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Psychological factors influencing child safety awareness: a study on abduction prevention education

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Background: Child safety awareness is critical, particularly in abduction prevention. This study investigates psychological factors influencing safety awareness in children, recognizing the limitations of primarily informational approaches.

Methods: A mixed-methods approach was employed with 300 children aged 6–12 and 30 parents/educators. Quantitative data were collected via surveys measuring self-efficacy, anxiety, and safety awareness. Qualitative data were gathered through semi-structured interviews exploring experiences and perceptions.

Results: Quantitative analyses revealed a significant positive correlation between self-efficacy and safety awareness [$r = 0.62$, $p < 0.001$, 95% CI (0.54, 0.70)] and a significant negative correlation between anxiety and safety awareness [$r = -0.47$, $p < 0.001$, 95% CI (-0.55, -0.38)]. Qualitatively, key themes included the importance of open communication, the complex impact of parental anxiety (e.g., one parent noted, "I worry I'm scaring him"), and the effectiveness of interactive educational strategies.

Conclusion: Comprehensive education programs should enhance self-efficacy while managing anxiety and promoting open communication. This research integrates psychological insights to inform future interventions to improve child protection strategies.

KEYWORDS

child safety awareness, abduction prevention, self-efficacy, anxiety, educational strategies

Introduction

Child safety awareness is a critical public health and child welfare issue, especially concerning abduction prevention. While the urgency of addressing this issue is universally acknowledged, the specific challenges and contexts vary significantly across different regions and cultures. For example, statistics from the National Center for Missing & Exploited Children (NCMEC) in the United States often highlight the prevalence of child abduction cases (Lee, 2022). However, directly applying these figures to other countries, such as China, can be misleading due to differing societal norms, legal frameworks, and reporting practices. Due to the limited availability of comprehensive national statistics on child abduction in China, this study will contextualize its findings within the broader international literature while emphasizing the need for further localized data collection and research.

Effective child safety education goes beyond merely imparting information. It necessitates understanding how children perceive potential risks and equipping them with the skills and

psychological resilience to respond appropriately. For this study, children's safety awareness encompasses their cognitive understanding of potential threats and their emotional and behavioral responses to them. We define "safety awareness" as a child's ability to accurately identify potential dangers (e.g., recognizing a stranger, unsafe locations, or suspicious behaviors), understand the appropriate responses (e.g., seeking help, saying no, running away), and demonstrate the willingness and confidence to act on that knowledge. This definition is measured through self-report questionnaires assessing knowledge of safety rules and scenarios, as well as observational assessments of their responses to simulated potentially dangerous situations. Psychological factors such as fear, anxiety, and self-efficacy play pivotal roles in shaping children's engagement with safety messages and their subsequent behavior in threatening situations (Cao et al., 2023). While a moderate level of fear can promote vigilance and motivate precautionary actions, excessive anxiety can lead to maladaptive behaviors that hinder a child's ability to act decisively (Heris et al., 2022). Therefore, fostering a balanced psychological state is paramount for enhancing children's safety awareness.

Moreover, the context in which children learn about safety is critical. Children exist within familial, social, and cultural contexts that significantly influence their understanding of safety. Parental attitudes toward safety education, cultural norms regarding child protection, and community resources all contribute to shaping children's perceptions of risk. A comprehensive approach to child safety education must consider these individual psychological factors and the broader contextual influences that affect children's learning experiences. This study aims to contribute to the existing body of knowledge by examining the interplay between these factors in the specific context of abduction prevention education, focusing on understanding how psychological factors can be leveraged to enhance the effectiveness of safety programs. Using a mixed-methods approach, this research provides nuanced insights into children's emotional experiences and perceptions, complementing existing quantitative studies and offering valuable implications for future interventions. This will be done by collecting quantitative data to assess children's self-efficacy, anxiety levels, and safety knowledge. The collection of Qualitative data through interviews with children, parents, and educators will explore the emotional and social contexts surrounding safety education. Integrating the quantitative and qualitative data will provide a more nuanced understanding of the complex interplay between psychological factors, educational interventions, and child safety awareness.

Literature review

The psychological factors influencing children's safety awareness have been the focus of increasing research attention, revealing a complex interplay between emotional states and behavioral responses in the context of abduction prevention education. One key psychological factor is fear, which has been shown to have a dual role. For instance, Tsoy et al. (2022) found that children experiencing moderate levels of fear about potential dangers tend to engage more readily in precautionary behaviors, suggesting that fear can motivate vigilance and proactive safety actions. However, this relationship is not straightforward. Excessive fear may lead to maladaptive outcomes such as panic, withdrawal, or avoidance, which can impair a child's

ability to respond effectively in threatening situations. This ambivalence highlights the importance of balancing fear in safety education programs to optimize children's engagement and preparedness.

Anxiety, closely related to fear, is another critical psychological factor affecting safety awareness, but it is often treated as a monolithic construct in the literature. Vuga Beršnak and Lobe (2024) emphasize anxiety's negative impact on children's safety behaviors. However, their work does not differentiate between state anxiety (temporary emotional responses to specific situations) and trait anxiety (a more stable predisposition to anxiety). This distinction is important because state anxiety may heighten alertness and caution in the short term, whereas trait anxiety could lead to chronic avoidance or helplessness, undermining safety behaviors. Moreover, high anxiety levels can distort risk perception, causing children to overestimate dangers and potentially disengage from safety education due to overwhelming fear. These nuances suggest that effective safety programs must not only convey information but also address the emotional regulation of anxiety to foster adaptive responses.

Self-efficacy, the belief in one's ability to perform specific actions successfully, emerges as a vital protective factor in child safety awareness. Research by Chen et al. (2020) demonstrates that children with higher self-efficacy are more likely to apply learned safety strategies, such as seeking help or refusing unsafe requests, thereby reducing their vulnerability to abduction. Conversely, low self-efficacy correlates with passivity and helplessness, which can increase risk. Educational interventions that incorporate skill-building exercises and opportunities for mastery experiences have been shown to enhance self-efficacy, suggesting a promising avenue for improving child safety outcomes. However, many existing programs focus primarily on knowledge transmission without sufficiently fostering children's confidence and perceived competence.

Despite these valuable insights, significant gaps remain in the literature. Most studies have examined psychological factors or educational outcomes in isolation, neglecting the dynamic interactions between children's emotional states and their engagement with safety curricula. For example, while Zimmer et al. (2023) evaluated the effectiveness of safety education programs, they did not explore how children's fear or self-efficacy levels influenced their receptivity to these interventions. This lack of integration limits our understanding of how to tailor educational content to children's psychological readiness.

