Barriers to cardiac rehabilitation utilization

A review of reviews

Data charting sheets

Influences on attendance at cardiac rehabilitation programs after referral (1)

First author	**Clark,** AM	
Publication Year	2012	
Country	Canada	
Study Design	Qualitative Systematic Review	
Aims/objectives	To examine factors and processes that influence patient decisions to attend CR programs and similar secondary prevention systems	
Data bases searched	10	
Number of included studies	90	
Inclusion criteria	• Studies conducting primary qualitative research or with mixed-methods-design • Adults >18 yrs. • Publication year >1995	
Data synthesis	Meta-ethnographic approach	
Key findings	Personal barriers	• **Low insight + knowledge:** regarding the nature of programs; patients perceived that CR would not be beneficial generally or people like them, receiving little information from HCP on program content + benefits; patients feel little encouragement to attend; HCPs find patients having little interest in programs • **Beliefs about heart disease:** attempts at risk reduction are perceived by patients to be futile; CHD seen as unpredictable, inevitable + uncontrollable (low sense of control over their future health) • **Negative views of services/health system**: HCPs are seen to disrespect patients, provide insufficient time for consultation, give narrow/mixed messages about recovery; poor/insensitive communication; long wait times after referral; HCPs being unresponsive to the needs of particular populations such as older adults or ethnic minorities • **Self + identity**: patients seeing themselves as different from the type of people who should participate (for "old" people); services being not needed, unlikely to benefit, conflicting with priorities; patients engaged in avoidance strategies to downplay the need to attend; ADLs are seen as health in terms of physical activity; anxiety; pain; recovery from surgery; other illnesses • **Financial + work constraints**: low income; uncertain employment; competing occupational demands; no flexible home-based program offered • **Demands on women**: struggled to meet social + financial costs of participation; domestic/family demands; receiving little support from wider community
	Contextual barriers	• **Long distances to services:** long travel distances from rural settings; poor transport links • **Lack of support from family:** overprotecting families; families take charge of risk factor reduction
Discussion	• Wide range of factors influencing CR attendance was found	

	• Medical reasons for low attendance such as symptoms or comorbidities were invoked far less often as reasons for nonattendance • High influence of psychosocial factors on decisions to attend CR
Limitations	• 1/3 of the studies were conducted in the UK • Constrained by quality (moderate) and scope of existing literature • Only high-income countries included
Recommendations	• Professionals from multidisciplinary teams should adapt their support to the individual (by using principles of adult learning) • Interventions including “decision-aids” to ensure that all issues have been raised • Providing accurate and personalised feedback • Fostering patients’ sense of individual control over their CHD • Engage patients AND their families

Factors influencing referral to CR and secondary prevention programs (2)

First author	**Clark,** AM		
Publication Year	2012		
Country	Canada		
Study Design	Systematic Review		
Aims/objectives	To explore factors and complex processes that influence referral as opposed to pre-identified predictors of referral		
Data bases searched	11		
Number of included studies	34		
Inclusion criteria	Qualitative research/mixed-methods design		
Data synthesis	Meta-ethnographic approach		
Key findings	Patient barriers	Professional barriers	Systems barriers
	• **Lack of consistent information + encouragement:** patients reported that they received limited or no information/encouragement from physicians + HCP regarding possible participation in programs; Patients having to initiate their own referral by asking HCP or by calling programs on their own behalf • **Patient memory:** patients could not remember having been given information about programs while in hospital; especially when information was given prior to surgery or when patients found care chaotic + confusing → uncertainty about CR or confusing CR with exercise test/outpatient appointment	• **Physician as gatekeeper:** physicians as only type of HCP referring patients; patients waiting for a formal invitation to participate; patients have to initiate their own referral to a program through a physician; • **Lacking knowledge** about content + benefits of programs; about indications + contraindications of exercise • **Patients felt not being included into decision-making process:** women felt as “silent players” • **Patients being denied** a referral by a physician or told that their condition was not bad enough → patients being dependent on physicians to negotiate referrals • **Patients were viewed by HCPs** as having low interest or motivation for participating	• **Local territoriality**: providers reported not referring patients to programs out of fear that these services would replace physician managed care • **Programs with different modes of delivery**: could be viewed as being in competition for patients • **Poor communication across healthcare settings** with regard to sharing patient information (laboratory + exercise tolerance tests) • **Absence of physician reimbursement** for referral + lack of time to refer within competing workload priorities • **Programs lacking resources** + thus capacity to meet patient needs • **Physicians having less capacity** to refer due to time constraints • **Timing of referral + enrolment:** difficulty of providing patients with a

