is distributed more equitably (i.e., between genders and ages), they could act in a more climate-friendly way (Hartard et al., 2006; Schor, 2010; Rau, 2015).

The COVID-19 pandemic has brought a massive increase in unpaid work required in private households—mainly due to school and kindergarten closures (Farré et al., 2020; Fodor et al., 2021). Research on the impact on the carbon footprint is still largely lacking (Gerold and Geiger, 2020; Godin and Langlois, 2021). New services, such as delivery and online services, working conditions (home office), and offers of the sharing economy change the mix of unpaid/paid work and personal/outsourced labor in the care sector. How such changes affect the consumption of resources and the climate impact of care work has yet to be incorporated into existing concepts and research.

Further research analyzing differences in time use linked to caring responsibilities, income, location, and availability of infrastructure is crucial to assess possible pathways toward low-carbon everyday life. Time available for personal self-care, care for others, for society and nature is central for pathways toward a climate-friendly living. We found some literature lately (Godin and Langlois, 2021), but further research on the links between sustainable consumption, care work, and lifestyles is needed. The following research questions need to be investigated: What helps people to be able to spend an adequate amount of time with care work? How can a balance between committed time and other time categories lead to a high level of wellbeing? And how can a balance between committed time and other time categories lead to a low level of CO2 emissions in everyday life?

A time perspective helps to analyze socio-ecological interactions and to redefine and expand the concept of work (Biesecker and Hofmeister, 2006; Biesecker et al., 2012). A re-evaluation of different forms of work, paid and unpaid, for the production and reproduction of a person, household, economy, and society leads to more gender justice. "If greater leeway in the use of time could be created through time prosperity, it would be conceivable that resource-intensive practices could be substituted with time-intensive ones in many lifeworlds" (Buhl et al., 2017). Freed-up capacities can be used for more care (Hofmeister and Mölders, 2021) and to build structures for a more just and climate-friendly life (Winker, 2021) and, thus, represent valuable co-benefits.

Here, we present a theoretical framework for conducting further research in the field of time, care, and gender studies toward sustainable development. How we spend our time matters, and not merely to our own wellbeing and the quality of life of our families and fellow human beings while caring for them. Actually, it is of essential importance to the ecological and social problems of our time.

Data availability statement

The original contributions presented in the study are included as references, further inquiries can be directed to the corresponding author.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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York University, Canada
Soumyajit Bhar,
Krea University, India

*CORRESPONDENCE
Antonietta Di Giulio
✉ antonietta.digiulio@unibas.ch

†These authors have contributed equally to this work and share first authorship

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Using the Theory of Protected Needs to conceptualize sustainability as 'caring for human wellbeing': an empirical confirmation of the theory's potential

Antonietta Di Giulio [1,2*†], Rico Defila [1,2†] and Corinne Ruesch Schweizer [1,2]

[1]Department of Social Sciences, University of Basel, Basel, Switzerland, [2]Department of Environmental Sciences, University of Basel, Basel, Switzerland

Caring for human wellbeing has the potential of offering a powerful narrative for change toward sustainability. A broad body of research confirms that a narrative linking the ideas of a good life (human wellbeing) and of solidarity and justice actually exists, and that this narrative could, if supported and reinforced by convincing concepts, relevant material structures, and coherent action, serve as a societal source of power for sustainability. With a view to providing a theory of human wellbeing that focuses on the responsibility of the community and conceptualizes achieving a good life as a public good and not as a purely individual matter, we developed the Theory of Protected Needs (PN). The Theory of PN is a theory of good life that frames quality of life for individuals as a societal responsibility (but without affecting individual freedom), thus linking the individual and the societal perspective with a view of ensuring life satisfaction of present and future generations. The Theory of PN has been subjected to a representative survey in Switzerland. In the paper, we explore whether the Theory of PN can be empirically confirmed, that is, to what extent the nine needs the theory consists of deserve the status of being protected needs. We present the theory, the empirical criteria that the nine needs have to meet in order to qualify for being protected needs, and the results of the data analysis. These results sum up to an aggregated argument in favor of using the Theory of PN as a fundament to conceptualize sustainability as 'caring for human wellbeing'. The paper concludes with outlaying further steps both in research and in societal practice. In the Appendix A, the German and French versions of the Theory of PN are first published.

KEYWORDS

universal human needs, wellbeing, quality of life, Protected Needs, sustainable wellbeing, ethical obligation, solidarity, narrative

1. The frame 'caring for human wellbeing' is more promising for achieving sustainability than the frame 'caring for the environment'

On a fundamental level, sustainability can be approached from two perspectives: by putting environmental protection at the center or by putting the protection of human wellbeing at the center. Research has shown that the second approach is far more promising than the first approach. There is a considerable and diverse body of empirical research backing this statement. Scholars have shown that environmental topics and climate change do not translate into powerful societal narratives because they are not sufficiently linked to people's everyday experiences and concerns about quality of life and justice (e.g., Harich, 2010; Lakoff, 2010; Lejano et al., 2013; Feola, 2014; Gearty et al., 2015; Espinosa et al., 2017; Veland et al., 2018; Han and Ahn, 2020). Other research has pointed out that when no geopolitical crisis is jeopardizing the energy supply, people care less about energy because energy (and other natural resources) is not a category that people normally think with (e.g., Owens and Driffill, 2008; Kaufmann-Hayoz et al., 2012; Bornemann et al., 2018; Sahakian and Bertho, 2018). Still other research has uncovered that people refer to human wellbeing and justice in their dual roles as consumers and citizens in considering, discussing, and assessing sustainability policies (e.g., De Vries and Petersen, 2009; Defila et al., 2018; Di Giulio et al., 2019). And, to give a last example, research investigating the criteria informing the decision making of schools committed to sustainability indicates that a good life (in terms of quality of life) is one of four values that are part of what could turn out to be a "culture of sustainability" (Ruesch Schweizer and Di Giulio, 2016).

There is, in other words, enough and diverse evidence pointing in the same direction: caring for human wellbeing has the potential to offer a powerful narrative for change toward sustainability. This is in line with how the United Nations defines sustainable development: as development that aims at ensuring quality of life for human beings in the present and in the future (e.g., Manstetten, 1996; Di Giulio, 2004; Rauschmayer et al., 2011). This leads to the question of what theory of human wellbeing to adopt (see, e.g., O'Mahony, 2022).

This is the starting point of this paper. We have developed a theory of wellbeing—the Theory of Protected Needs (Di Giulio and Defila, 2020)—that we suggest using in the context of sustainability. The goal of the paper is to explore whether the Theory of Protected Needs can be empirically confirmed, that is, to what extent the nine needs in the theory deserve the status of being protected needs. In the subsequent sections, we will first outline the requirements that a theory of human wellbeing (or quality of life: we use these terms synonymously) should meet to serve as a robust foundation for sustainable development (Section 2). Based on this, we will provide a short introduction to the Theory of Protected Needs, and we will present the empirical criteria that posited needs must meet to qualify as protected needs (Section 3). In Section 4, we will explain the empirical approach we applied to determine whether the nine needs of our theory meet these criteria, and in Section 5, we will report the empirical results. Based on the empirical results, we will discuss the potential of using the Theory of Protected Needs as a foundation for conceptualizing sustainability as 'caring for human wellbeing' (Section 6). Finally, we will draw some conclusions with a view to further steps both in research and in societal practice (Section 7).

2. Conceptualizing sustainability as 'caring for human wellbeing'—requirements for a theory of human wellbeing

Taking human wellbeing as the goal of sustainable development leads, as stated above, to the subsequent question of how to approach the notion of human wellbeing. Here again there are, on a fundamental level, two options: an approach focusing on the individual and an approach focusing on the community and society. According to the first approach, how quality of life is defined is completely dependent on the individual, that is, on their preferences and values, and how quality of life is achieved also depends on the individual. This approach follows the logic that "everyone is the architect of their own fortune" and leads, if taken to its logical conclusion, to an egoistic approach based on competition. Although the second approach acknowledges that individuals have different conceptions about what exactly wellbeing means to them, it assumes (a) that it is possible to define some constituents of quality of life that are equally important to all human beings, regardless of their personal preferences and values (so-called universals) and (b) that achieving quality of life for individuals is a responsibility shared by society. This approach adopts an ethics of solidarity and is based on collaboration.

Sustainability is not an individual goal but a collective goal, so in contrast to a universalistic approach to defining human wellbeing, an individualistic approach cannot be coherently linked with the idea of sustainable development or with the concomitant notion of collective responsibility. In the context of sustainability, caring for human wellbeing is not primarily an individual duty to perform care work but a societal duty to provide the conditions for people to achieve quality of life. This line of reasoning is backed by empirical evidence. Research shows that when people refer to human wellbeing in considering, discussing, and assessing sustainability policies, they are not primarily thinking of their own lives. Rather, they are linking quality of life to issues such as social justice and solidarity, that is, they are perceiving human wellbeing as a societal responsibility (e.g., Kallbekken and Sælen, 2011; Defila et al., 2018). Thus, for the context of sustainability, a universalistic approach to quality of life should be adopted, an approach that is complemented by an ethics of solidarity and justice (Di Giulio et al., 2012; Fischer et al., 2012; Gough, 2017; emphasized also by O'Mahony, 2022).

Caring for people's wellbeing does not stop at preventing their deaths or at avoiding or eliminating conditions and factors that impair their wellbeing or make it impossible for them to achieve wellbeing. Caring for people's wellbeing rather means providing conditions that make it possible for human beings to achieve quality of life according to their own preferences and values. A theory of human wellbeing suitable for the context of sustainability must therefore provide a salutogenic approach to wellbeing[1], safeguard individual freedom, and justify limiting this freedom when individuals' actions are detrimental to the wellbeing of others (in the present or in the future).

In order to answer the question of how to approach the notion of human wellbeing, the last point that needs to be clarified is what is decisive in a salutogenic and universalistic sense with a view to defining quality of life. It goes without saying that quality of life cannot be reduced to single elements such as social relations or personal development but necessitates a comprehensive approach that integrates all the constituents important for human wellbeing. It also goes without saying that a comprehensive and universalistic approach to defining quality of life must be limited with regard to its scope in terms of content and sensitive with regard to changing cultural and historical contexts. For this purpose, it is important to distinguish means and ends in themselves. In a universalistic approach, the constituents of quality of life are ends in themselves that are independent of individuals' age, gender, education, value systems, life situations, and religious, cultural, or national contexts. Means in turn are what people do and make use of in achieving these constituents. From this perspective, resources (such as economic resources or natural resources), services (such as education or health services), infrastructures (such as road systems or systems of provisioning), and societal institutions (such as legal systems or social insurance but also churches) are not constituents of quality of life but means, because they are not ends in themselves. Furthermore, many such means are not universal but linked to specific life situations (e.g., being sick, being unemployed, being a single parent), phases of life (e.g., being a child, being a parent, working), or beliefs, values, and life plans [e.g., being a member of a church, being a member of a party, (not) wanting children]. In other words, for the context of sustainability, quality of life must be defined by naming ends in themselves and not by naming means.

Looking for a salutogenic approach to wellbeing that proceeds from universals and does not focus on means but on constituents of wellbeing leads to a needs approach, because needs approaches are universalistic and salutogenic, and they stress the difference between needs as constituents of quality of life and satisfiers as means to achieving quality of life (e.g., Max-Neef et al., 1991; Jackson et al., 2004; Soper, 2006). There are a considerable number of needs approaches [see, e.g., the compilations provided in Alkire (2007, 2010)]. To qualify for the context of sustainability, a needs approach must meet three criteria (Di Giulio, 2008; Di Giulio et al., 2010, 2012; Di Giulio and Defila, 2020). First, it must be comprehensive and thus not focus, for example, on psychological wellbeing (such as Ryff, 1989; Ryan and Deci, 2000, 2001). Second, it must provide what Soper calls a "thick" theory to be relevant to policy (Soper, 2006, p. 361), so approaches that only provide a short list of undefined needs (e.g., Doyal and Gough, 1991) are less suitable. Finally, it must focus only on needs that a community can be made responsible for, which discards approaches such as the capability approach that focus primarily on the individual, its possibilities, and its freedom (e.g., Nussbaum, 2006; Sen, 2009).