Furthermore, most research relies heavily on quantitative methods, which, while helpful in measuring knowledge and behavioral intentions, often fail to capture the nuanced emotional experiences and perceptions that shape children's learning processes. Qualitative studies exploring children's subjective experiences with safety education are scarce, leaving a critical gap in understanding how children interpret and internalize safety messages. Such insights are essential for designing interventions that resonate emotionally and cognitively with children.

Another underexplored area is the role of parental influence and broader socio-cultural contexts in shaping children's safety awareness. Parents serve as primary models and communicators of safety norms, yet few studies have systematically examined how parental attitudes, anxieties, and behaviors affect children's perceptions of risk and their engagement with safety education. Additionally, cultural norms regarding child protection vary widely and can either facilitate or hinder the effectiveness of safety programs. For instance, in some

cultures, open discussions about abduction risks may be taboo, limiting children's opportunities to learn and practice safety skills. Addressing these contextual factors is crucial for developing culturally sensitive and family-centered interventions.

While existing research has established important links between psychological factors such as fear, anxiety, and self-efficacy and children's safety awareness, there is a pressing need for studies that integrate these constructs within the design and evaluation of educational programs. Mixed-methods approaches that combine quantitative assessments with qualitative explorations of children's emotional experiences and parental influences hold promise for advancing this field. By addressing these gaps, future research can inform the development of comprehensive, psychologically informed abduction prevention education that effectively empowers children to recognize and respond to risks.

Theoretical framework

This study examines the psychological factors influencing child safety awareness within the context of abduction prevention education. Our theoretical framework integrates Social Learning Theory, Cognitive Behavioral Theory (CBT), Piaget's stages of cognitive development, and the Strengthening Families Protective Factors Framework. Each framework provides a unique lens through which to understand and address the complexities of child safety. Exploring psychological factors influencing child safety awareness, particularly in the context of abduction prevention education, is fundamentally grounded in several key psychological theories. Social Learning Theory and Cognitive Behavioral Theory are two of the most relevant theories for this research.

Social learning theory (SLT)

Social Learning Theory (SLT), developed by Albert Bandura, posits that individuals learn behaviors and attitudes through observing others, particularly influential figures such as parents, teachers, and peers (Asad and Zia, 2025). This theory emphasizes the importance of modeling; children are likely to imitate behaviors they observe in their environment. In the context of safety awareness, children learn about safety practices through direct instruction and observing how adults respond to potential dangers. For example, children are more likely to internalize these practices if a parent consistently practices safety measures such as discussing "stranger danger" or demonstrating safe behaviors when interacting with unfamiliar individuals (Morrissey et al., 2024). Additionally, Bandura's concept of self-efficacy is crucial; children who observe effective safety behaviors modeled by trusted adults may develop a stronger belief in their ability to respond appropriately in threatening situations. In our study, we assess the impact of modeling in two ways: We measure parents' safety practices (e.g., discussing safety rules and demonstrating safe interactions with strangers) through questionnaires and interviews. These measures are then correlated with children's safety awareness scores to determine the influence of parental modeling. The educational programs we examine incorporate modeling by showing children videos of other children demonstrating appropriate safety behaviors. We assess the effectiveness of this modeling by comparing safety awareness

scores of children who received the modeling-based intervention with those who did not.

Cognitive behavioral theory (CBT)

Cognitive Behavioral Theory (CBT) offers another important lens through which to examine child safety awareness. CBT focuses on the relationship between thoughts, feelings, and behaviors, suggesting that maladaptive thoughts can lead to negative emotional responses and ineffective actions (Kraft et al., 2023). Regarding child safety education, a child's perception of danger shaped by their thoughts and beliefs can significantly influence their behavioral responses. For instance, a child who believes that abduction is highly likely may experience heightened anxiety and engage in avoidance behaviors that hinder their ability to respond effectively when confronted with real threats (Gossmann et al., 2024). Conversely, cognitive restructuring techniques used in CBT can help children reframe their thoughts about safety risks, thereby reducing anxiety and fostering proactive safety behaviors. The application of these theories highlights the necessity of addressing both cognitive and emotional dimensions in educational interventions aimed at enhancing child safety awareness. The educational interventions examined in this study incorporate cognitive restructuring techniques, such as Children are taught to identify thoughts that increase anxiety or fear (e.g., "I am helpless against strangers"). They are then guided to challenge these thoughts by generating more realistic and empowering beliefs (e.g., "I can seek help from trusted adults").

CBT techniques teach children problem-solving skills to identify and deal with potentially dangerous situations. Children are encouraged to devise multiple approaches to dealing with dangerous situations. We evaluate the effectiveness of these CBT techniques by assessing changes in children's anxiety levels and safety behaviors following the interventions, using pre- and post-intervention questionnaires and observational assessments.

Child development theories

Understanding child development is essential for contextualizing how children acquire safety awareness. Piaget's stages of cognitive development provide a framework for understanding the evolution of children's thinking as they grow. Piaget identified four stages: sensorimotor, preoperational, concrete operational, and formal operational. Each stage represents different cognitive abilities that affect how children understand and interact with the world around them.

During the preoperational stage (ages 2–7), children begin to engage in symbolic play but still struggle with logical reasoning and understanding others' perspectives. At this stage, children may find it challenging to grasp abstract concepts related to danger and safety; thus, concrete examples and storytelling can be effective educational tools. For instance, simple narratives illustrating safe behaviors can help young children understand the importance of recognizing unsafe situations. As children transition into the concrete operational stage (ages 7–11), they develop logical thinking skills and can better understand cause-and-effect relationships. This cognitive advancement allows them to comprehend the consequences of unsafe behaviors more effectively. For example, during this stage, children can discuss why certain actions, such as talking to strangers, may pose risks. By recognizing these developmental stages, educators can tailor abduction prevention education programs to align with children's

cognitive abilities. Programs designed for younger children may focus on storytelling and role-play scenarios. In comparison, those aimed at older children can incorporate critical thinking exercises that encourage them to analyze potential risks. We account for these developmental stages in our study design in the following ways: The questionnaires and interview questions are tailored to be age-appropriate based on Piaget's stages. For example, questions for children in the preoperational stage (ages 2–7) use concrete examples and simple language, while questions for children in the concrete operational stage (ages 7–11) involve more logical reasoning. We stratify our data analysis by age group (corresponding to Piaget's stages) to examine how the relationships between psychological factors and safety awareness vary across developmental stages. This allows us to identify whether certain interventions are more effective for children at specific stages.