			referral prior to hospital discharge; hospital stays considered too short for patients to receive a referral from HCP
Discussion	• Most patients are not referred for avoidable reasons • Systems-based solutions should promote shared care • Timely and automated referral should be implemented • Educational outreach • In the studies reviewed, referral was almost exclusively discussed in relation to hospital-based programs with little recognition of alternative types • Despite increased availability of various referral mechanisms, some patients may not attend CR due to complex social + personal factors • Eligible patients should be referred to CR for clinical and ethical reasons irrespective of whether patients indicate they will subsequently participate		
Limitations	• Constrained by the quality of the included studies (small samples, urban medical centres) • Few studies addressed non-hospital programs		

Participation and adherence to CR programs (3)	
First author	**Ruano-Ravina,** A
Publication Year	2016
Country	Spain
Study Design	Systematic review
Aims/objectives	To determine, which factors influence participation and adherence rates in CR programs in patients with AMI
Data bases searched	3
Number of included studies	29
Inclusion criteria	• Sample size >100 • Study design: systematic reviews and meta-analyses, case-control studies and cross-sectional studies • Patients: AMI, coronary heart diseases • Publication date >2004
Data synthesis	n.a.
Key findings	Barriers related to participation and adherence: • **Gender**: women participate less in CR than men do • **Age**: older individuals participate less than younger ones • **Employment status:** dropout because of return to work • **Income:** higher income was associated with higher participation and higher education; higher socioeconomic status may lead to higher adherence • **Comorbidities:** suffering from depression, feeling too ill to participate • **Civil status:** living alone or being single • **Other aspects:** being a smoker, lack of interest or the perception that the program was not going to be useful • **Accessibility**: individuals living farther from the nearest CR centre; not owning means of transportation, or not having a driving license; difficulties in transportation could lead to less adherence
Principal findings and discussion	• Factors appear homogeneously in most studies • Studies conducted in USA, UK, Canada, Belgium, Denmark, Germany, Australia • Participation and adherence patterns may differ between EU and USA due to different health coverage systems and costs • Factors affecting participation are usually the same in different locations • Subgroup-specific approaches seem to be needed in order to increase CR participation in women, elderly, and individuals without transportation possibilities
Implications for future research	• Qualitative studies can provide interesting inputs in specific settings and should be used to study patients' and cardiologists' attitudes towards CR programs • Specific CR approaches needed for subgroups
Limitations	• No meta-analysis due to the heterogeneity of the studies included

AMI = acute myocardial infarction

Factors associated with non-participation in and dropout from CR (4)		
First author	Resurrección, DM	
Publication Year	2019	
Country	Spain	
Study Design	Systematic review of prospective cohort studies	
Aims/objectives	To review factors specifically associated with non-participation (NP) in and/or dropout from CR	
Number of data bases searched	6	
Number of included studies	43	
Inclusion criteria	Prospective cohort studies	
Data synthesis	Data extraction sheets	
Key findings	Intrapersonal factors	• Older age or young age associated with NP • Female sex (four times higher odds of NP) • Male sex higher dropout rates • Vulnerable socioeconomic situation • Comorbid conditions: were associated with up to nearly twice the odds of NP + with higher dropout rates • Depression: positive relationship between depression + anxiety with dropout • Low self-efficacy for managing disease was associated with NP • Not feeling the need for CR
	Clinical factors	• Smoker: nearly 2x the odds of NP + 3x odds for CR dropout • Higher BMI: increased risk for NP + dropout • Comorbidities: Diabetes, obesity, not having controlled cholesterol were associated with NP
	Interpersonal factors	• Being single • Being unemployed or retired: higher rates of NP • Being employed: higher odds of NP and dropout • Low practical + social support have been identified as factors associated with NP
	Logistical factors	• Longer travel times, being a non-driver, lack of transport, living in a rural area or in a geographically inaccessible area were associated with NP
	Cardiac rehab	• Attending 2x/week was associated with higher odds of dropout than attending 3x
	Health system factors	• Lack of a referral or having a low strength of endorsement from physicians was associated with NO • Long intervals between doctors' visit: 4x greater odds of dropout
Discussion	• Clinical factors, logistical factors and health system factors were the main factors assessed for NP in + dropout from CR • Studies from USA, Canada, Europe, Oceania	