To sum up, viewed through the lens of care, sustainability can be defined as societally acknowledging a comprehensive set of thickly described universal human needs and societally assuming the responsibility to ensure that all human beings are provided with the satisfiers necessary to meet those needs.

3. Protected Needs: a universalistic, salutogenic, and comprehensive theory of wellbeing

Proceeding from what has been said above on the level of the scholarly discourse leads to the question of what human needs should be used in implementing this definition of 'sustainability as caring for human wellbeing' on a societal level. The quality requirements can be summarized as follows: the set of needs must be universal, salutogenic, and comprehensive; it must provide thick descriptions but not mention specific satisfiers (and not narrow down the needs to specific ways of living); it must be suitable for grounding a societal responsibility in a way that at the same time preserves individual freedom; and it must allow for individual, socio-cultural, and historical adaptation. These are quality dimensions that have to be observed in developing and formulating the needs.

Based on an interdisciplinary literature review[2] and in collaboration with an interdisciplinary advisory board[3], we developed the Theory of Protected Needs (PN). This theory is informed by the requirements mentioned above and provides a list of needs for use in the context of sustainability (Di Giulio and Defila, 2020). We call them "Protected Needs" because the needs we suggest to use claim to be needs that (1) deserve special protection within and across societies since they are crucial to human wellbeing, and they claim to be, at the same time, (2) needs for which special societal protection is possible, since they are needs that a government or community can reasonably be made responsible for. The Theory of PN provides both universal needs and a thick description of each need. The list of needs in the Theory of PN consists of nine universal needs that are arranged in three groups (Table 1, left column) and are specified by thick descriptions (Table 1, right column). The needs denote what individuals must be allowed to want (left column), and the

1 Salutogenic approaches are based on "a positive perspective on human life" and aim to investigate the origins of health rather than those of disease and risk (Mittelmark and Bauer, 2017).

2 The Theory of Protected Needs builds on the huge and important body of research on quality of life in general and in the context of sustainability, but it is beyond the scope of this paper to engage with that literature. We therefore refer to previous publications in which we have situated this theory in the context of the scholarly literature (e.g., Di Giulio, 2008; Di Giulio et al., 2010, 2012).

3 The members of the interdisciplinary advisory board were Peter Bartelheimer, Mathias Binswanger, Birgit Blättel-Mink, Doris Fuchs, Konrad Götz, Gerd Michelsen, Martina Schäfer, Gerd Scholl, Michael Stauffacher, Roland Stulz, and Stefan Zundel. The project team was Rico Defila, Antonietta Di Giulio, Ruth Kaufmann-Hayoz, and Lisa Lauper.

TABLE 1 The nine needs in the Theory of Protected Needs (Di Giulio and Defila, 2020).

Group 1, focusing upon tangibles, material things (Protected Needs 1–3)	
Need (what individuals must be allowed to want)	*Specified description: Individuals should have the possibility...*
1) To be provided with the material necessities for life	... to feed themselves sufficiently, with variety, and with food that is not detrimental to health. ... to live in a suitably protected and equipped accommodation, offering privacy and sufficient space and allowing them to realize their idea of living. ... to care for their bodies with dignity and dress suitably.
2) To realize their own conception of daily life	... to shape their daily life according to their own ideas. ... to procure and use the material necessities for life from a diverse range of supply, and to have sufficient means to do so. ... to move freely in public space.
3) To live in a livable environment	... to live in an environment (built and natural) that is not harmful to health and is aesthetically pleasing. ... to develop a sensorial and emotional relationship with nature. ... to have access to and be able to move about in diverse natural and cultural landscapes.
Group 2, focusing upon the person (Protected Needs 4–6)	
Need (what individuals must be allowed to want)	*Specified description: Individuals should have the possibility...*
4) To develop as a person	... to develop their potential (knowledge, skills, attitudes, feelings, and so forth) and thus their individual identity. ... to face the challenges of their choice. ... to freely access reliable information and thus form their own opinion.
5) To make their own life choices	... to freely decide and act upon the value-orientations they choose to adopt or reject (spirituality, religiosity, ideology, and so forth). ... to set their own life goals and pursue them. ... to determine how they want to lead their life in terms of intimate relationships, family planning, where to live, and so forth.
6) To perform activities valuable to them	... to carry out activities that they consider to be fulfilling (in work and leisure; paid and unpaid). ... to carry out activities that match their personality and in which they can unfold their potential (in work and leisure; paid and unpaid). ... to allocate their time for their different activities according to their own preferences and to have time for idleness.
Group 3, focusing upon community (Protected Needs 7–9)	
Need (what individuals must be allowed to want)	*Specified description: Individuals should have the possibility...*
7) To be part of a community	... to maintain social relationships with other people (private, professional, during training, and so forth). ... to take part in cultural activities and celebrations and to participate in associations. ... to access the cultural and historical heritage of their community.
8) To have a say in the shaping of society	... to co-determine the affairs of the society in which they live. ... to take an active stand for concerns and problems (local, national, international) they hold dear. ... to voice their opinion, by themselves and with others.
9) To be granted protection by society	... to be protected from public and private violence, from infringements on physical and mental integrity, and from natural hazards. ... to pursue their goals without discrimination and with equal opportunity, to live in legal certainty, and to be treated with dignity and respect. ... to be supported in the event of physical or mental impairment, unemployment, poverty, and other impairing conditions.

Protected Needs. The original and authoritative version of the Protected Needs is the German version (dated October 15, 2016) authored by Rico Defila and Antonietta Di Giulio. The German version has been subjected to comprehensive cognitive testing in Switzerland. Based on the results of this testing, it has been revised and translated into French (by M.I.S. Trend). The German version has been translated into English by Rico Defila and Antonietta Di Giulio. Valuable contributions and feedback have been provided by Manisha Anantharaman, Marlyne Sahakian, Czarina Saloma-Akpedonu, and Anders Hayden. The German and the French versions of the list are published for the first time in Appendix A of this paper.

thick descriptions describe the possibilities individuals should be provided with (right column).[4] Concurring with a needs approach, the nine needs on the list of Protected Needs are ends in themselves, that is, they cannot be further reduced (needs "cannot be added up and summarized in a single unit of account", Gough, 2017) and they are non-substitutable ("one domain of need-satisfaction or objective wellbeing cannot be traded off against another", Gough, 2017). The nine Protected Needs (PN 1–9) are context sensitive despite being universal: the thick descriptions that have been developed for the Swiss-German context serve as a starting point for the cultural and historical adaptation of the nine needs.

Needs are satiable but through what means they are satisfied and how they translate into actions differs among individuals. In order to allow for individual freedom, the definition of each of

4 We use "what individuals must be allowed to want" (Table 1, left column) in order "to emphasise that this list of needs does not entail that individuals must develop a corresponding construct of wanting but that they have to be allowed to do so; and if they do, they are entitled to satisfy it" (Di Giulio and Defila, 2020, p. 108). We use "individual constructs of wanting" (Di Giulio et al., 2012) to emphasize both that needs are always subjectively experienced by individuals (see also Soper, 2006) and that needs depend, in terms of how they are individually delineated and weighted, on social and cultural contexts and are thus also socially constructed.

the nine needs must allow for a diversity of means (activities, infrastructures, services, products, etc.) that people can draw on in satisfying it. We have empirical evidence that allows us to make indicative conclusions with regard to this requirement of 'individual freedom and diversity'. The list of Protected Needs has been used in a qualitative investigation in four Asian cities (Chennai, Metro Manila, Shanghai, Singapore) to explore how green public spaces act as satisfiers with regard to these needs. The results show that each of the nine needs allows for a diversity of means that people draw on in satisfying it and that people link a broad diversity of means to one and the same need. The respondents were asked to link their activities in the park to the nine needs, and data analysis showed that a broad diversity of activities serve the same need (Di Giulio et al., 2022). We thus conclude that we have strong empirical indications that all nine needs on the list of Protected Needs allow for individual freedom and diversity in how they are satisfied.

The Theory of PN claims to provide a comprehensive and salutogenic definition of quality of life that is both sound and useful for fleshing out quality of life for the context of sustainability and with a view to grounding responsibilities for individuals, communities, and governments on the subnational, national, international, and global levels. But the Theory of PN claims to provide a definition of quality of life that does not only meet the quality requirements above but can also be practically used in sustainability governance. The Theory of PN must therefore also resonate with people, that is, each of the nine needs must cumulatively meet a set of empirical criteria (hereafter referred to as 'empirical criteria'):

- Criterion 1—The need is actually experienced by people, and it is a crucial constituent of quality of life: The need is not a theoretical construct, that is, it is possible to identify a "construct of wanting" that corresponds with how the need is defined, and not having the possibility to satisfy the need affects individuals' wellbeing.
- Criterion 2—The need is supra-individual: Experiencing the need is not tied to a specific segment of people. Rather, it is experienced by a diversity of people (this does not imply that all human beings must experience the need or that the need has the same importance for all human beings).
- Criterion 3—The need is perceived as a need that is non-negotiable: The need is perceived to be a crucial, universal, and incontestable constituent of the wellbeing of all humans; that is, the need is not up for negotiation.
- Criterion 4—The need grounds a societal responsibility: The need grounds a sense of ethical obligation to contribute to the possibility of human beings to satisfy this need, and the recipients of this responsibility are present and future generations.

We subjected the list of Protected Needs to a representative survey in Switzerland. The survey served two purposes: we wanted to find out how people react to the nine needs with a view to different dimensions, and we wanted to determine to what extent the nine needs, which were developed by means of a literature analysis and by an interdisciplinary discussion among experts[3], can be empirically confirmed with regard to these four criteria.

4. The questionnaire, the sample, and the operationalization of the empirical criteria for data analysis

The guiding question of this paper is to what extent the nine needs on the list of Protected Needs (PN 1–9) can be empirically confirmed with regard to the empirical criteria 1–4 presented in Section 3. In the following, we will first present the questionnaire that we used in our survey (Section 4.1) and the sample of our survey (Section 4.2). After that, we will present how we operationalized the single empirical criteria for data analysis and how we combined them into an aggregated analysis (Section 4.3).

4.1. The questionnaire

The questionnaire consisted of twenty questions in total (Q1–Q20).

Q5–Q10 were devoted to the Theory of PN. Before being presented with Q5, respondents were introduced to these questions with the following text: "The following is about nine needs that could be important for quality of life. We will ask you different questions on the matter. First, we will ask you to indicate for each need how important it is for you personally, for your own quality of life. In addition, we will ask you to indicate for each of these needs to what extent it is possible for you to do what is described in the need (regardless of how important it is for you)." Respondents were asked about the individual (subjective) importance of each of the nine Protected Needs to them (Q5) and about whether they have the possibility to satisfy each of these nine needs regardless of the importance they attach to them individually (Q6). The thick descriptions of the single needs (Table 1, right column) were introduced in Q5/Q6 (see Figure 1 for how this was done) and were provided as pop-ups in Q7–Q10. Respondents were asked how important they think each of the nine Protected Needs to be with a view to human wellbeing in general (Q7) and whether they think it to be blatantly unjust if circumstances make it impossible for different groups of people to satisfy the need (Q8). For each of the nine Protected Needs, respondents were asked to what extent they feel obliged as an individual to contribute to the possibility of other people to satisfy this need (Q9, perceived responsibility of individual) and how much they think Swiss society is obliged as a community to contribute to the possibility of people to satisfy this need (Q10, perceived responsibility of community).

One question (Q11) was devoted to the concept of consumption corridors, which refers to a way to achieve sustainability in consumption (see, e.g., Blättel-Mink et al., 2013; Di Giulio and Fuchs, 2014). In order to find out how this concept is received in society, we inquired into the openness of the respondents to endorsing the concept. For the rationale of Q11 and the results, see Defila and Di Giulio (2020).