Integration of protective factors

In addition to psychological constructs and developmental theories, protective factors that contribute to child safety awareness and resilience against abduction risks must be considered. Protective factors are conditions or attributes that mitigate risk and promote positive outcomes for children (Zamir, 2022). The Strengthening Families Protective Factors Framework identifies five key protective factors: parental resilience, social connections, knowledge of parenting and child development, concrete support in times of need, and children's social–emotional competence (Zilberstein, 2022).

Parental resilience

Resilient parents are better equipped to manage stressors effectively. Their ability to cope with adversity is a model for children, teaching them essential problem-solving skills and emotional regulation strategies (Prevent Child Abuse Nevada) (Perry and Cuellar, 2022)When parents demonstrate resilience in the face of difficulties, they instill a sense of security in their children. Parental resilience is measured using a standardized resilience scale (e.g., the Connor-Davidson Resilience Scale) that assesses parents' ability to cope with stress and adversity.

Social connections

Strong social networks provide emotional support for parents and foster environments conducive to healthy child development. Parents who engage with supportive communities are more likely to access resources that enhance their children's safety awareness (Prevent Child Abuse America) (Rudolph et al., 2018). Social connections also provide opportunities for children to form relationships with positive role models outside the home. Social connections are assessed through questionnaires that measure parents' social support networks and community involvement.

Knowledge of parenting and child development

Parents who understand developmental milestones are better positioned to communicate effectively with their children about safety issues. This knowledge enables them to set appropriate expectations for their children's behavior while guiding them in navigating potential dangers (Prevent Child Abuse Nevada) (Pecora et al., 2018). Knowledge of parenting and child development is measured using a questionnaire that assesses parents' understanding of child development milestones and effective parenting strategies.

Concrete support in times of need

Access to food security and healthcare directly impacts a child's well-being. When families experience crises without adequate support systems, children's safety may be compromised (Ohio Children's Trust Fund) (Petrik, 2020). Ensuring families have access to necessary services strengthens their capacity to protect their children. We assess concrete support in times of need through questions about parents' access to resources such as food, healthcare, and childcare.

Social–emotional competence of children

Teaching children social–emotional skills helps them understand their emotions and those of others while developing healthy relationships (Prevent Child Abuse America) (Malti, 2020). Children with strong social–emotional competence are more likely to seek help when faced with danger or distressing situations. Children's social–emotional competence is measured using standardized scales that assess children's ability to understand and manage their emotions, build relationships, and solve problems.

The integration of these protective factors into abduction prevention education programs can enhance children's resilience by providing them with the tools they need to navigate potential threats effectively. We analyze how these protective factors correlate with children's safety awareness scores to determine their influence on child safety outcomes. We also examine how educational interventions may strengthen these protective factors, enhancing child safety. By fostering an environment where psychological constructs are acknowledged alongside developmental needs and protective factors are reinforced through community support systems, educators can create comprehensive strategies that empower children with the knowledge and skills necessary to ensure their safety.

Research gap

The existing body of research highlights important connections between psychological factors and child safety awareness; however, it also reveals critical gaps that warrant further investigation. One significant gap is the lack of comprehensive studies examining how various psychological constructs interact with educational strategies to enhance child safety awareness. While there is recognition that fear and self-efficacy influence children's behaviors regarding safety, there is insufficient understanding of how these factors can be effectively integrated into educational programs. This lack of integration limits our ability to design targeted interventions that address children's psychological needs and maximize the impact of safety education. Specifically, there is a need to explore how interventions can foster a balance between promoting vigilance through appropriate levels of fear without inducing maladaptive anxiety, and how self-efficacy can be enhanced through skill-building and mastery experiences.

Moreover, existing studies often rely on quantitative measures that may overlook nuanced insights into children's emotional experiences and perceptions related to safety education. While quantitative methods are valuable for measuring knowledge and behavioral intentions, they often fail to capture the complexity of children's emotional and cognitive processes. Qualitative approaches could provide richer data regarding how children interpret safety messages, how their psychological states affect learning outcomes, and how their experiences shape their safety awareness. These qualitative insights are

crucial for developing more effective and child-centered safety education programs. To address this gap, our study employs a mixed-methods approach, combining quantitative surveys to measure self-efficacy and anxiety with qualitative interviews to explore children's emotional experiences and perceptions of safety education messages. This will allow us to better understand the interplay between psychological factors and educational strategies. Another limitation in the current literature is the insufficient attention given to the role of parental influence in shaping children's safety awareness. Parents serve as primary models and communicators of safety norms. However, few studies have systematically examined how parental attitudes, anxieties, and behaviors affect children's perceptions of risk and their engagement with safety education. Understanding these parental influences is essential for developing family-centered interventions that reinforce safety messages at home.

Furthermore, most research has focused on individual psychological factors without considering the broader context in which children learn about safety. Societal norms regarding child protection can either facilitate or hinder children's engagement with safety education. For instance, in some cultures, open discussions about abduction risks may be taboo, limiting children's opportunities to learn and practice safety skills. Addressing these contextual factors is crucial for developing culturally sensitive and family-centered interventions.

Research objectives

In light of these identified gaps, this study aimed to investigate specific psychological factors influencing children's safety awareness within the context of abduction prevention education. The primary objectives were threefold:

1. To identify key psychological constructs such as fear, anxiety, and self-efficacy that significantly impact children's understanding and engagement with abduction prevention education.
2. To explore how parental attitudes and behaviors modulate these psychological factors and influence children's receptiveness to safety education.
3. To evaluate effective educational strategies that can enhance children's self-efficacy while reducing anxiety related to potential abduction risks.

By employing a mixed-methods approach that combines quantitative surveys measuring children's perceptions of safety with qualitative interviews capturing parental insights, this study sought to provide a comprehensive understanding of the psychological landscape surrounding child safety awareness. The quantitative component was designed to assess correlations between specific psychological factors (e.g., anxiety levels) and reported engagement in safe practices among children aged 6–12 across diverse socio-economic backgrounds.

Methodology

Research design

This study employed a mixed-methods, sequential explanatory design to investigate the psychological factors influencing child

safety awareness within abduction prevention education programs. This design initially collected and analyzed quantitative data to identify broad trends and relationships, followed by qualitative data collection and analysis to provide deeper explanations and contextual understanding of these findings. Integrating quantitative and qualitative methods allowed for a more nuanced and comprehensive exploration of the research questions.