	• Several factors with scarce evidence: ethnicity, employment, practical support and illness beliefs • Age, gender and employment: controversial for NP + dropout • Findings argue in favour of automatic referral regardless of cardiovascular diagnosis and sociodemographic factors • Combination of inpatient CR + eHealth or community resources would decrease NP + dropout rates due to better adoption to patient profiles
Implications for future research	• Systematic referral as an option to address non-participation
Limitations	• Heterogeneity • Half of studies provided non-adjusted results • Hospital-based settings only

NP = *non-participation*

Factors influencing participation in CR after referral and initial attendance (5)		
First author	Cark, AM	
Publication Year	2013	
Country	Canada	
Study Design	Qualitative systematic review and meta-synthesis	
Aims/objectives	To examine the process and factors that influence patient decisions to complete programmes after referral and initial programme access to build a basis for future interventions aiming at promoting higher participation rates in CR	
Number of data bases searched	11	
Number of included studies	62	
Inclusion criteria	• Studies reporting primarily qualitative data (wholly or as part of mixed-methods designs) • Adults >18 yrs. • Secondary prevention or CR after referral • Publication date >1995 • Definition “participation”: findings related to any process, phenomena, or construct that pertains to participation in a secondary prevention or CR programme at referral, uptake or at participation stages”	
Data synthesis	Qualitative meta-synthesis (iterative approach)	
Key findings	Individual factors	Theme *Identity and the self* • Patients struggling to assimilate their diagnosis • Programmes were seen to people who were older, sicker, less fit, take more risks, and need goals prescribed for them → program not beneficial for themselves • Women: concern that participation would increase stress on other family members Theme *Negative views and reactions to health care* • Negative experiences of programme or programme providers • Received information in CR was inconsistent, badly timed, cajoling • Health professionals were too judgmental and lacking in cultural sensitivity • Services poorly organized, to narrowly focused without including the need of the individuals, not beneficial and less effective than surgery • Women: missing social support and encouragement by services/staff, preferring individual care over group-based sessions Theme *Views and reactions to heart disease* • Anxiety: feeling overwhelmed, out of control, public exercising, social interaction in the rehab centre • Denial of diagnosis • Women: process of adjustment after the diagnosis of heart disease, uncertainty, desire to return to normality
	Contextual factors	Theme *Distance and transport issues*

		• To rely on public transport or on family members • Women: living in a rural setting, distance, and time Theme *Lack of family support* • Relying on family members to participate in programs • Women who were caregiver for their partners or provided income to other family members Theme *Gender roles* • Programmes seen as “men’s clubs” that insufficiently recognize the contemporary social and occupational roles of women • Conflict with women’s occupational demands • “Domestic responsibilities” as childcare, housework, family life: Perceived responsibility to other family members were often placed by women before their health needs • Services failing to be sufficiently inclusive of patients’ different languages, cultures, and clothing preferences while exercising
Principal findings and discussion	• Participation was more fundamentally influenced by social dimensions of services related to user experiences, conceptions (of identity, the services, and the disease) and contextual factors • Social experience of attending programmes was highly valued by patients and seen to be beneficial • Most patients see CR as being intended for patients who are less healthy than they are • Perceptions and knowledge of programme benefits and risks of non-participation appear to influence participation less	
Implications for future research	• Gender-sensitivity: Interventions should be adapted to women’s needs and must seek to supplement the information content of CR with approaches that harness the social elements of CR • Interventions should encourage patients to see their own values represented in CR programmes and the professionals providing them • Social marketing approaches: Interventions should use social marketing to link CR content to a wide range of types of patients in terms of age, sex, and fitness levels • Mobilize family support: Support and education of relatives regarding their role in facilitating the health benefits that can accrue from CR	
Limitations	• Publication date 1995 or later • Limited age or sex-based analysis and lack of theory/concepts to interpret or understand the influence of gender/ethnicity in detail • Older adults were underrepresented in the studies	