The other questions concerned age (Q1), gender (Q2), residence (canton only; the canton question was positioned after Q2), general life satisfaction (Q3; accompanied by an open Q4 asking what respondents deemed crucial to quality of life), political attitude (Q12), altruism (Q13; for the altruism scale, see Appendix B), current activity (Q14), education (Q15), income

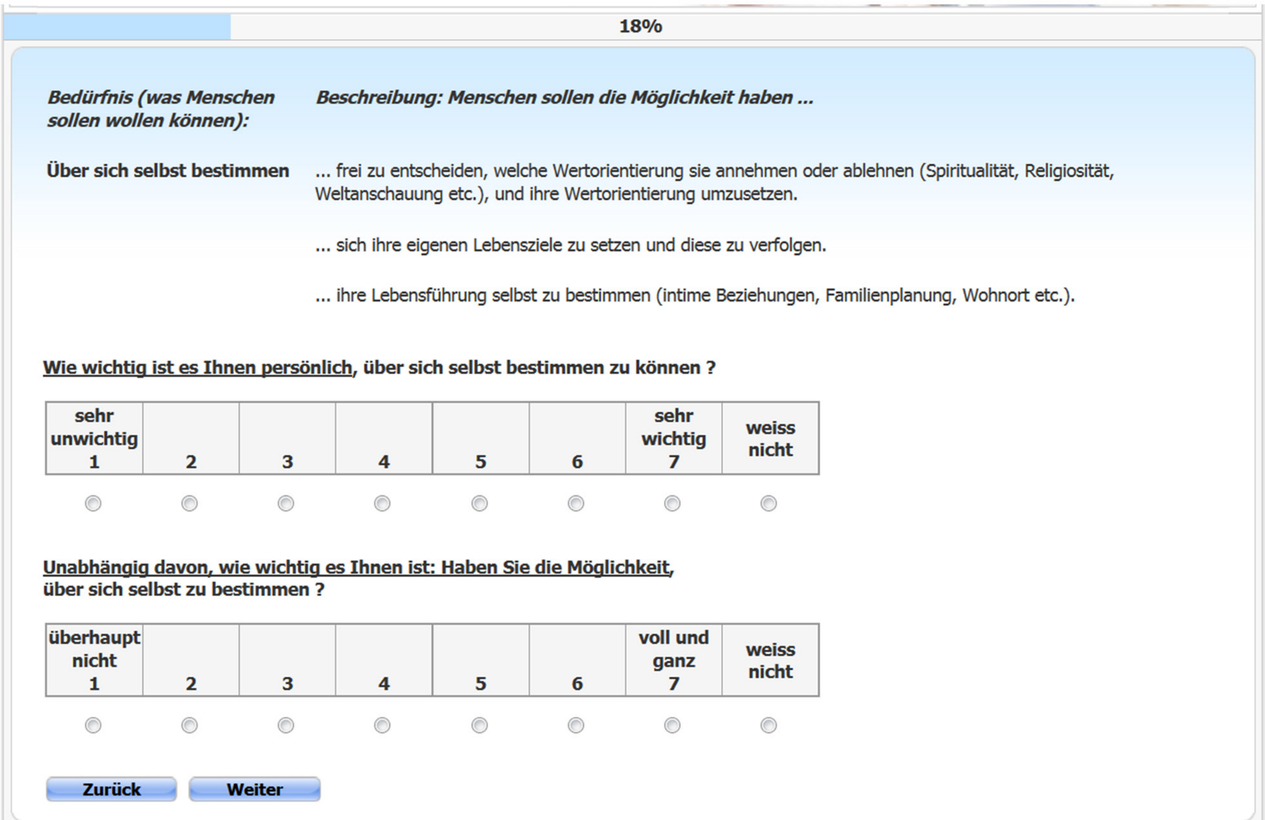

FIGURE 1
The screenshot shows how respondents were presented questions 5 and 6 (Q5, Q6) of the questionnaire and the thick descriptions of the single Protected Needs (German version of questionnaire). The example shows Q5 and Q6 for Protected Need 5: "To make their own life choices".

(Q16), number of persons living in the same household (Q17), and nationality (Q18, Q19). Q20 was an open question asking for comments.

In order to ensure its quality, the questionnaire was subjected to comprehensive qualitative cognitive testing conducted by M.I.S. Trend, a Swiss institute providing services for qualitative and quantitative surveys. We administered the questionnaire as an online survey (using computer-assisted web interviewing, CAWI). It was fielded in October 2016 and took respondents approximately 25 min in total to complete. The sequence in which the respondents were asked about the nine Protected Needs was randomized as follows: the order in which the needs were asked was random, but only per respondent; that is, the order changed from respondent to respondent but then remained the same within the questionnaire in all questions for one and the same respondent. For all questions, respondents were provided with the option "I don't know".

4.2. The sample

The respondents ($N = 1{,}059$) were recruited via an online-access panel. The process was managed by M.I.S. Trend. To build a representative sample for Switzerland, we applied quota sampling (crossed quota) using the combined criteria of age, gender, and linguistic region (limited to the German-speaking and French-speaking parts of Switzerland, which cover 25 out of the 26 cantons that are the member states of the Swiss Confederation). The quota used to build the sample matched the distributions in the Swiss population (aged 18 and older; not covering the Italian-speaking part of Switzerland, that is, one of the 26 Swiss cantons; see Appendix B, Table B1). Because respondents from the French-speaking part of Switzerland were slightly overrepresented in the sample relative to the overall Swiss population, the answers were weighted in the data analysis.

The sample consisted of 50.9% women and 49.1% men. The average age of the respondents was 47 with an age distribution as follows: 2.1% of the respondents were aged 18–19, 34.2% were aged 20–39, 47% were aged 40–64, and 16.7% were 65 or older (with a distribution ranging from 18 to 84).

The sample was representative also beyond the applied sampling criteria: the sample showed a distribution by citizenship status that was relatively similar to the distribution in the Swiss population [86.1% Swiss citizens (including dual citizenship) and 13.9% non-citizens; the Swiss population in 2015 was comprised of 76.1% Swiss citizens (including dual citizenship) and 23.9% non-citizens]. The sample was fairly comparable to the Swiss population also in terms of household size (most respondents, 66.6%, living in single-member or two-person households; Appendix B, Table B2), political attitude (a plurality of respondents, 43.8%, adopting neither a pronounced left-wing attitude nor a pronounced right-wing attitude; Appendix B, Table B3), and diversity with regard to education (Appendix B, Table B4) and income (Appendix B, Table B5).

4.3. Data analysis: how the empirical criteria for needs to qualify as protected are operationalized

The collected data should answer two questions: (a) How do people react to the nine Protected Needs with a view to the different dimensions covered in the survey? (b) To what extent can the nine Protected Needs be confirmed with regard to the empirical criteria presented in Section 3, that is, to what extent do they empirically qualify for the status of being protected needs? Question (b) is the question informing this paper.

The empirical criteria each need has to meet to qualify as protected are cumulative; that is, single criteria cannot be compensated. Confirming the criteria thus requires an analysis of the data that combines the criteria into an aggregated analysis. In this section, we will present how we operationalized the single criteria for data analysis (Sections 4.3.1–4.3.3), that is, which question(s) of the questionnaire we drew on and what we determined to be decisive for whether a criterion is met (+) or not (–) and for how it fed correspondingly into the aggregated analysis that combined the criteria per need. For the aggregated analysis of the data, the criteria were translated into possible response patterns. These response patterns are presented in Section 4.3.4.

For the analysis of the data, we used SPSS. No answer and "I don't know" were both coded as missing.

4.3.1. Criterion 1 and criterion 2: the importance of the nine needs

Criterion 1: The need is actually experienced by people, and it is a crucial constituent of quality of life	Criterion 2: The need is supra-individual
The need is not a theoretical construct, that is, it is possible to identify a "construct of wanting" that corresponds with how the need is defined, and not having the possibility to satisfy the need affects individuals' wellbeing.	Experiencing the need is not tied to a specific segment of people. Rather, it is experienced by a diversity of people (this does not imply that all human beings must experience the need or that the need has the same importance for all human beings).

In operationalizing the empirical criteria, criterion 1 and criterion 2 were combined. Criterion 1 consists of two elements: (a) the need is not a theoretical construct, that is, it is possible to identify a "construct of wanting" that corresponds with how the need is defined; and (b) not having the possibility to satisfy the need affects individuals' wellbeing. Criterion 2 in turn is subordinate or an extension of criterion 1(a) since it requires that experiencing the need is not tied to a specific segment of people.

The data relevant for criterion 1 and criterion 2 are provided by Q5 and Q6 and by relating the answers to these questions to the answers to Q3 (general life satisfaction).

Respondents were asked about the individual (subjective) importance of each of the nine needs for their own life (Q5) and about whether they have the possibility to satisfy each of these nine needs regardless of the importance they attach to them individually (Q6). This was done by asking them for each of the nine needs how important it is to them personally to... [here, the need was named] (Q5; 7-point scale: 1 = not important at all, 7 = very important, 2–6 not labeled). Before proceeding from one need to the next, they were asked whether they have, regardless of how important it is to them, the possibility to... [here the need was named again] (Q6; 7-point scale: 1 = not at all, 7 = fully and completely, 2–6 not labeled). Figure 1 shows a screenshot of how respondents were presented Q5/Q6. Asking about both the importance of each need and the possibility to satisfy each need is also in line with Costanza et al. (2007, p. 272), who suggest inquiring into both dimensions, because "overall QOL [quality of life] at any point in time is a function of (a) the degree to which each identified human need is met, which we will call 'fulfilment' and (b) the importance of the need to the respondent or to the group in terms of its relative contribution to their subjective wellbeing." We adapted this to the purpose of our survey insofar as we did not ask about the actual satisfaction of the single needs but about the possibility to satisfy the single needs.

With regard to whether criterion 1 is met (+) or not (–), we decided, first, to focus on the data provided by Q5. The answers to Q5 show the explicit ascriptions of importance to the different needs by the respondents. For a need to qualify as protected in a society, it must be explicitly qualified as important. This line of argument is supported by the results from correlating the respondents' answers to Q5 and their answers to Q7, the question in which they were asked for each of the nine needs

TABLE 2 The extent to which the individual importance assigned to each of the nine Protected Needs (PN 1–9) (Q5) correlates with the general importance for human wellbeing attributed to each of the nine Protected Needs (Q7).

	How important is it for you personally to . . . (Q5 questionnaire)	*Do you think it must be possible for a human being to . . . (Q7 questionnaire)*	
	M	*M*	*Correlation*
PN 1	6.42	6.24	0.47**
PN 2	6.34	5.93	0.42**
PN 3	6.55	6.15	0.37**
PN 4	6.41	6.18	0.43**
PN 5	6.59	6.32	0.44**
PN 6	6.39	6.00	0.40**
PN 7	5.66	5.46	0.58**
PN 8	5.64	5.33	0.56**
PN 9	5.97	5.84	0.62**

*$p < 0.05$; **$p < 0.01$.
In Q7, respondents answered the question of whether they think it is imperative that humans have the possibility to satisfy each of the nine needs. Respondents answered using a 7-point scale (1 = is not imperative, 7 = is imperative, 2–6 were not labeled). They used the entire scale (min. = 1, max. = 7). The table presents the mean (*M*) of how respondents answered Q5 and Q7 for each of the nine Protected Needs.

whether they think it is imperative that people can, with a view to quality of life, satisfy this need or whether they think people can reconcile themselves to not being able to satisfy this need (Table 2). The attribution of general importance to a need with a view to quality of life strongly and significantly correlates with the explicit subjective importance attributed to the need.

Second, we decided that the criterion is met when respondents chose a value above 2 (= values 3–7) in answering Q5 and that it is not met when respondents chose value 1 or 2. According to the questionnaire, a need is ascribed some importance at a value of 2. But because this has to be considered an extremely weak importance, we decided that not only value 1 but also value 2 expresses that respondents do not ascribe a subjective importance to the need.

Third, we decided that only criterion 1(a) (the need is not a theoretical construct, that is, it is possible to identify a "construct of wanting" that corresponds with how the need is defined) should feed into the aggregated data analysis. The extent to which criterion 1(b) (not having the possibility to satisfy the need affects individuals' wellbeing) is met, is revealed by the results of relating Q6 and Q3 because this uncovers the actual relevance of each need to quality of life, regardless of whether the need is deemed to be important or not. Using only Q6 instead would not be suitable, because Q6 shows how respondents judge whether they have the possibility to satisfy the different needs and not whether this is crucial for quality of life or not (furthermore, Q6 does not indicate whether respondents' judgments concerning whether they have the possibility to satisfy a need is accurate, nor does it reveal anything about their expectation with regard to when a need is satisfied). That is, criterion 1(b) can best be judged by drawing directly on the correlation of Q6 and Q3 and by comparing this correlation with the correlation of Q5 and Q3.