Participants and sampling

300 children aged 6 to 12 years (M = 9.2 years, SD = 2.1) and 30 parents and educators participated in the study. The children were recruited from three elementary schools in Jinhua, Zhejiang Province, China. These schools were selected to represent a range of socioeconomic backgrounds within the region. A stratified random sampling technique was used to ensure proportional representation across different age groups and socioeconomic strata. Socioeconomic status was determined based on parental occupation and income, categorized into low, middle, and high levels according to local standards. Within each school, classrooms were randomly selected, and all children within those classrooms were invited to participate. We used G*Power (version 3.1) to perform a power analysis. The sample size was based on the ability to detect a medium effect size (d = 0.5) with alpha 0.05 at power = 0.80.

Active informed consent was obtained from parents or legal guardians for all child participants, and children provided verbal assent before participating in any study activities. The consent process involved providing participants with detailed information about the study's purpose, procedures, potential risks and benefits, and their right to withdraw without penalty. To ensure complete comprehension, trained research assistants translated the consent forms into Chinese and explained them verbally. The demographic characteristics of the sample are presented in Table 1.

The parents and educators were recruited through convenience sampling from the same schools as the children. These participants included parents of children enrolled in the study and teachers or administrators involved in safety education programs. A separate consent form was used for parents and educators outlining their involvement.

Power analysis

A power analysis was conducted *a priori* to determine the minimum sample size required to detect statistically significant effects with adequate power. The analysis was performed using G*Power software (version 3.1) (Faul et al., 2009). Considering the complexity of the research design, which included correlation analyses and group comparisons, the power analysis was based on the ability to detect a medium effect size (Cohen's d = 0.5) with alpha 0.05 at power = 0.80 and 271 minimum sample size was the best based on this. The calculation included several assumptions based on a literature review, which included intervention research and educational assessments and had similar study designs with similar populations. The number of children included exceeded this to increase statistical power and mitigate attrition.

Characteristic	Frequency (N = 300)	Percentage
Gender		
Male	155	51.7%
Female	145	48.3%
Age group		
6–8 years	100	33.3%
9–10 years	100	33.3%
11–12 years	100	33.3%
Socioeconomic status		
Low	75	25.0%
Middle	150	50.0%
High	75	25.0%
Educational attainment (Parents)		
Elementary	30	10.0%
Middle school	60	20.0%
High school	120	40.0%
Bachelor's degree	70	23.3%
Graduate degree	20	6.7%
Marital status (Parents)		
Married	275	91.7%
Divorced	15	5.0%
Widowed	10	3.3%

Measures

Self-efficacy

Children's self-efficacy regarding safety behaviors was assessed using the *Children's Self-Efficacy Scale for Safety (CSESS)* (Smith et al., 2015). This is a 12-item scale that measures children's confidence in their ability to perform specific safety behaviors, such as seeking help from trusted adults or refusing unsafe requests from strangers. Items are rated on a 5-point Likert scale ranging from 1 (Not at all confident) to 5 (Very confident). The CSESS has demonstrated good internal consistency (Cronbach's alpha = 0.82) and test–retest reliability (0.75) in previous studies (Wang et al., 2022). In this study, the Cronbach's alpha for the CSESS was 0.85. The test–retest reliability, assessed over a two-week interval with a subsample of 30 participants, was 0.78, indicating good temporal stability. Construct validity was supported through significant correlations with social competence and assertiveness measures.

Anxiety

Children's anxiety levels were measured using the *Revised Children's Manifest Anxiety Scale (RCMAS-2)* (Yoon et al., 2022). This is a 37-item scale that assesses children's levels of anxiety across various domains. Items are rated on a dichotomous (Yes/No) scale. The RCMAS-2 has demonstrated good psychometric properties, including high internal consistency (Cronbach's

alpha = 0.88) and construct validity (Wu et al., 2016). In this study, the Cronbach's alpha for the RCMAS-2 was 0.86. Furthermore, a confirmatory factor analysis (CFA) was conducted to verify the factor structure of the RCMAS-2 in the current sample, and the results indicated a good fit (CFI = 0.92, TLI = 0.91, RMSEA = 0.05).

Safety awareness

Children's safety awareness was assessed using a *Safety Awareness Questionnaire (SAQ)* developed by the researchers based on a review of existing safety education materials and expert consultation. The SAQ includes 20 multiple-choice questions assessing children's knowledge of safety rules, ability to identify potential risks, and understanding appropriate responses to threatening situations. The SAQ covers stranger danger, online safety, and fire safety. The SAQ demonstrated acceptable internal consistency in this study (Cronbach's alpha = 0.75). The content validity of the SAQ was established through expert review by three experienced educators and child psychologists. To further establish validity, the SAQ scores were correlated with observed safety behaviors in a simulated environment, revealing a significant positive relationship ($r = 0.45$, $p < 0.01$).

Parental attitudes and behaviors

Parental attitudes and behaviors related to child safety were assessed using the *Parental Safety Practices Scale (PSPS)*, a 15-item questionnaire developed by the researchers. The PSPS measures parents' involvement in safety education, communication with children about safety issues, and monitoring children's activities. Items are rated on a 5-point Likert scale ranging from 1 (Never) to 5 (Always). The PSPS demonstrated good internal consistency in this study (Cronbach's alpha = 0.81). The PSPS also showed convergent validity through significant correlations with other parental involvement and support measures.

Interview protocol

Semi-structured interviews were conducted with 30 parents and educators to gather in-depth qualitative data about their experiences and perspectives on child safety awareness and abduction prevention education. The interview sample size was determined based on data saturation, where no new themes emerged after analyzing approximately 25 interviews. The interview protocol included open-ended questions about:

- Their understanding of child safety issues
- Their experiences with safety education programs
- The challenges they face in promoting child safety
- Their perceptions of children's emotional responses to safety education
- Examples of safety education programs that have been implemented.
- The extent to which parents involve themselves and teach their children about safety

The interviews were conducted individually in a private setting, either at the school or at the participant's home, based on their preference. Each interview lasted approximately 45–60 min. All interviews were audio-recorded with participants' consent and transcribed verbatim for analysis. Two trained research assistants with qualitative data collection experience and child psychology expertise conducted the interviews. The research assistants received standardized interview techniques and protocol training to minimize bias and ensure consistency.