Barriers to CR in ethnic minority groups (6)		
First author	Vanzella, L	
Publication Year	2021	
Country	Brazil	
Study Design	Scoping review	
Aims/objectives	To identify barriers to CR reported by people from ethnic minorities	
Number of data bases searched	6	
Number of included studies	20	
Inclusion criteria	• Peer-reviewed literature • Other languages than English or Portuguese • Studies including patients from ethnic minorities with CVD eligible to participate CR • Definition “ethnic minority”: a group of people of a particular nationality living in a country or area where most people are from a different nationality	
Data synthesis	Thematic analysis	
Key findings	Barriers to CR referral	• Lack of CR knowledge • Unawareness of CR programs • Information sharing problems (patient-provider communication): Lack of discussion about CR • Language proficiency: Documents with information not discussed with providers or not provided in native language
	Barriers to enrolment	• Lack of family support: withhold of information from patients to prevent them from becoming alarmed or distressed about their CVD • Language: Lack of understanding of verbal and written instructions • Information material not adapted to the language, cultural, and religious needs • Lack of interaction to the CR team and communication about feelings and disease-related information • CR knowledge: patients being unaware of the role of CR as no discussions were initiated by providers • Logistical barriers: lack of transport, lack of time, distance to the CR program, work conflicts, long waiting times to start CR • Fatalistic health beliefs (health problems chosen by God) • Individual perceptions: being too old to change habits or exercise, limited understanding of their CVD, cardiac misconceptions • Financial difficulties
	Barriers to adherence	• Logistical barriers • Lack of family support

		• Individual perceptions: lack of motivation, feeling CR is not helpful, not feeling comfortable with the exercises, feeling vulnerable and hopeless about the future • Language and communication difficulties • Lack of knowledge about CR and cardiac condition • Religion: being fated to have CVD, dietary habits, lack of cultural adaption of messages/info • Psychological status, socioeconomic status
Principal findings and discussion	• Inadequate health literacy, lack of cultural adaption, limited provision of interpretation services, lack of translated and customized educational materials, short consultation times, resource constraints • Especially: language, logistical aspects, lack of CR knowledge, individual perceptions, culture, lack of family support • Referral as dependent upon patients' characteristics, providers' practice, and health system characteristics	
Implications for future research	• Overcome language barriers: appropriate translation of info material • Dissemination of patient education materials or motivational letters in patients' first language • Training for providers to improve cultural awareness and communication skills • Encouragement to provide in-hospital discussions about CR • Extra support for ethnic minorities (cultural, psychological, practical, financial) • Liaison strategies: Automated referral in combination with an in-hospital discussion with providers	
Limitations	• Generalizability • No RCT included	

CR for women (7)

First author	Supervia, M	
Publication Year	2017	
Country	USA	
Study Design	Systematic Review	
Aims/objectives	• To identify gender-related barriers to CR participation • To rate solutions to the gender-related gap in CR participation	
Number of data bases searched	Min. 5	
Number of included studies	54 (24 studies regarding barriers and 31 studies regarding potential solutions)	
Inclusion criteria	• RCT, controlled clinical trials, observational studies • Adults >18 yrs. • Quantitative research	
Data synthesis	• Systematic review software (Covidence) • Scoring solutions according to the AHA for level of evidence and strength of recommendation	
Key findings	Patient-level factors	• Co-morbidities (depression, diabetes, obesity…) • Lack of information on or familiarity with CR • Negative beliefs and perceptions about CR • Lack of CR awareness • Perception of exercise as being tiring or painful
	Provider-level factors	• Supportive endorsement is helpful for CR participation • Lack of written referral necessary for participation
	Societal/Environmental factors	• Transport problems • Family obligations and responsibilities • Lack of insurance and financial concerns • Lack of social support from family and friends • Individuals from underrepresented minority groups • Low education level
Principal findings and discussion	• Barriers identified reflect a complex array of demographic, socioeconomic, medical, and societal challenges • Non-modifiable factors vs. modifiable • Increased public awareness on cardiac diseases through campaigns should be supported	
Implications for future research	• Alternative delivery models for women must be taken into account • Uptake of gender-specific research	
Limitations	• Quantitative research studies only • Low availability of gender-based solutions to CR referrals	

Previous experience of physical activity influences engagement with CR (8)