Criterion 2 is, as stated above, an extension of criterion 1(a) since it requires that experiencing the need is not tied to a specific segment of people. This translates into the requirement that the group of respondents for which criterion 1 is not met must be empirically negligible.

To conclude, criterion 1(a) feeds into the syntax used for the aggregated analysis of the data as follows (for each of the nine Protected Needs):

Criterion 1 (and criterion 2): Importance of need (need is/is not supra-individual)	
Group	*Syntax*
+ = need is experienced [criterion 1(a)]	Q5: respondent chooses value ≥3
– = need is not experienced [criterion 1(a)]	Q5: respondent chooses value ≤2

Criterion 1(b) (crucial/not crucial for QoL) and criterion 2 [= extension of criterion 1(a)] do not feed into the aggregated analysis of the data. Criterion 1(b) has to be judged by drawing on the results of correlating Q6 and Q3 (and by comparing this with the correlation of Q5 and Q3). Whether criterion 2 is met depends on how the respondents distribute among the two groups + and –.

4.3.2. Criterion 3: the incontestability of the nine needs

Criterion 3: The need is perceived as a need that is non-negotiable
The need is perceived to be a crucial, universal, and incontestable constituent of the wellbeing of all humans; that is, the need is not up for negotiation.

Criterion 3 encompasses three elements: (a) the need is perceived to be a crucial constituent of the wellbeing of humans; (b) it is perceived to be a universal human need; and (c) it is perceived as not being up for negotiation.

The data relevant for criterion 3 are provided by combining Q7 and Q8. We wanted to know whether respondents concede the nine needs to others and to what extent they perceive them to be contestable [Q7 and Q8; for their rationale, see Defila and Di Giulio (2021)]. This was addressed for each of the nine needs by asking respondents whether they think it is imperative that people can, with a view to quality of life, satisfy this need or whether they think people can reconcile themselves to not being able to satisfy this need (Q7; 7-point scale: 1 = is not imperative, 7 = is imperative, 2–6 not labeled). In Q8, for each of the nine needs, respondents were asked whether they think it is blatantly unjust if circumstances (such as a lack of money, prohibition by family or religion, a non-supportive environment, not being allowed by law) make it impossible for different groups of people to satisfy this need (Q8; scale was five groups of people that were presented as an increasing scope of persons). That is, respondents answered by indicating whether they felt being unable to satisfy the need was blatantly unjust for no one (coded 1 in data analysis), only for Swiss citizens (coded 2 in data analysis), also for foreigners living in Switzerland (coded 3 in data analysis), also for refugees and undocumented migrants living in Switzerland (coded 4 in data analysis), or for people living all over the world (coded 5 in data analysis). It was technically possible to give incorrect answers. For the analysis of the data, incorrect answers were coded as missing.

For how respondents answered Q7 and Q8 in detail, see Defila and Di Giulio (2021). The results show that in answering Q8, some respondents for whom the needs were not up for negotiation adopted a national perspective (unjust only for Swiss citizens), others a territorial perspective (unjust for all people living in Switzerland, that is, Swiss citizens, foreigners living in Switzerland, refugees, and undocumented migrants living in Switzerland), and still others a global perspective (unjust for all people regardless of where they live in the world) (Defila and Di Giulio, 2021, Table 13.4).

We decided to take up this nuanced picture about the incontestability of the nine needs and to apply a two-step procedure in the aggregated analysis of the data by distinguishing in a first step only according to whether respondents perceived a need not to be up for negotiation no matter where they drew the line or whether they rejected the very idea of a need to be incontestable. That is, the first step covers criteria 3(a) and 3(c). In a second step, the data analysis should reveal to what extent the need was perceived to be universally incontestable. That is, criterion 3(b) was added in a second step (and only for respondents, of course, that perceived the need to be incontestable).

Accordingly, criterion 3 feeds into the syntax used for the aggregated analysis of the data as follows (for each of the nine Protected Needs):

Criterion 3: Incontestability of need	
Step 1 [criterion 3(a) and criterion 3(c)]	
Group	*Syntax*
+ = need is not up for negotiation	Q7: respondent chooses value ≥6 AND Q8: respondent answers by choosing Swiss citizens (= 2) OR also foreigners living in Switzerland (= 3) OR also refugees and undocumented migrants living in Switzerland (= 4) OR people living all over the world (= 5)
– = need is up for negotiation	Q7: respondent chooses value 1–5 OR Q8: respondent answers by choosing no one (= 1)
Step 2 [criterion 3(b)] (for those that are, after step 1, included in the group +)	
Group	*Syntax*
n (= not up for negotiation national scale)	Q7: respondent chooses value ≥6 AND Q8: respondent answers by choosing Swiss citizens (= 2)
t (= not up for negotiation territorial scale)	Q7: respondent chooses value ≥6 AND Q8: respondent answers by choosing also foreigners living in Switzerland (= 3) OR also refugees and undocumented migrants living in Switzerland (= 4)
g (= not up for negotiation global scale)	Q7: respondent chooses value ≥6 AND Q8: respondent answers by choosing people living all over the world (= 5)

4.3.3. Criterion 4: the ethical obligation grounded by the nine needs

Criterion 4: The need grounds a societal responsibility
The need grounds a sense of ethical obligation to contribute to the possibility of human beings to satisfy this need, and the recipients of this responsibility are present and future generations.

Criterion 4 consists of two elements that each cover more than one dimension: element (a) relates to who has the ethical obligation to contribute to the possibility of human beings to satisfy this need (dimensions: the individual, the community); element (b) relates to the recipients of this responsibility (dimensions: present generations, future generations, in one's own country, all over the world).

The data relevant for criterion 4 are provided by Q9 and Q10. We wanted to find out to what extent the nine needs ground a sense of ethical obligation to contribute to the possibility of human beings to satisfy these needs [Q9 and Q10; for their rationale, see Defila and Di Giulio (2021)]. Respondents were asked, for each of the nine needs, to what extent they feel obliged as an individual to contribute to the possibility of other people to satisfy this need (dimensions of recipients they had to consider: present generations in their own country, present generations all over the world) (Q9; 7-point scale: 1 = not obliged at all, 7 = strongly obliged, 2–6 not labeled). Respondents were asked, for each of the nine needs, how much they think Swiss society is obliged as a community to contribute to the possibility of people to satisfy this need (dimensions of recipients they had to consider: present generations in their own country, present generations all over the world, future generations in their own country, future generations all over the world) (Q10; 7-point scale: 1 = not obliged at all, 7 = strongly obliged, 2–6 not labeled). For how respondents answered Q9 and Q10 in detail, see Defila and Di Giulio (2021).

For a need to be protected in a society, a responsibility must be assumed by both the individual and the community. And for this protection to be in line with the idea of sustainability, the recipients of this responsibility must not be limited to present generations or to the people in one's own country. That is, an aggregated analysis of the data must integrate all the dimensions contained in criterion 4. At the same time, responsibility is not a binary concept. Rather, people can feel more or less obliged; some actors can be assigned a higher and others a lower responsibility, depending on their agency and on their power in society. In order to account for the complexity of this criterion while keeping the analysis of the data manageable, we decided to apply a two-step procedure in the aggregated analysis of the data for this criterion as well. In a first step, we distinguished only according to whether respondents judged a need to ground an ethical obligation or not, independent of how strong the obligation was judged to be. In a second step, we differentiated according to whether the need grounds a weak, medium, or strong obligation.

In order to integrate all the dimensions contained in criterion 4, we built a new scale that integrates Q9 and Q10, the "ethical-obligation scale". The internal consistency, Cronbach's alpha, for this scale is above 0.92 for all nine needs, indicating that the reliability of the scale is highly satisfying (Table 3).

In the questionnaire, respondents were offered the possibility that a need does not ground an ethical obligation (value 1 = not obliged at all). That is, as of value 2, an ethical obligation is perceived. But because this has to be considered an extremely weak obligation, we decided that not only value 1 but also value 2 expresses that respondents do not feel that the need grounds an ethical obligation.

Accordingly, criterion 4 feeds into the syntax used for the aggregated analysis of the data as follows (for each of the nine Protected Needs):

Criterion 4: Ethical obligation grounded by need	
Step 1	
Group	*Syntax*
+ = there is a societal responsibility related to the need	ethical-obligation scale value ≥3
– = there is no societal responsibility related to the need	ethical-obligation scale value <3
Step 2 (for those that are, after step 1, included in the group +)	
Group	*Syntax*
weak obligation	ethical-obligation scale value ≥3 AND <4
medium obligation	ethical-obligation scale value ≥4 AND <6
strong obligation	ethical-obligation scale value ≥6

TABLE 3 The reliability of the ethical-obligation scale built by combining data for Q9 (2 items) and Q10 (4 items).

	Reliability	*Ethical-obligation scale*				
	Cronbach's alpha	*N*	*Min*	*Max*	*M*	*SD*
PN 1	0.922	1,045	1.00	7.00	5.2082	1.44477
PN 2	0.937	1,041	1.00	7.00	4.6575	1.58645
PN 3	0.927	1,048	1.00	7.00	5.1008	1.45709
PN 4	0.933	1,045	1.00	7.00	4.8400	1.56293
PN 5	0.925	1,035	1.00	7.00	4.9211	1.54995
PN 6	0.934	1,038	1.00	7.00	4.6710	1.56588
PN 7	0.941	1,042	1.00	7.00	4.6677	1.59997
PN 8	0.921	1,043	1.00	7.00	4.7102	1.51645
PN 9	0.920	1,045	1.00	7.00	5.1139	1.45874

The table presents, for each of the nine Protected Needs (PN 1–9), *Cronbach's alpha*, the number of respondents included (*N*), the mean (*M*), the standard deviation (*SD*), and the scale respondents used in their answers (entire scale: min. = 1, max. = 7).

4.3.4. Response patterns

As noted above, determining whether a need on the list of Protected Needs can be empirically confirmed as protected requires an aggregated analysis of the data that combines the empirical criteria because these criteria are cumulative. This leads to eight possible response patterns (Table 4). These possible response patterns built the rationale for data analysis.

TABLE 4 Possible response patterns.

Response patterns	Criterion 1 (and criterion 2)	Criterion 3	Criterion 4
	Importance of need *+: need is experienced and crucial for quality of life* *−: need is not experienced and not crucial for quality of life* *(need is/is not supra-individual)*	*Incontestability of need* *+: need is not up for negotiation (S2)* *−: need is up for negotiation*	*Ethical obligation grounded by need* *+: societal responsibility related to the need (S2)* *−: no societal responsibility related to the need*
Pattern 1	+	+	+
Pattern 2	+	+	−
Pattern 3	+	−	+
Pattern 4	+	−	−
Pattern 5	−	+	+
Pattern 6	−	+	−
Pattern 7	−	−	+
Pattern 8	−	−	−

The empirical criteria that the nine needs on the list of Protected Needs must meet to qualify as protected (see Section 3) were translated into eight possible response patterns, and this informed the aggregated analysis of the data. Criterion 2 is considered to be an extension of criterion 1. S2 indicates the cases for which a second step of data analysis was applied.

5. Results

In this section, we present the results of the data analysis. The data analysis was carried out according to the operationalization of the empirical criteria that the nine needs in the Theory of Protected Needs must meet to qualify as protected needs (Sections 3 and 4). Not all the data that must be considered in judging to what extent the nine needs meet these criteria fed into the syntax used for the aggregated analysis. This applies to some of the data of relevance for criterion 1 (see Section 4.3.1). In Section 5.1, we report the results of the data analysis that are relevant to criterion 1 but did not feed into the aggregated data analysis. In Section 5.2, we present the results of the aggregated data analysis.

5.1. The importance of the nine needs (criterion 1)

Table 5 shows the importance respondents attributed to the nine needs for themselves (individual/subjective importance, Q5). The results show that overall, all nine needs are attributed a high importance (*M* is between 6 and 7 for PN 1–6 and between 5 and 6 for PN 7–9), although the importance differs individually. Table 6 shows to what extent the individual importance of the different needs correlates with overall life satisfaction. The results show that the individual importance of the nine needs and general life satisfaction correlate but that the effects are weak.