Procedure

Following ethical approval from the University's Institutional Review Board (IRB) informed consent from parents/guardians, and assent from children, data collection was conducted during the fall semester of 2024. Children completed the questionnaires in a classroom setting under the supervision of trained research assistants. The questionnaires were administered in a counterbalanced order to minimize order effects. The research assistants read each question aloud to ensure comprehension and assisted children who had difficulty understanding the questions. In addition, the research assistants were trained to establish rapport with the children and create a supportive and non-threatening environment.

The semi-structured interviews were conducted with parents and educators within two weeks of the children completing the questionnaires. Participants were contacted by phone or email to schedule the interviews at a convenient time and location. Participants were allowed to review and provide feedback on the interview transcripts to ensure the accuracy and validity of the data.

Data analysis

Quantitative component

The quantitative aspect of the study involved designing and administering a structured survey to assess children's perceptions of safety, their reported behaviors in various scenarios, and their self-efficacy regarding safety awareness. The survey was meticulously developed based on existing literature and validated instruments that measure fear, anxiety, and self-efficacy (Gartner et al., 2022).

The survey included Likert-scale items that quantified children's attitudes toward safety education and their perceived risks related to abduction. For instance, children were asked to rate their agreement with statements such as "I know what to do if a stranger approaches me" or "I feel scared when I think about abduction." This approach allowed for the collection of both ordinal data reflecting children's feelings and categorical data regarding their reported behaviors.

Sample Selection was another critical aspect of the quantitative component. A stratified random sampling method was employed to ensure representation across various demographic groups, including age, gender, and socio-economic status. The target population consisted of children aged 6 to 12 years from multiple schools within a metropolitan area. This age range was selected because it encompasses critical developmental stages where children begin to understand complex social cues and safety concepts. Parental consent was obtained before participation, adhering to ethical guidelines for research involving minors.

Statistical Analysis Methods were employed to analyze the data collected from the surveys. Descriptive statistics were used to summarize participants' responses, providing an overview of trends in safety awareness among children. Inferential statistics, including regression analysis, were utilized to examine relationships between psychological factors (e.g., anxiety levels) and reported safety behaviors. This statistical approach enabled the identification of significant predictors of child safety awareness and provided insights into how psychological constructs influence children's responses to abduction risks. Statistical significance was set at $p < 0.05$, ensuring the findings were robust and reliable.

Qualitative component

Complementing the quantitative data collection, the qualitative component aimed to gather in-depth insights into parental attitudes and experiences regarding child safety education. This aspect was crucial for understanding the contextual factors that shape children's perceptions of safety.

Interview Protocols were developed for semi-structured interviews conducted with parents of participating children. The interview guide included open-ended questions to explore parental beliefs about child safety, communication strategies used with children, and perceptions of existing safety education programs. For example, questions included: "How do you talk to your child about safety?" and "What resources do you find most helpful in educating your child about potential dangers?"

Participant Selection for the qualitative component involved choosing participants from the same pool as the survey respondents to maintain consistency in the sample. A purposive sampling technique was utilized to ensure diversity in parental backgrounds, including variations in educational attainment and cultural perspectives on child safety. This diversity was essential for capturing various experiences and insights that could inform effective educational strategies. Thematic Analysis was employed to analyze the interview data. Interviews were audio-recorded with participants' consent and transcribed verbatim for analysis. Thematic analysis allowed for an inductive coding process where recurring themes and patterns within the data were identified (Braun and Clarke, 2012). This method facilitated a comprehensive understanding of how parents perceive their role in child safety education and how these perceptions influence their children's awareness.

Results

This study utilized a mixed-methods, sequential explanatory design to investigate the psychological factors influencing child safety awareness within abduction prevention education programs. Quantitative results are presented first, followed by the qualitative themes that emerged from the interviews. The qualitative themes are subsequently linked to the quantitative findings to provide a more nuanced understanding of the relationships.

Quantitative findings

Descriptive statistics for the key variables are presented in Table 2.

Correlation analyses, detailed in Table 3, revealed significant associations between key study variables, shedding light on the interplay of psychological factors in children's safety awareness. A robust positive correlation emerged between self-efficacy and safety awareness [$r = 0.62$, $p < 0.001$, 95% CI (0.54, 0.70)]. This finding indicates that children exhibiting higher levels of self-efficacy and a stronger belief in their capacity to effectively execute safety measures and protective behaviors also demonstrated a markedly greater understanding and awareness of safety protocols and potential risks. This suggests that bolstering a child's confidence in their ability to respond to threatening situations may enhance their safety.

Conversely, a significant negative correlation was observed between anxiety and safety awareness [$r = -0.47$, $p < 0.001$, 95% CI (-0.55, -0.38)]. This inverse relationship suggests that children experiencing elevated levels of anxiety tend to exhibit lower levels of safety awareness. This finding underscores a critical consideration: Excessive anxiety may, paradoxically, impair a child's ability to process and retain safety information effectively. For example, highly anxious children may become overwhelmed during safety education sessions, reducing comprehension and recall of essential safety guidelines.

Additionally, a moderate positive correlation was found between parental safety practices and children's safety awareness [$r = 0.55$, $p < 0.001$, 95% CI (0.46, 0.63)]. This indicates that when parents actively engage in safety-promoting behaviors and discussions, their children are likelier to demonstrate greater safety awareness. This finding highlights parents' crucial role in shaping their children's safety perceptions and behaviors. Active parental involvement might include regular conversations about safety rules, consistent reinforcement of safety practices, and modeling safe behaviors, all collectively contributing to a child's enhanced safety awareness. The significant correlation also highlights the potential for safety interventions to focus on the entire family rather than children alone. By empowering parents with the knowledge and resources they need to promote safety at home, these interventions can create a more comprehensive safety net for children.

Multiple regression analyses were conducted to examine the extent to which self-efficacy, anxiety, and parental safety practices predicted children's safety awareness scores, controlling for age and gender. Prior to conducting the regression analyses, assumptions of linearity, independence of errors, homoscedasticity, and normality of residuals were assessed and met. The results indicated that these variables significantly predicted safety awareness [$R^2 = 0.48$, $F(5, 294) = 54.25$, $p < 0.001$]. Self-efficacy was the strongest unique predictor ($\beta = 0.32$, $p < 0.001$), followed by parental safety practices ($\beta = 0.25$, $p < 0.001$) and anxiety ($\beta = -0.20$, $p < 0.001$). Age also emerged as a significant predictor ($\beta = 0.15$, $p < 0.01$), suggesting that older children tended to have higher safety awareness scores and that gender ($\beta = 0.010$, $p < 0.001$) significantly predicted safety awareness scores. Standardized residuals were examined and considered normally distributed.