First author	McHale, S	
Publication Year	2020	
Country	UK	
Study Design	Systematic review	
Aims/objectives	• To examine qualitative evidence systematically • To describe patients' perceptions and experiences	
Number of data bases searched	4	
Number of included studies	12	
Inclusion criteria	• Publication date 1990-2017 • Adults >18 yrs. eligible to attend CR with ACS	
Data synthesis	• Thematic synthesis methodology (Thomas and Harden)	
Key findings	Barriers related to post-event communication + advice	• Communication regarding CR primarily focused on exercise: patients felt embarrassment at the idea of group exercise • Participants felt able to exercise independently → meant attendance was not necessary
	Barriers regarding expectations of exercised-based CR	• Program-related: Not receiving individual monitoring of cardiovascular fitness and goal settings → expectations unmet • Participants who were not previously active lacked motivation to exercise and social support • Patients perceiving themselves as self-reliant, having resources to support their return to exercise, and being knowledgeable about exercise exertion levels, feeling able to reproduce a "better" exercise programme, having access to gym • Patients perceiving themselves fitter than the exercise intensity levels of exercise-based CR • Comparisons with others perceived to be more suited to exercise-based CR (due to the severity of illness) • Patients considering themselves as being outside age norms → negative attitudes towards exercise-based CR • CR as a reminder of physical losses → decision to not attend • Perception to be already active and conducting alternative PA (walking, gym…) → these activities were less strenuous than CR and more accommodated to physical ability, lifestyle, and social/cultural beliefs → perception that further exercise was not appropriate • CR exercises not individualised
	Illness related barriers	• Perception to manage their condition • Perception that heart attack was "mild" • Perception that medical management helped recovery (CR had no value)

		• Existence of comorbidities
Principal findings and discussion	• Advice given post-event and during CR provided the context for decisions about engagement with exercise-based CR • Prompt contact of individuals diagnosed with ACS and share information • There is a need to clarify the multidisciplinary nature of CR (not primarily an exercise intervention) • For persons immediately post-cardiac event, HCP could benefit from making prompt contact to identify previously active persons and understand their perceptions and confidence • Early communication should highlight the benefits of attending CR such as learning about exercise intensity • Development of a “model of engagement” • Early decision-making was improved by reinforcement of CR benefits, details of aims and objectives, types of CR, and info of supervised environment • Accessing individualised information, for example regarding exercise and age appropriateness • For completing patients, the “fitter self” was at the core of their discussions • Individual assessment of all patients to identify exercise behaviours and support needs → tailored approaches	
Implications for future research	• Need of studies to explore how participants engaging with CR self-regulate exercises independently and in accordance with CR exercise guidelines • How does gender influence the strength of self-perceptions? • To what extent does CR information inflate the perceptions?	
Limitations	• Small number of studies • Mixture of inpatient and outpatient CR	

ACS = acute coronary symptom

Barriers for non-participation and dropout of women in CR (9)		
First author	Resurrección, DM	
Publication Year	2017	
Country	Spain	
Study Design	Systematic review	
Aims/objectives	To review the literature on barriers perceived by women with CVD affecting their non-participation in and/or dropping out from CR programs	
Number of data bases searched	>8	
Number of included studies	24	
Inclusion criteria	No restrictions	
Data synthesis	Using a specified data extraction sheet	
Key findings	Intrapersonal	• Self-reported health: Feeling too sick, feeling too old, feeling depressed, needing to receive another medical treatment • Health beliefs: perception that CR is unnecessary, belief that heart attacks cannot be prevented, belief to manage and solve their heart problem by themselves • Lack of motivation • Lack of time • Religious expectations
	Interpersonal	• Lack of family and social support and caretaking responsibilities • Work conflicts and employment restrictions
	Logistical	• Transport and distance: not having transport, not driving or want to disturb family members • Personal or community resources
	CR program	• Services offered not adapted to individual needs • Group format made women feel uncomfortable (talking in groups) • Exercise component physically too heavy or painful, frightened to exercise • Inconvenient timing of the program
	Health system	• Lack of referral by physicians, waiting too long to be referred, physician felt it unnecessary to refer them to CR • Unawareness of CR • Costs too high, lack of insurance • Negative experiences with the health system • Language: CR program not offered in their first language → communication difficulties
Principal findings and discussion	• Women reported multilevel barriers • Future guidelines should address the barriers to improve adherence • The heterogeneity in the assessment of barriers should be addressed with a valid instrument	

	• Most findings were reported from the USA
Implications for future research	• More studies from different healthcare contexts are needed • Develop a valid instrument to measure and report barriers
Limitations	• Different study designs included → heterogeneity • No common definition of non-participation and dropout

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