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TABLE 5 The individual (subjective) importance attributed to the nine Protected Needs (PN 1–9).

How important is it for you personally to . . . (Q5 questionnaire)	*M*	*SD*
PN 1: ... be provided with the material necessities for life?	6.42	0.93
PN 2: ... realize your own conception of daily life?	6.34	0.88
PN 3: ... live in a livable environment?	6.55	0.76
PN 4: ... develop as a person?	6.41	0.87
PN 5: ... make your own life choices?	6.59	0.80
PN 6: ... perform activities valuable to you?	6.39	0.89
PN 7: ... be part of a community?	5.66	1.33
PN 8: ... have a say in the shaping of society?	5.64	1.23
PN 9: ... be granted protection by society?	5.97	1.23

The table shows respondents' answers to the question of how important each of the nine needs is for them personally (Q5) by presenting the mean (M) and the standard deviation (SD). Respondents answered using a 7-point scale (1 = not important at all, 7 = very important, 2–6 were not labeled). They used the entire scale (min. = 1, max. = 7).

TABLE 6 The extent to which the individual (subjective) importance attributed to the nine Protected Needs (PN 1–9) correlates with general life satisfaction.

How important is it for you personally to . . . (Q5 questionnaire)	*General life satisfaction (Q3 questionnaire)*
PN 1: ... be provided with the material necessities for life?	0.03
PN 2: ... realize your own conception of daily life?	0.09**
PN 3: ... live in a livable environment?	0.09**
PN 4: ... develop as a person?	0.10**
PN 5: ... make your own life choices?	0.09**
PN 6: ... perform activities valuable to you?	0.10**
PN 7: ... be part of a community?	0.12**
PN 8: ... have a say in the shaping of society?	0.10**
PN 9: ... be granted protection by society?	0.08*

*$p < 0.05$; **$p < 0.01$.
General life satisfaction was captured with a 10-point scale (1 = not satisfied at all, 11 = fully satisfied, 2–10 were not labeled; N = 1,057; they used the entire scale, min. = 1, max. = 11; M = 8.13, SD = 1.98).

Table 7 shows how respondents judged whether they have the possibility to satisfy each of the nine needs, regardless of the importance they attach to them individually (perceived possibility, Q6). The results show that respondents actually had, according to them, the possibility to satisfy all nine needs and that this possibility was roughly the same for all nine needs with the exception of need 8, which they judged themselves to a have a lower possibility to satisfy in comparison to the other needs. Table 8 shows to what extent the possibility to satisfy the different needs correlates with overall life satisfaction. The results show that in contrast to the weak correlation between general life satisfaction and the individual importance of the needs, the possibility to satisfy the nine needs and general life satisfaction correlate with an effect that is statistically significant and fairly strong for all nine needs (comparison of Tables 6, 8).

TABLE 7 The possibility to satisfy the nine Protected Needs (PN 1–9).

Do you have, regardless of how important it is to you, the possibility to . . . (Q6 questionnaire)	*M*	*SD*
PN 1: ... be provided with the material necessities for life?	5.93	1.26
PN 2: ... realize your own conception of daily life?	5.41	1.31
PN 3: ... live in a livable environment?	5.96	1.14
PN 4: ... develop as a person?	5.73	1.19
PN 5: ... make your own life choices?	5.97	1.16
PN 6: ... perform activities valuable to you?	5.48	1.35
PN 7: ... be part of a community?	5.60	1.30
PN 8: ... have a say in the shaping of society?	4.78	1.55
PN 9: ... be granted protection by society?	5.30	1.39

The table shows respondents' answers to the question of whether they can satisfy the nine needs (Q6) by presenting the mean (M) and the standard deviation (SD). Respondents answered using a 7-point scale (1 = not at all, 7 = fully and completely, 2–6 were not labeled). They used the entire scale (min. = 1, max. = 7).

TABLE 8 The extent to which the possibility to satisfy the nine Protected Needs (PN 1–9) correlates with general life satisfaction.

Do you have, regardless of how important it is to you, the possibility to . . . (Q6 questionnaire)	*General life satisfaction (Q3 questionnaire)*
PN 1: ... be provided with the material necessities for life?	0.40**
PN 2: ... realize your own conception of daily life?	0.49**
PN 3: ... live in a livable environment?	0.37**
PN 4: ... develop as a person?	0.45**
PN 5: ... make your own life choices?	0.42**
PN 6: ... perform activities valuable to you?	0.47**
PN 7: ... be part of a community?	0.35**
PN 8: ... have a say in the shaping of society?	0.30**
PN 9: ... be granted protection by society?	0.32**

*$p < 0.05$; **$p < 0.01$.
General life satisfaction was captured with a 10-point scale (1 = not satisfied at all, 11 = fully satisfied, 2–10 were not labeled; N = 1,057; they used the entire scale, min. = 1, max. = 11; M = 8.13, SD = 1.98).

5.2. The response patterns for the nine needs (response patterns 1–8)

As written above, combining empirical criteria 1–4 leads to eight possible response patterns (Table 4). These response patterns informed the aggregated analysis of the data. This section presents the results of this aggregated analysis. According to the differentiations made for criteria 3 and 4, we first present the results of step 1 of the aggregated analysis of the data and then the results of step 2 (see Sections 4.3.2, 4.3.3).

Table 9 shows which response patterns were chosen by how many respondents for each of the nine needs. The table shows that the most common patterns of how respondents answered the questions are patterns 1 and 3, while only a few respondents followed patterns 5–8; this applies both per need and in total. Patterns 2 and 4 apply to a minority of respondents, and the number of respondents following patterns 2 and 4 are not far apart.

TABLE 9 The results of step 1 of the aggregated analysis of the data.

	Pattern 1	*Pattern 2*	*Pattern 3*	*Pattern 4*	*Pattern 5*	*Pattern 6*	*Pattern 7*	*Pattern 8*	*Missing Valid percent*	*Total*
	Importance of need: + Incontestability of need: + Need grounds ethical obligation: +	*Importance of need: + Incontestability of need: + Need grounds ethical obligation: –*	*Importance of need: + Incontestability of need: – Need grounds ethical obligation: +*	*Importance of need: + Incontestability of need: – Need grounds ethical obligation: –*	*Importance of need: – Incontestability of need: + Need grounds ethical obligation: +*	*Importance of need: – Incontestability of need: + Need grounds ethical obligation: –*	*Importance of need: – Incontestability of need: – Need grounds ethical obligation: +*	*Importance of need: – Incontestability of need: – Need grounds ethical obligation: –*		
PN 1	576	56	219	19	2	0	4	0	183	1,059
	65.8%	6.4%	25.0%	2.2%	0.2%	0.0%	0.5%	0.0%	100%	
PN 2	454	59	275	79	2	0	0	2	188	1,059
	52.1%	6.8%	31.6%	9.1%	0.2%	0.0%	0.0%	0.2%	100%	
PN 3	538	41	263	34	1	1	1	0	180	1,059
	61.2%	4.7%	29.9%	3.9%	0.1%	0.1%	0.1%	0.0%	100%	
PN 4	528	61	221	55	2	0	3	0	189	1,059
	60.7%	7.0%	25.4%	6.3%	0.2%	0.0%	0.3%	0.0%	100%	
PN 5	557	66	191	37	1	0	2	0	205	1,059
	65.2%	7.7%	22.4%	4.3%	0.1%	0.0%	0.2%	0.0%	100%	
PN 6	480	68	259	62	4	0	2	0	184	1,059
	54.9%	7.8%	29.6%	7.1%	0.5%	0.0%	0.2%	0.0%	100%	
PN 7	368	30	403	84	2	1	12	12	147	1059
	40.4%	3.3%	44.2%	9.2%	0.2%	0.1%	1.3%	1.3%	100%	
PN 8	334	23	447	97	2	0	5	6	146	1,059
	36.5%	2.5%	48.9%	10.6%	0.2%	0.0%	0.5%	0.7%	100%	
PN 9	482	28	333	38	1	0	9	9	158	1,059
	53.6%	3.1%	37.0%	4.2%	0.1%	0.0%	1.0%	1.0%	100%	

The table shows how respondents (N and *valid percent*; total $N = 1,059$) reacted to the nine Protected Needs (PN 1–9) if their answers to Q5, Q7, Q8, Q9, Q10 of the questionnaire are aggregated into response patterns built according to the empirical criteria that needs must meet to qualify as protected (for operationalization, see Section 4).

TABLE 10 The results of step 2 of the aggregated data analysis for pattern 1 for each of the Protected Needs (PN 1–9).

	Incontestability of need (criterion 3)	*Need grounds ethical obligation (criterion 4)*			
PN 1		*Weak*	*Medium*	*Strong*	*Total*
	National	9	23	20	*52*
	Territorial	7	53	34	*94*
	Global	38	184	208	*430*
	Total	*54*	*260*	*262*	576
PN 2		*Weak*	*Medium*	*Strong*	*Total*
	National	14	30	19	*63*
	Territorial	17	75	26	*118*
	Global	28	138	107	*273*
	Total	*59*	*243*	*152*	454
PN 3		*Weak*	*Medium*	*Strong*	*Total*
	National	8	24	22	*54*
	Territorial	14	56	48	*118*
	Global	35	160	171	*366*
	Total	*57*	*240*	*241*	538
PN 4		*Weak*	*Medium*	*Strong*	*Total*
	National	12	33	19	*64*
	Territorial	15	58	38	*111*
	Global	34	178	141	*353*
	Total	*61*	*269*	*198*	528
PN 5		*Weak*	*Medium*	*Strong*	*Total*
	National	10	30	21	*61*
	Territorial	12	75	31	*118*
	Global	40	170	168	*378*
	Total	*62*	*275*	*220*	557
PN 6		*Weak*	*Medium*	*Strong*	*Total*
	National	7	26	17	*50*
	Territorial	14	64	28	*106*
	Global	47	165	112	*324*
	Total	*68*	*255*	*157*	480
PN 7		*Weak*	*Medium*	*Strong*	*Total*
	National	8	12	16	*36*
	Territorial	11	41	25	*77*
	Global	25	118	112	*255*
	Total	*44*	*171*	*153*	368
PN 8		*Weak*	*Medium*	*Strong*	*Total*
	National	7	26	19	*52*
	Territorial	7	46	39	*92*
	Global	13	94	83	*190*
	Total	*27*	*166*	*141*	334
PN 9		*Weak*	*Medium*	*Strong*	*Total*
	National	8	25	20	*53*
	Territorial	12	38	30	*80*
	Global	20	148	181	*349*
	Total	*40*	*211*	*231*	482

The table shows the distribution of the respondents according to whether they adopted a national, territorial, or global perspective with regard to the incontestability of the different needs (criterion 3) and to whether they posited a weak, medium, or strong ethical obligation (criterion 4).

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For seven of the Protected Needs, pattern 1 is prevalent; for two of them (PN 7 and PN 8), the prevalent pattern is pattern 3. For PN 7, patterns 1 and 3 are exhibited by an almost equal number of respondents. For all nine needs, the number of respondents exhibiting one of patterns 5–8, is negligible. Patterns 1–4 have in common that in all of them criterion 1 is met (+), while patterns 5–8 have in common that in all of them criterion 1 is not met (–).

The results of step 2 of the data analysis, the differentiations for criteria 3 ("incontestability of need") and 4 ("need grounds ethical obligation"), are presented for response patterns 1, 2, and 3. In response pattern 4, criteria 3 and 4 are not met (–), and the occurrences of response patterns 5–8 are negligible in terms of the numbers of respondents to which they apply.