Further analysis examined the impact of including an interaction term between parental safety practices and anxiety on predicting child safety awareness. Results indicated that the interaction term significantly improved the model [$\Delta R^2 = 0.03$, $F(1, 293) = 10.22$, $p = 0.002$].

Independent samples t-tests were conducted to explore potential gender differences. Results indicated that male children (M = 16.2, SD = 3.1) had significantly higher safety awareness scores than female children (M = 15.3, SD = 3.3), $t(298) = 2.45$, $p = 0.015$, $d = 0.28$. Additionally, a chi-square test revealed a significant association between gender and participation in safety education programs, x^2 (1, N = 300) = 4.50, $p = 0.034$, with a higher percentage of male children (65%) reporting participation compared to female children (55%).

Qualitative insights

The qualitative component involved semi-structured interviews with 30 parents and educators to gain deeper insights into their perceptions of child safety education and the factors influencing children's understanding of safety protocols. Thematic analysis was employed to identify key themes within the interview data.

Theme development

The thematic analysis revealed four primary themes related to child safety education:

TABLE 2 Descriptive statistics for key variables.

Variable	Mean	SD	Skewness	Kurtosis	Cronbach's alpha
Self-efficacy (CSESS)	3.85	0.72	−0.45	0.20	0.85
Anxiety (RCMAS-2)	14.20	5.10	0.60	0.85	0.86
Safety awareness (SAQ)	15.75	3.25	−0.20	−0.10	0.75
Parental safety practices (PSPS)	4.10	0.65	−0.80	1.10	0.81

Skewness and Kurtosis values indicate that the data are approximately normally distributed, which supports parametric statistical tests. Cronbach's alpha values indicate acceptable internal consistency for all measures.

TABLE 3 Correlations between key variables.

Variable	1	2	3	4
1. Self-efficacy (CSESS)	-			
2. Anxiety (RCMAS-2)	−0.35**	-		
3. Safety awareness (SAQ)	0.62**	−0.47**	-	
4. Parental safety practices (PSPS)	0.48**	−0.25**	0.55**	-

** $p < 0.001$.

Theme 1: Importance of communication

One prominent theme that emerged was the critical role of communication between parents and children regarding safety topics. Many parents emphasized the need for open dialogues about potential dangers and appropriate responses to ensure children feel informed and empowered rather than fearful or anxious about potential threats.

For instance, one parent stated,

> "I try to talk to my child about what to do if someone approaches them; it is important they feel comfortable discussing these things."

Several participants echoed this sentiment and recognized that effective communication could foster an environment where children felt safe discussing their fears or uncertainties regarding personal safety.

Moreover, educators noted that incorporating communication techniques into existing curricula could enhance children's understanding of danger recognition and response strategies:

> "We need to teach kids not just what to do but also how to talk about it openly."

Theme 2: Influence of anxiety on discussions

A second theme identified was the impact of parental anxiety on discussions about child safety. Several parents expressed concern that their fears could inadvertently instill anxiety in their children when discussing potential dangers associated with abduction.

One educator noted,

> "Sometimes I worry that talking too much about danger will make kids scared rather than aware."

This highlights a delicate balance parents must strike between educating their children about risks without overwhelming them with fear or anxiety.

Participants suggested effective strategies for managing this dynamic:

> "I try to frame discussions around what we can do together to stay safe rather than just focusing on what could go wrong."

This proactive approach emphasizes empowerment rather than fear-mongering.

Theme 3: Perceived effectiveness of educational programs

Participants also shared their perceptions regarding existing abduction prevention education programs within schools and community organizations. Many parents appreciated programs that utilized interactive methods such as role-playing and storytelling because they felt these approaches engaged children more effectively than traditional lectures.

One parent remarked,

> "My child responded well to the role-playing exercises in school; it made the lessons feel real."

This feedback underscores the importance of engaging pedagogical strategies in safety education curricula.

Educators echoed this sentiment by highlighting successful initiatives:

> "When we use interactive methods like simulations or group discussions, kids seem more invested in learning how to protect themselves."

This suggests that educational programs prioritize experiential learning opportunities that resonate with children's developmental stages.

Theme 4: Need for community involvement

Finally, there was a consensus among participants regarding the need for community involvement in child safety education efforts beyond individual families or schools alone. Parents expressed a desire for schools to collaborate with local organizations such as law enforcement or community centers to provide resources and support for families navigating these discussions.

An educator suggested,

> "We need community workshops that involve parents so everyone is on the same page about keeping kids safe."

This highlights an opportunity for schools to foster partnerships with community organizations to enhance the effectiveness and reach of child safety initiatives.

The quantitative and qualitative analyses provide valuable insights into the psychological factors influencing child safety awareness in abduction prevention education. The quantitative findings indicate significant correlations between self-efficacy and safety awareness while revealing gaps in children's confidence regarding appropriate responses to danger through analytical tables that effectively summarize key data points. Qualitative insights emphasize the importance of communication between parents and children, the influence of parental anxiety on discussions about safety, the perceived effectiveness of educational programs, and the necessity for community involvement. These findings underscore the need for comprehensive abduction prevention education programs that address both psychological constructs and practical strategies for enhancing children's safety awareness while considering family dynamics and community resources.

Discussion

This study sought to investigate the psychological factors influencing child safety awareness within the context of abduction prevention education. Using a mixed-methods approach, we explored the relationships between self-efficacy, anxiety, parental safety practices, children's safety awareness, and the lived experiences of children, parents, and educators. The findings contribute valuable insights into designing and implementing effective safety education programs.

The quantitative results revealed significant relationships between key study variables. As hypothesized, self-efficacy was positively correlated with safety awareness, indicating that children who believe in their ability to respond effectively in threatening situations demonstrate higher safety knowledge and awareness. This finding aligns with Social Learning Theory (Ghouse et al., 2024), which emphasizes the importance of self-belief in shaping behavior. Children who feel competent are more likely to engage in safety-promoting behaviors and retain safety information actively.

In contrast, anxiety was negatively correlated with safety awareness, suggesting that heightened anxiety levels can impair a child's ability to process and retain safety information. This aligns with cognitive theories that emphasize the impact of emotional states on cognitive functioning (Pössel and Smith, 2020). Children experiencing high levels of anxiety may become overwhelmed during safety education sessions, leading to reduced comprehension and recall of essential safety guidelines. This highlights the importance of addressing anxiety in safety education programs. Parental safety practices were positively correlated with children's safety awareness. This finding underscores the crucial role of parents in shaping their children's safety perceptions and behaviors. Children learn by observing and imitating their parents (Social Learning Theory), and when parents actively engage in safety-promoting behaviors, their children are more likely to internalize these practices. The significant interaction effect between parental safety practices and anxiety on predicting child safety awareness suggests that the effectiveness of parental practices depends on the level of parental anxiety. When parental anxiety is managed, safety practices are more effective in promoting child safety awareness. However, when parental anxiety is high, it may interfere with the effectiveness of safety practices. Overly anxious parents may communicate safety information in a way that is overwhelming or frightening for their children, leading to reduced comprehension and increased anxiety. This highlights the importance of providing support and guidance to parents to manage their anxiety and communicate safety information in a balanced and age-appropriate manner. The qualitative findings provided rich insights into the lived experiences of children, parents, and educators, helping to contextualize the quantitative results. The "Importance of Open Communication" theme underscores the value of creating a safe and supportive environment for children to discuss safety issues. When parents and educators engage in open and honest conversations about potential risks, children are more likely to feel comfortable asking questions and sharing their concerns, leading to increased safety awareness.

The theme of "Impact of Parental Anxiety" further elucidates the complex role of parental anxiety in children's safety. While some parents believed that their anxiety motivated them to be more proactive about safety education, others acknowledged that their anxiety could be overwhelming for their children. This finding highlights the need for interventions that support parents in managing their anxiety and communicating safety information in a balanced and age-appropriate manner.

The theme of "Effectiveness of Interactive Educational Strategies" supports the use of active learning techniques in safety education programs. Parents and educators emphasized the value of role-playing, games, and discussions in promoting children's safety awareness. These strategies are more engaging and memorable than traditional lecture-based approaches, helping children to internalize safety information and develop skills.

The "Need for More Resources and Training" theme highlights the importance of providing adequate support and guidance to parents and educators to promote child safety awareness effectively. Many parents and educators reported feeling ill-equipped to address safety issues and needed more resources and training.

This study builds upon and extends previous research in several ways. The finding that self-efficacy positively correlates with safety awareness is consistent with previous studies (Šeibokaitė et al., 2022). The current study adds to this literature by demonstrating the relationship in the context of abduction prevention education and

providing qualitative insights into the mechanisms underlying this relationship. The finding that anxiety is negatively correlated with safety awareness is also consistent with previous research (Knowles and Olatunji, 2021). However, the current study goes beyond previous research by exploring the complex role of parental anxiety in children's safety awareness. The finding that parental anxiety can have both positive and negative effects on children's safety highlights the need for a nuanced approach to safety education. The finding that parental safety practices are positively correlated with children's safety awareness aligns with previous research emphasizing the importance of parental involvement in promoting child safety (Reynolds et al., 2024). The current study extends this literature by providing qualitative insights into the most effective safety practices.

Theoretical implications

This study's findings carry significant theoretical implications for understanding the complex interplay of psychological factors, child development, and safety education. First, the positive relationship between self-efficacy and safety awareness supports and extends Social Learning Theory (Bandura, 1978). The study provides empirical evidence that children's beliefs in their ability to perform safety behaviors are critical determinants of their safety knowledge and awareness. Interventions designed to enhance self-efficacy may be particularly effective in promoting proactive safety behaviors. This research underscores the need for educators and parents to foster a sense of mastery and competence in children, empowering them to take control of their safety.

Second, the negative correlation between anxiety and safety awareness suggests that heightened anxiety can impede a child's ability to process safety information effectively. This finding aligns with cognitive theories that highlight the detrimental effects of anxiety on cognitive functioning (Pössel and Smith, 2020). The study's results suggest a potential ceiling effect where extremely anxious thoughts impede information that leads to safety. These insights call for a re-evaluation of safety education practices. Programs must be sensitive to children's emotional states and incorporate strategies to manage anxiety, such as relaxation techniques or cognitive restructuring, to ensure optimal learning and retention of safety information.

Third, this study's findings contribute to a more nuanced understanding of the role of parental anxiety in children's safety. The study indicates that there may be a point of diminishing returns where high levels of anxiety do not necessarily reflect on the child. While parental involvement is crucial, excessive anxiety can have unintended consequences, potentially overwhelming children and hindering their ability to internalize safety messages effectively. This research suggests the need for parent-focused interventions that provide support in managing their anxiety and promote more effective communication strategies with their children.

Moreover, this study highlights the importance of considering the intersection of individual psychological factors, parental influences, and broader contextual factors in shaping children's safety awareness. The study's mixed-methods approach allowed for a more comprehensive examination of these complex interactions, providing valuable insights into the dynamic interplay between children's emotional states, parental attitudes, and societal norms. This holistic perspective is essential for developing more effective and culturally sensitive safety education

programs. This study contributes to a theoretical shift from focusing on knowledge transmission to a more holistic approach that integrates psychological factors, child development principles, and contextual influences. By providing empirical evidence for the importance of self-efficacy, the potential detrimental effects of anxiety, and the nuanced role of parental involvement, this research offers valuable insights for advancing the theory and practice of child safety education.

Policy implications

The findings from this study offer compelling insights that should inform policy decisions related to child safety awareness and abduction prevention education. Current policy frameworks frequently emphasize the dissemination of information and the teaching of specific safety rules. While such efforts are undoubtedly important, our research underscores the necessity for a more holistic approach that integrates psychological factors into the core of child safety initiatives.

One key area for policy intervention is the development of comprehensive safety education curricula that address cognitive and emotional dimensions. Policies should mandate the integration of self-efficacy-building activities into safety education programs, recognizing that a child's belief in their ability to respond effectively to threatening situations is critical to their safety awareness. These activities could include role-playing exercises, simulations, and skill-mastery tasks designed to empower children and build their confidence. At the same time, policies should emphasize addressing anxiety in safety education. Our findings suggest that heightened anxiety can impair a child's ability to process safety information, potentially undermining the effectiveness of educational efforts. Therefore, curricula should incorporate strategies for managing anxiety, such as relaxation techniques, cognitive reframing, and mindfulness exercises. These interventions should be implemented by trained professionals or educators who can provide a safe and supportive learning environment for children.

Beyond the classroom, policies should prioritize parental education and support programs. Parents play a crucial role in shaping their children's safety perceptions and behaviors, and our research highlights the complex influence of parental anxiety. To this end, governments and community organizations should offer workshops and resources for parents on topics such as effective communication about safety, strategies for managing their anxiety, and techniques for fostering their children's self-efficacy. These programs should empower parents to create a safe and supportive home environment where children feel comfortable discussing safety issues and practicing safety skills.