Table 10 shows the differentiated results for response pattern 1 (covering both criterion 3 and criterion 4), Table 11 shows the differentiated results for response pattern 2 (covering criterion 3), and Table 12 shows the differentiated results for response pattern 3 (covering criterion 4). Table 10 reveals that the respondents who exhibit response pattern 1 also show a clear tendency toward combining a global perspective with regard to the incontestability of the nine needs and a medium or strong sensed ethical obligation, while only a minority of those that exhibit response pattern 1 also adopt a national perspective with regard to the incontestability of the nine needs and/or posit a weak ethical obligation. Compared to this picture, it is salient that the group of respondents that shows response pattern 3 displays a clear tendency toward a medium ethical obligation for all nine needs and that the number of respondents positing a weak ethical obligation and the number of those positing a strong ethical obligation do not differ considerably (Table 12). The number of respondents showing response pattern 2, in turn, is rather small, and there is not a clearly discernible tendency for their perspective regarding the incontestability of the nine needs (Table 11).

6. The potential of using the Theory of Protected Needs as a foundation for conceptualizing sustainability as 'caring for human wellbeing'

The guiding question for this paper is to what extent the nine Protected Needs empirically qualify for the status of being protected needs. We determined four empirical criteria that needs have to meet to qualify for this status (Section 3). In the following, we will discuss the empirical results first with a view to each criterion. Then we will discuss the results of the aggregated analysis in which the criteria were combined into response patterns. The results of the data analysis justify discussing the nine needs as a set of needs instead of discussing each one separately.

Criterion 1: The nine needs are actually experienced by people and they are crucial constituents of quality of life. The results show that this criterion is confirmed for all nine needs on the list of Protected Needs. All nine needs are actually mirrored in respondents' "constructs of wanting". In answering the survey, basically all respondents exhibited one of the four response patterns in which criterion 1(a) is met, according to how we operationalized this criterion (patterns 1–4, Table 9). This is also confirmed by the small *SD* in how respondents answered Q5 of the survey (Table 5). Criterion 1(b), the possibility to satisfy the need is crucial for quality of life, did not feed into the aggregated analysis of the data but has to be judged by drawing on data resulting from correlating Q6 and Q3 (Table 8). The results reported in Table 8 show that with regard to all nine needs, there is a fairly considerable correlation between respondents' perceived possibility to satisfy the need and their general life satisfaction, in contrast to the results reported in Table 6, which show at most a weak correlation between the individual importance of the nine needs and life satisfaction. This indicates that life satisfaction does not depend on which of these needs are important to an individual but on which of these needs an individual can satisfy according to their own perception. In this

TABLE 11 The results of step 2 of the aggregated data analysis for pattern 2 for each of the Protected Needs (PN 1–9).

Incontestability of need (criterion 3)	*PN 1*	*PN 2*	*PN 3*	*PN 4*	*PN 5*	*PN 6*	*PN 7*	*PN 8*	*PN 9*
National	16	21	15	19	27	20	8	10	6
Territorial	15	14	9	11	6	18	5	7	8
Global	25	24	17	31	33	30	17	6	14
Total	*56*	*59*	*41*	*61*	*66*	*68*	*30*	*23*	*28*

The table shows the distribution of the respondents according to whether they adopted a national, territorial, or global perspective with regard to the incontestability of the different needs (criterion 3).

TABLE 12 The results of step 2 of the aggregated data analysis for pattern 3 for each of the Protected Needs (PN 1–9).

Need grounds ethical obligation (criterion 4)	*PN 1*	*PN 2*	*PN 3*	*PN 4*	*PN 5*	*PN 6*	*PN 7*	*PN 8*	*PN 9*
Weak	20	53	34	28	30	63	85	91	51
Medium	146	176	176	145	126	160	248	282	209
Strong	53	46	52	48	35	35	70	73	73
Total	*219*	*275*	*263*	*221*	*191*	*259*	*403*	*447*	*333*

The table shows the distribution of the respondents according to whether they posited a weak, medium, or strong ethical obligation (criterion 4).

respect, the results show that all nine needs have a comparable effect on life satisfaction. That means that all nine needs meet criterion 1(b). We thus conclude that all nine needs on the list of Protected Needs are actually experienced by people and are crucial constituents of quality of life.

Criterion 2: The nine needs are supra-individual. This criterion did not feed into the aggregated analysis of the data. This criterion is an extension of criterion 1 since it demands that experiencing the nine needs on the list of Protected Needs is not tied to a specific segment of people; that is, it demands that each need can be experienced by a diversity of people. Accordingly, this criterion translates into the requirement that the group of respondents for whom criterion 1 is not met must be empirically negligible. Table 9 shows that this is the case for all nine needs: the number of respondents that exhibited one of the response patterns in which criterion 1 is not met (–) is, in sum, <7 respondents for PN 1–6, <20 for PN 8 and PN 9, and only 27 for PN 7. This indicates that experiencing the single needs is not tied to a specific segment of people. Hence, we conclude that we have strong reasons to assume that all nine needs on the list of Protected Needs are supra-individual.

Criterion 3: The nine needs are perceived as needs that are not negotiable. The results show that this is the criterion that is the most polarizing. If we only consider the response pattern adopted by the majority of respondents (Table 9), then the criterion is confirmed for seven of the nine needs (PN 1–6, PN 9) by a majority of respondents, and it is confirmed by a smaller group of respondents for PN 7 (to be part of a community) and for PN 8 (to have a say in the shaping of society). But a closer look at the distribution of respondents across the response patterns (Table 9) reveals more than this. It is salient that the two response patterns that apply to the vast majority of respondents, patterns 1 and 3, differ with regard to whether criterion 3 is met (pattern 1) or not met (pattern 3) according to how we operationalized it. And it is also salient that with regard to whether the needs are negotiable or not, there is a clear divide: PN 1–6 and PN 9 are less polarizing in this respect than PN 7 and PN 8. The differentiated analysis of the perspectives adopted within response pattern 1 (Table 10) shows that the global perspective is prevalent, that is, there is a discernible distinct tendency to perceive all nine needs as universals. This tendency is also recognizable in response pattern 2 for PN 1–7 and PN 9 (Table 11), but it is not as clear. Hence, we conclude, first, that while seven of the needs on the list of Protected Needs are perceived as being universal needs that are not negotiable (PN 1–6, PN 9) by a majority of the respondents, this is not the case for two of them (PN 7, PN 8). Second, we conclude that there is a tendency to conceptualize constituents of quality of life as something that unites humankind across cultures and nations. And we conclude, third, that the criterion that human needs are not negotiable is polarizing.

Criterion 4: The nine needs ground a societal responsibility. The results show that this criterion is confirmed for all nine needs on the list of Protected Needs. The two response patterns in which both the importance of a need and the ethical obligation grounded by a need are met (+) according to how we operationalized these criteria apply to the vast majority of respondents (patterns 1 and 3), while the response patterns in which the importance of a need is met (+) but the ethical obligation grounded by a need is not met (–) only apply to a minority of respondents (patterns 2 and 4) (Table 9). The differentiated analysis of the perspectives adopted in response pattern 1 (Table 10) shows that there is a distinct tendency to posit a medium or strong ethical obligation with regard to all nine needs, while in response pattern 3 there is a tendency to posit a medium ethical obligation (Table 12). Hence, we conclude that all nine needs on the list of Protected Needs ground a societal responsibility.

Based on our operationalization of empirical criteria 1–4, we identified *eight possible response patterns* (Table 4). To qualify for the status of being protected, the nine needs on the list of Protected Needs must meet all these criteria cumulatively (see Sections 3, 4.3.4). The data analysis shows that of the eight possible response patterns, four are empirically negligible (patterns 5–8) and four are empirically relevant (patterns 1–4), although not all of them are equally important with regard to how many respondents exhibit them (response patterns 1 and 3 are prevalent).

Response patterns 1–4 can be characterized as follows (Table 13): In *pattern 1*, all the empirical criteria are met. This pattern corresponds to endorsing the notion of a need being protected in all dimensions. This pattern reflects an attitude of high attention for human wellbeing as a societal task; a term that captures its characteristics could be 'solidary-liberal'. In *pattern*

TABLE 13 The empirical criteria that the nine needs on the list of Protected Needs must meet to qualify as protected were translated into eight possible response patterns (Table 4); four of those patterns were empirically manifested.

Response patterns	Criterion 1 (and criterion 2)	Criterion 3	Criterion 4	Response patterns
	Importance of need *+: experienced and crucial for QoL* *–: not experienced and not crucial for QoL*	*Incontestability of need* *+: not up for negotiation* *–: up for negotiation*	*Ethical obligation grounded by need* *+: societal responsibility* *–: no societal responsibility*	
Pattern 1	+	+	+	Need protected ('solidary-liberal')
Pattern 2	+	+	–	Need not protected ('neoliberal')
Pattern 3	+	–	+	Need not protected ('elitist')
Pattern 4	+	–	–	Need not protected ('egocentric')

2, a need does not ground an ethical obligation. According to this pattern, although a need is perceived to be important and incontestable, there is no societal responsibility with a view to the corresponding need. This pattern reflects what are often labeled 'neoliberal' beliefs in current debates: society does not have a responsibility with regard to humans achieving crucial constituents of human wellbeing. In *pattern 3*, a need is up for negotiation, even though its importance is attested as is the ethical obligation with regard to the need. This pattern reflects an attitude that is best referred to as 'elitist': humans are not by default entitled to crucial constituents of human wellbeing. In *pattern 4*, nothing can be inferred for society from the importance of a need. This pattern reflects an attitude of disregard for human wellbeing as a societal issue that can, we think, be called 'egocentric'.

Figure 2 visualizes a profile of response patterns 1–4 for each of the nine needs on the list of Protected Needs. In response pattern 1 ('solidary-liberal'), all four empirical criteria for qualifying as a protected need are met. The prevalent response pattern for seven of the nine needs is pattern 1. That is, these seven needs qualify for the status of being protected for a majority of respondents (at least in Switzerland where our survey was fielded), while two needs on the list of Protected Needs qualify for the status of being protected for a smaller group of respondents. Considering the results of the data analysis allows a more nuanced answer: all nine needs on the list of Protected Needs qualify to a considerable extent for the status of being protected by society. All nine needs are confirmed to be crucial constituents of quality of life, and they are confirmed to ground a societal obligation for individuals and the community. What polarizes is the question of whether they are universal and incontestable.

That PN 7, to be part of a community, was not perceived as universal and incontestable by a majority of respondents stands in stark contrast to knowledge about the importance of social relationships in citizen definitions of happiness and in other empirical investigations of human wellbeing [see, e.g., the review of the literature by O'Mahony (2022), with regard to the importance of "social and relational factors"]. The interesting question is whether something has changed in how this need is perceived due to the experiences of isolation many people had during the COVID-19 pandemic. That PN 8, to have a say in the shaping of society, was not perceived to be universal and incontestable by a majority of respondents is particularly noticeable considering the political setting of Switzerland, the country in which the survey was fielded, because in Switzerland, having the possibility to participate in societal decisions is held in high esteem. But it might not be so surprising since there is also an ongoing societal and political debate in Switzerland about what political rights people who do not have Swiss citizenship should have and about what age people should reach before they are allowed to vote. That is, the enactment of this need is formalized in structural procedures that exclude a considerable number of people.

Regarding the polarizing effect of the incontestability of needs, it might also be interesting to mention a previous data analysis (Defila and Di Giulio, 2021) that found that how respondents answered the question on the universality of the nine needs (Q8) depends on their political attitude, in contrast to the questions on perceived ethical obligation (Q9 and Q10). That is, political attitude is a predictor for whether needs are perceived to be universal or not, although the effect is not strong (for perceived ethical obligation, altruism was a much stronger predictor than political attitude,

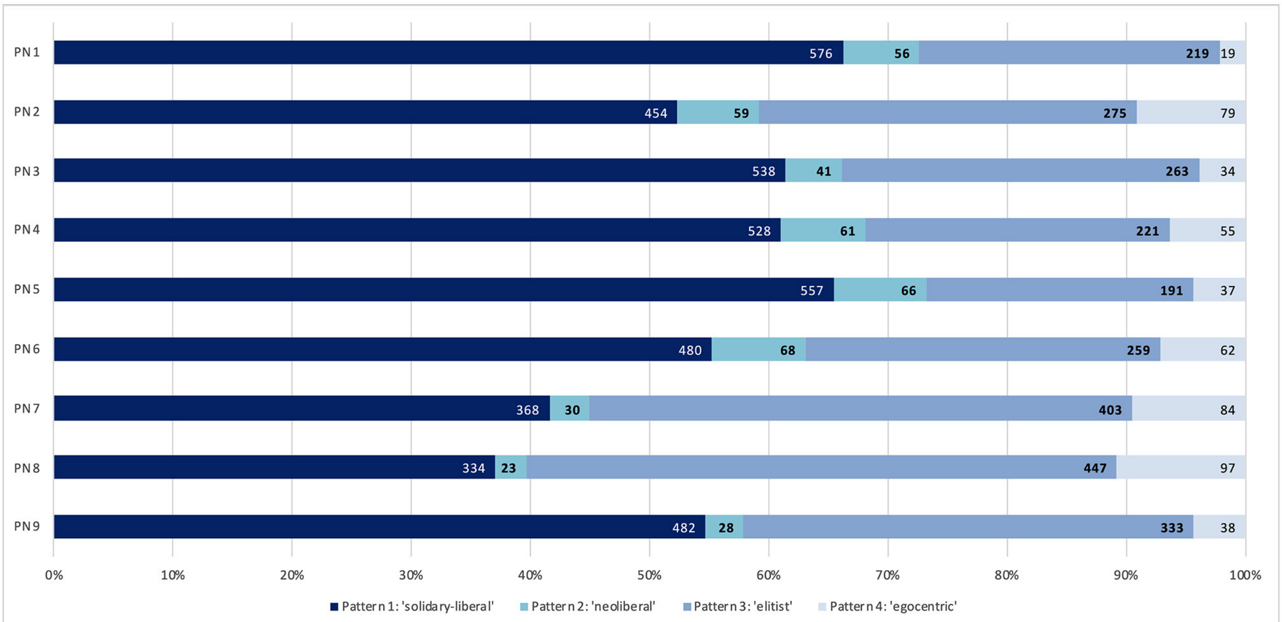

FIGURE 2
The figure visualizes the relative distribution of the four empirically relevant response patterns for each of the nine Protected Needs. These are response pattern 1 ('solidary-liberal'), response pattern 2 ('neoliberal'), response pattern 3 ('elitist'), and response pattern 4 ('egocentric'). For each response pattern, the number of respondents who exhibit this response pattern is given. Response pattern 1 is the one in which all the empirical criteria that needs must meet to qualify for being protected by society are met.

while the variables age, gender, education, and income had no significant effect on how respondents answered Q8, Q9, and Q10; Defila and Di Giulio, 2021). From this, we might conclude that the Theory of Protected Needs has a high potential for being used as a foundation for conceptualizing sustainability as 'caring for human wellbeing', but in order also to use it practically, the debate about human wellbeing should be decoupled from political attitudes and framed as a societal deliberation about what humans deserve simply because they are humans. This in turn requires supporting people's competences and willingness to engage in societal deliberations in their role as citizens.

7. Conclusion

A society that is caring for human wellbeing is made up of three ingredients, and in all three ingredients, the perspective is neither limited to the life span of present generations nor to the members of that particular society:

- It engages in debates about what needs are crucial to wellbeing, and in doing so it adopts a salutogenic and comprehensive approach.
- It perceives human needs to be incontestable; that is, it holds it to be self-evident that people are entitled to satisfy crucial human needs, that they have a right to be equipped with the satisfiers necessary to meet such needs simply because they are human.
- Its guiding principle for decision-making and policy-making is that people and institutions must contribute to guaranteeing the conditions necessary for satisfying crucial human needs for other people living in the present and in the future.

In sum, all individuals have the right to have society take care of the conditions necessary for them to be able to satisfy the needs that are crucial for their wellbeing. To this end, individual freedom is warranted but limited by justice and solidarity.

Our research shows that the Theory of Protected Needs with its nine needs has a high potential to be used as a conceptual foundation of human wellbeing for such a society. What is polarizing and thus calls for societal debate is the question of whether needs are universal and incontestable. There is no silver bullet for such a debate. In addition to supporting people's ability and willingness to engage in societal deliberations as citizens (and not as members of a specific party or as followers of a specific party program), it is necessary to fight narratives that devalue the role of the community and glorify the principle of "everyone is the architect of their own fortune" and to feed narratives of a good life, solidarity, and justice instead. This would be worthwhile because we have some empirical evidence that people who endorse the idea of universal human needs are also inclined to endorse the idea of limiting consumption for the sake of others having the possibility to satisfy their needs (Di Giulio and Defila, 2021).

Our research was conducted in Switzerland. What remains to be done is to explore how the Theory of Protected Needs is received in other countries. We have indications that it also resonates in other cultural contexts. For example, as mentioned above in Section 3, an investigation used the list of Protected Needs to explore how green public spaces act as satisfiers in Chennai, Metro Manila, Shanghai, and Singapore. This research shows that this list of needs also resonates outside the cultural context in which it has been developed (Sahakian et al., 2020; Di Giulio et al., 2022).

Research could also investigate whether the perception of the needs on the list of Protected Needs has changed due to the crises that have been swamping the world since 2020. From a practical perspective, it would be promising to explore whether and how the list of Protected Needs can be translated into actual decision-making and policy-making. For campaigns to put the notion of caring center stage in the sustainability debate, our research is promising because it shows that the fundament of supporting and promoting a narrative of care that is not abstract but related to concrete needs does exist. This fundament could be used to conceptualize sustainability as 'caring for human wellbeing' not only theoretically but also in practice.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: The dataset is not yet completely analyzed and will be made available once the analysis has been completed and the data has been anonymized. Requests to access these datasets should be directed to ADG, antonietta.digiulio@unibas.ch.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The participants provided their informed consent to participate in this study.

Author contributions

Conceptualization and methodology of research and empirical investigation: RD and ADG. Analysis of data: CRS. Interpretation of data, review, and editing: ADG, CRS, and RD. Draft of paper: ADG. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article, Appendix A (German and French Version of Protected Needs) and Appendix B (sample of the Swiss survey), can be found online at: https://www.frontiersin.org/articles/10.3389/frsus.2023.1036666/full#supplementary-material.

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Towards care-centred societies

Joachim H. Spangenberg† and Sylvia Lorek*†

Sustainable Europe Research Institute, Köln, Germany

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EDITED BY
Aurianne Stroude,
Université de Fribourg, Switzerland

REVIEWED BY
Ketoki Mazumdar,
Flame University, India

*CORRESPONDENCE
Sylvia Lorek
✉ sylvia.lorek@seri.de

†These authors have contributed equally to this work

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Care work, often considered economically non-productive, is undervalued and professionally underpaid. This short perspective paper develops a holistic understanding of care, including paid and unpaid care work. It contributes to identifying pathways towards socially and environmentally sustainable, low-consumption societies. Based on archetypical definitions from feminist literature and gender studies, political science, sociology, psychology, ecological economics, and our own work in consumption analysis, we define care work as comprising activities and practices in relation to someone or something (e.g., the environment), which are nurturing and cultivating land, plants, animals, humans, and social groups to support wellbeing and quality of life. They do so by providing many of the "services" that enable people to participate in society and sustain objects of ethical, emotional, and relational value. The definition covers a broad spectrum of care work, including both professional paid care and unpaid, more or less voluntarily provided care (social norms constitute the "less voluntary" case). We differentiate amongst different types of care work and use this more fine-grain approach to have a closer look at the relation between paid and unpaid care and the relation of care to sustainable development.

KEYWORDS

care work typology, crisis of care, time use, sustainability, pathways to care-centered societies

1 Introduction

Care work, often considered economically not productive, is undervalued where unpaid and underpaid were remunerated. Care-related professions are female connoted, with few, mostly male exemptions (star cooks, chief physicians, etc.) who are paid well above the sector average (Spangenberg and Lorek, 2022; Spangenberg, 2002). However, whilst the two spheres of male and female connoted employment appear rather prevalent, only updated due to technical and economic developments, today sex and gender do not necessarily always coincide. Whilst in some sectors of some Western societies gender roles have become more flexible, in others women can make a career following male patterns and behavioral strategies, and in male-connoted sectors. Still, a man caring for the household risks stigmatizing (Zykunov, 2022). For other genders, it is even more challenging to get a chosen social identity accepted if it is beyond the dichotomic stereotypes.

This perspective paper aims to suggest exemplary steps to overcome that gap by first identifying and characterizing different kinds of care work according to the "cui bono" (to whose benefit) criterion. Then we take a look at the development dynamics of care work, mention the links to sustainable development, and finally derive some suggestions.

Our definition of care draws on a selection of diverse sources. Given the volume of literature dealing with the issue, we do not claim comprehensiveness, nor do we represent the diversity of individual attitudes and schools of thought, but we hope to have selected archetypical definitions. They are derived from feminist studies (e.g., Schildberg, 2014), political science (e.g., Tronto, 1993), sociology (e.g., Shove et al., 2012), psychology (e.g., Graham, 1983), ecological economics (e.g., Jochimsen, 2003), and our work in consumption analysis (Spangenberg and Lorek, 2022). Drawing from these sources, we define care work as *comprising relational and intentional activities and practices in relation to someone or something* (e.g., *family, home, or the environment*), *which are nurturing and cultivating land, plants, animals, humans, and social groups to support wellbeing and quality of life. They do so, motivated by norms, insights, and feelings, by providing many of the "services" that enable people to participate in society and sustain objects of ethical, emotional, and relational value*. The definition covers a broad spectrum of care work, including the largely invisible emotional labor of caring work both in professional paid care and in unpaid, more or less voluntarily provided care (more so with care a desired human emotion, less voluntary if driven by social norms). The vast majority of the activities and professions identified as "essential" in the COVID-19 pandemic are hence classified as unpaid or professional care work, which underlines the essential function of care for a functioning and resilient society.

In this context, it appears useful to differentiate different types of care work and use this more fine-grain approach to have a closer look at the relation of paid and unpaid care and the relation of care to sustainable development and to derive some exemplary suggestions for improving the status of care work.

2 Methods

In the first step, we conducted an English language literature search on Google Scholar using the combined term "care and sustainability", resulting in several hundred references. When eliminating those focused on specific aspects of health (e.g., primary health care or midwifery care) or care (e.g., environmental care, care and sustainability ethics, or religious perspectives), a visible but limited representation of different cultural perspectives remained (approximately 25 papers). From this list of papers identified in the first round, we worked backwards analysing the reference lists of the papers identified and used Google Scholar again to locate additional publications providing relevant insights, a process known as "snowballing." In line with the emphasis of the analysis, priority was given to literature analysing (1) the difference between—and different environmental impacts of—different kinds of paid and unpaid work, (2) the contribution of care work to societal wellbeing, and (3) suggested measures to enhance the status of care work.

To compensate for some of the limitations, we shared the results of the literature analysis with an international group of experts on the future of work, senior researchers of the participating institutes from different countries in North and South, and with long-standing experience in research related to the issues under investigation. To avoid selection bias, they were not involved in the literature analysis work. The draft typology was discussed with them individually and in three online group meetings, and the results were used to refine and complement the literature analysis.

The expert discussions focused on the role of care in work and the link of different kinds of care work to sustainable development. The discussions confirmed the need for differentiation and the suitability of the structure chosen, as different kinds of care work require different kinds of physical, legal, and social infrastructures and comprise different kinds and levels of social networking. As a result, both their material and immaterial conditions and their impacts regarding low-resource consumption are different, and their differences, reflected in the typology, should be kept in mind when discussing care and sustainability. Given this diversity, the proposals we derive can only be exemplary and far from exhaustive, but they still—hopefully—offer perspectives for future research and policy developments. The resulting differentiation of care typology, including agency, motivations, and possible benefits and risks, is shown in Table 1.

3 Care and care activities

3.1 Typology of care activities

The typology of care in Table 1 identifies five different types of care work, based on different aspects of the career, beneficiaries/motivation, the role of monetization, possible benefits, and risks.

3.2 The relationship of paid and unpaid care work (types 1–4 vs. 4–5)

One of the most fundamental differences between the different types of care is the one between paid jobs (type 5) and unpaid work (types 1–3), with type 4 being a kind of hybrid combining committed and contracted work. However, the relevance of *unpaid* care work for the economy and society is not easy to quantify. One suitable method is time-use surveys, which are conducted in several countries around the world (Charmes, 2015), including Japan and Germany. The German Statistical Office publishes data from time-use surveys every 10 years (Statistisches Bundesamt, 2015, 1995). In total, in Germany, paid work in 2012/12 counted for 44% of all work done, with care a minor component—a situation unchanged in 2022. Unpaid work, much of which is care, contributed more working hours, namely 56%.[1] According to the data from 2012 to 2013, care work for the (chosen) family (type 2) was on average 3:07 h a day, comprising work in the kitchen (0:40), shopping (0:34), housekeeping (0:27), garden and pets (0:20), travel (0:17), and caring for children (0:13). For community work (types 3 and 4), 0:21 h a day were spent (Statistisches Bundesamt, 2015). This illustrates why community work can easily be combined with paid work, whilst for provisioning work this is more of a challenge. Comparing the data from the German Statistical Office's time use survey 2012/13 with the 1992 survey reveals the trend that women have reduced their time in unpaid (mostly care) work, whilst men have reduced their time in paid work without shouldering significant additional unpaid work. As compared to 20 years earlier, the total volume of unpaid chosen family and community work (types 2–4) has been declining from 3:58 h (1992) to 3:28 h (2012). Women reduced their contribution from 5:00 h to 4:10 and men from 2:48 to 2:45. Hence, in 2012/13, women provided 61% of the unpaid care work. As a result, even if additional time is invested in paid care work

1 The survey of 2022 time use was published in Statistisches Bundesamt (2024). It shows women decreasing their paid work by 0.9% and men by 5.6%, while increasing their unpaid work by 1.3 and 1.7%, respectively. As these data appear to be strongly influenced by the COVID-19 public health policy impacts, we refrain from a comparison of the disaggregated time use data for unpaid work.

TABLE 1 Typology of care activities.

Type of care work / example	Career	Beneficiaries, motivation	Monetization (predominant)	Possible benefits	Possible risks
Type 1 Self-care: DIY, individual gardening & pet keeping, meditation, but also self-reliance, awareness and self-control	Individual	Motivation: one's own benefit, to achieve, maintain, or promote wellbeing (Martínez et al., 2021). Can have positive spill-over effects for friends and relatives (DIY) and community and environment (gardening)	Non-monetary	Reduction of expenses Psychological benefit Developing a sense of independence and self-esteem. Increase of productive rather than consumptive use of free time Self-education	It could be (Becker, 1998): • a contribution to an environmentally benign economy • a patriarchist trap for women, depending on the social attribution of tasks and duties in self-providing work Withdrawal from social processes
Type 2 Caring for members of the "chosen family" [a], including caring for dependents (young, old, sick, etc.) and mutual caring Provisioning, cooking, nursing, shopping. Health and emotional care	A family member, often the most time-consuming activity of daily life	Family duties, caring for family members (family including core family, wider relatives, and "chosen family," i.e., the group of friends sharing caring)	Non-monetary (mostly based on cultural aspects, norms of the society)	Social coherence, creation of belongingness	Duties being imposed on individuals due to social norms Exhaustion from the mental load Feminization of environmental responsibility
Type 3 Self-organized community work, outside the private household & in exchange with other people, e.g., neighborhood help, self-help groups, voluntary work	Individuals	Caring for the common good, for a mostly local community, nature or animals	Non-monetary exchanges, mutuality, reciprocity	Emotional and ethical satisfaction as labor power is spent in one's own interest generating use value Emotional, environmental, and social benefits (recognition)	Can lead to frustration, exhaustion, social tensions Conflicts with professional jobs possible
Type 4 Institutionally organized community-oriented work outside private households in exchange with other people, e.g., civil society engagement	Individuals in organized collaboration	Caring for the common good, for the social and environmental health of local and larger scale communities, society, humanity, nature and animals	Mostly non-monetary, partly appreciation payment significantly below market rates In NGOs increasingly professional leadership, with gender imbalance	Belongingness in organized work, ethical satisfaction, and social recognition for "saving the world for our children" Use value dominating with volunteers, exchange value less than in other forms of paid work	Can lead to a new low-wage sector (even below the already meagre payment in professional care work) Frustration, burn-out Leaving care work for other professions
Type 5 Professional care work: social work, human and animal health care, personal and household services, education and teaching, provisioning of essential goods. Care in work: taking care of colleagues as part of the job	Professional care workers, Workplace colleagues, professional, e.g., in occupational health and safety	Individuals (income), colleagues, society, nature, or animals. Motivation: Job description, salary, dedication to the job	Monetary, but often still intrinsic motivation and ethical principles, are frequently abused by employers to stimulate self-exploitation (e.g., unpaid overtime) if not legally binding (labor law)	High level of responsibility and engagement, self-realization of caregivers, respect and gratitude of care recipients	Professional care jobs are often jobs for migrants or ethnic minority members (skills drain). Often overworked and underpaid. All were frequently understaffed, under enhanced pressure during the pandemic and after

[a]The chosen family consists of not necessarily biologically related family-like structures; the choice is not necessarily voluntary but can be enforced on individuals by social norms or third parties.

(type 5), it is by far not enough to compensate for the reduced volume of unpaid care of types 2–4. In figures: the average daily paid work is 2:43 h (2012); in 1992, it was 3:14. 2012, men worked 3:19 h per day in paid work (1992: 4:25 h) and women 2:19 (1992: 2:11). In sum, the total daily average working hours, paid and unpaid added, are 6:11 h (1992: 7:12). Approximately two-thirds are care workers, and the trend, expected to continue, is towards a "care-less" society (Statistisches Bundesamt, 2015). The new data from the surveys carried out in 2022 will probably not be available until 2025. International data are not easily comparable and often less detailed. However, the ILO calculates that on average, women around the world perform 4 h and 25 min of unpaid care work every day compared with 1 h and 23 min for men (Pozzan and Cattaneo, 2020).

4 Sustainability

Sustainable development, in 2020s terminology, combines the concept of "needs," in particular of the poor, with the idea of limitations imposed to safeguard the provision of ecosystem services[2] in the long run (WCED, 1987). This is obviously a care-centered approach; a caring orientation is a necessary condition for development to become sustainable. In a similar vein, but focusing on the needs part, Di Giulio et al. (2023) conceptualize sustainability as "caring for human wellbeing". This illustrates that in the concept of wellbeing, "recognition of the environment and nature is embryonic" (O'Mahony, 2022), which is why our definition of care (see Introduction) explicitly emphasizes "*nurturing and cultivating land, plants, animals, humans, and social groups*" (of which the caregiver can be a member—or not) as the necessary sustainable means to "*support wellbeing and quality of life*."

This essential link is illustrated by the One Health approach promoted by the World Health Organization (2023), now enshrined in the Kunming-Montreal Global Biodiversity Framework, adopted by the Conference of Parties of the Convention on Biological Diversity (CBD, 2023). It is based on the insight that human health, physically and mentally—a key object of care—cannot be achieved in an unhealthy environment; COVID-19 as a zoonotic disease accelerated the process of turning this scientific insight into a policy statement. Hence caring for the environment is caring for human health, and caring for health requires caring for the environment.

Social sustainability, i.e., meeting human needs, in particular those of the poor, is the first component of sustainable development. In countries with established social security systems, mostly affluent countries, caring for the needs of the poor is a task of the state (type 5, and to some degree type 4). In places where such institutional support systems do not exist, societal processes often provide support and care on the basis of (hierarchically structured) mutuality in social networks, such as chosen or extended families (types 2–4).[3]

Vice versa, our definition of care work refers to taking care of *"land, plants, animals, humans, and social groups."* Actively supporting the well-being and quality of life of humans and social groups is exactly the core of social sustainability, whilst nurturing and cultivating the land and what lives there is environmental sustainability. Care work types 2–5 enhance sustainability, whilst type 1 is rather ambiguous.

Care work can provide emotional bonding between humans as it safeguards against potential threats by assuring the proximity to caring and protective others. When individuals feel this is a reliable given, the activation of the caregiving behavior system is facilitated; reliable care availability is a social process with positive feedback loops (Nisa et al., 2021).

5 Pathways

In modernizing societies, traditional patterns of care are eroding (care types 2–4), as the time budget figures have clearly shown. Economically, the crisis of care is not least a result of increasing female labor market participation, regardless if aspired to as emancipatory achievement or enforced by economic necessities. Simultaneously, men have not invested their reduced paid work hours in care work, leaving a gap. Finally, a fully paid replacement would be beyond governments' financial capabilities (in particular now that military security has gained prevalence over social security in many countries) (Spangenberg and Kurz, 2023). A society cannot survive without care work, and the retraditionalisation happening in the course of divergent value trends in different parts of the world is not in line with sustainable development. Already Agenda 21, adopted at the UNCED conference in Rio de Janeiro in 1992, had a chapter on women's empowerment (United Nations, 1993). Hence, alternative solutions have to be found, motivating more men to engage in care and reducing the economic pressure on women to further reduce their contribution.

5.1 Strengthening unpaid care work

If counting the time spent on care activities for pension schemes, receiving the full pension would depend on the sum of the time in paid work and on unpaid care duties—for men and women. Other social provisions, such as health and accident insurance for unpaid care work, would supplement the incentive. To address the unwillingness of males to engage more intensively in care requires a shift in values, male role identities, and social practices (Shove et al., 2012; Hargreaves, 2011). In principle, the emerging flexible working arrangements allow for greater self-realization, in paid employment as in voluntary work and care, if the working person is free to choose when and where to work (Hildebrandt and Linne, 2000). This offers opportunities to include care work into daily life schedules.

2 We hold that the term "Nature's Contributions to People" introduced by IPBES, the Intergovernmental Platform for Biodiversity and Ecosystem Services, as an alternative to "ecosystem services," is preferable as it explicitly accommodates different world views and value systems. However, here we have referred to the older term, as "services" is part of the definition of care work we use.

3 Unfortunately, due to limited space, we cannot discuss the international dimension, including care migration, in adequate detail.

5.2 Care work as qualification

Skills acquired in care, e.g., in family care work (type 2), can be instrumental to a successful performance in paid jobs, in the business as well as in the public sector (Biesecker and Baier, 2011). Hence the mutual acknowledgement of qualifications emanating from paid work and unpaid care, in particular social competences from caring and community work, could be an important asset and contribute to corporate resilience in turbulent times. For instance, a higher share of female leadership contributes to less risk-taking, fewer mergers, and higher investment in RTD (Post et al., 2022).

5.3 Care at work

If proof of care experience were a condition for management positions in the formal economy, companies would probably be managed differently (type 5): with a higher share of female board members, the number of narcists, mostly male board members, would probably decline (Grijalva et al., 2015). Thus, besides care work, a human-centred economy also requires "care in work." A relevant step in this direction might be that individuals, men and women, would be required to present a care biography as part of the professional CV when applying for a job.

5.4 Upgrading paid care work

An additional important step is to end the erosion of professional care and to overcome the deficit of paid care workers in almost all countries around the globe. As the current retreat from paid care work has three main, interwoven reasons, namely bad working conditions, meagre payments, a lack of social and financial benefits, and a lack of recognition, it is rather obvious that significant investments in infrastructure, equipment, and personnel are required to end it (Johnson, 2021; Parker and Menasce Horowitz, 2022). This should be one immediate priority of public spending.

6 Conclusion

The "crisis of care" is not the crisis of one type of care but applies to pay as much as unpaid care work and to care for a wide range of targets, from oneself to the larger social and natural environment. Addressing the policy challenges for different kinds of care in isolation can be hardly successful. On the other hand, a one-size-fits-all policy approach will probably not succeed, given the wide range of motivations, social situations, and skills required for different types of care. A comprehensive typology of care and care work like the one presented in this perspective paper supports a differentiated analysis. On the one hand, it can be used to identify generic characteristics of care across the different types and the policies to support them in a specific socio-cultural context. On the other hand, the five types of care work are mutually dependent and require type-specific strategies to improve the conditions for different kinds of care. Combining both is what we call a holistic understanding of care.

Care attitudes and care work, in the broad sense illustrated by the typology, are indispensable conditions for social as well as environmental sustainability. Indeed, sustainable development is essentially a care-based concept, including caring for the living conditions of the generations to come.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

JS: Writing – original draft, Writing – review & editing, Conceptualization, Data curation. SL: Writing – original draft, Writing – review & editing, Conceptualization, Data curation.

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