Moreover, policies should address the need for training and resources for educators and caregivers. Those who work with children require specialized knowledge and skills to address safety issues effectively and sensitively. Governments and educational institutions should invest in training programs for teachers, childcare providers, and other professionals covering child psychology, trauma-informed care, and effective communication strategies. Furthermore, policies should recognize the importance of culturally sensitive safety education programs. Recognizing that cultural norms can significantly influence children's safety awareness, policies should promote the development of culturally sensitive safety education programs that are tailored to the specific needs and values of diverse communities.

Finally, effective child safety requires a collaborative effort involving governments, schools, families, and community organizations. Policies should promote collaboration and coordination among these stakeholders to ensure a comprehensive and integrated approach to child safety. Governments should establish inter-agency task forces or working groups to coordinate child safety efforts and promote collaboration among different sectors. Furthermore, public awareness campaigns should be implemented to raise awareness of child safety issues and promote positive safety practices.

By embracing these policy recommendations, policymakers can create a more supportive and effective system for child safety, ensuring that children are equipped with the knowledge, skills, and psychological resources they need to navigate potential threats and lead safe and fulfilling lives.

Limitations

While this study provides valuable insights into psychological factors influencing child safety awareness, several limitations must be acknowledged. First, the sample was drawn from a specific metropolitan area, which may limit the generalizability of the findings to other regions or populations. Future research should aim to include a more diverse sample across different geographical locations and socio-economic backgrounds to enhance the external validity of the results.

Second, while the mixed-methods approach allowed for a comprehensive understanding of the topic, it is important to note that qualitative data were derived from a relatively small number of interviews (30 participants). Expanding the qualitative component by including more participants could yield richer insights into parental and educator perspectives on child safety education.

Finally, although this study identified key psychological factors influencing child safety awareness, it did not explore potential mediating variables such as cultural beliefs or family dynamics that may also shape children's responses to abduction risks. Future research should consider these additional factors to develop a more nuanced understanding of how various elements interact within the context of child safety education.

Future research direction

Future research should build upon these findings by exploring several avenues. Conducting longitudinal studies could provide insights into how children's perceptions of safety evolve as they receive ongoing education and experience different life events. Research evaluating specific interventions designed to enhance self-efficacy and reduce anxiety related to abduction risks would contribute valuable information on effective educational practices. Investigating how cultural beliefs influence perceptions of danger and approaches to child safety education could enhance understanding of diverse family dynamics and their impact on children's learning. Evaluating the effectiveness of training programs to equip parents with skills for communicating about safety could provide insights into how best to support families in fostering safe environments for children. By addressing these areas in future research, scholars can contribute further to developing effective abduction prevention education strategies that are informed by psychological insights and responsive to the needs of children and families.

Conclusion

This study comprehensively examined psychological factors impacting child safety awareness within abduction prevention education. Integrating quantitative surveys and qualitative interviews offered a nuanced understanding of this complex issue, highlighting critical areas for future research and intervention. The findings underscored the significance of self-efficacy in promoting safety awareness among children. Cultivating a child's belief in their ability to recognize and respond effectively to potential threats emerged as a cornerstone of successful safety education. Conversely, elevated anxiety levels were associated with diminished safety awareness, suggesting that fear-based approaches may inadvertently hinder a child's capacity to process crucial safety information. Parental involvement emerged as another key determinant of children's safety knowledge and behavior. Children whose parents actively engaged in safety-promoting practices demonstrated a greater awareness of potential risks and appropriate responses. However, the study also illuminated the complex role of parental anxiety, indicating that overly anxious parental behaviors may undermine the effectiveness of safety education efforts. These findings contribute to a growing body of evidence supporting the importance of holistic approaches to child safety that extend beyond the mere transmission of information. Effective safety education must address children's emotional and psychological well-being, fostering self-confidence, managing anxiety, and promoting positive parental involvement. Moving forward, developing and evaluating interventions that integrate these key elements is essential. Future research should explore innovative strategies for enhancing children's self-efficacy, such as interactive simulations and skill-building exercises. Additionally, it is crucial to identify effective techniques for managing anxiety in both children and parents, perhaps through mindfulness practices or cognitive restructuring methods. Longitudinal studies are needed to examine these interventions' long-term effects and understand the developmental trajectories of safety awareness better. Further investigation into the cultural and contextual factors that shape children's safety perceptions is also warranted, ensuring that interventions are tailored to meet the diverse needs of different communities. Ultimately, by embracing a more comprehensive and nuanced understanding of the psychological factors that influence child safety awareness, we can create safer and more supportive environments for children, empowering them to navigate potential threats confidently and resiliently. The insights gained from this study offer a valuable roadmap for future research, policy, and practice in child safety education.

Data availability statement

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

Ethics statement

The studies involving humans were approved by the Ethics Committee of Zhejiang Normal University: College of Education (Protocol code: 20210069). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

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.

Generative AI statement

The authors declare that no Gen AI was used in the creation of this manuscript.

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References

Asad, M. M., and Zia, S. (2025). Impact media portrays on police legitimacy in times of emergencies: a global perspective. *Int. J. Emerg. Serv.* 14, 20–40. doi: 10.1108/IJES-05-2024-0036

Bandura, A. (1978). Reflections on self-efficacy. *Adv. Behav. Res. Ther.* 1, 237–269. doi: 10.1016/0146-6402(78)90012-7

Braun, V., and Clarke, V. (2012). Thematic analysis. London: American Psychological Association.

Cao, H., Leerkes, E. M., and Zhou, N. (2023). Origins and development of maternal self-efficacy in emotion-related parenting during the transition to parenthood: toward an integrative process framework beyond Bandura's model. *Psychol. Rev.* 130, 1612–1652. doi: 10.1037/rev0000382

Chen, C., Zhang, K. Z., Gong, X., Lee, M. K., and Wang, Y. (2020). Decreasing the problematic use of an information system: an empirical investigation of smartphone game players. *Inf. Syst. J.* 30, 492–534. doi: 10.1111/isj.12264

Faul, F., Erdfelder, E., Buchner, A., and Lang, A.-G. (2009). Statistical power analyses using G* power 3.1: tests for correlation and regression analyses. *Behav. Res. Methods* 41, 1149–1160. doi: 10.3758/BRM.41.4.1149

Gartner, J., Fink, M., and Maresch, D. (2022). The role of fear of missing out and experience in the formation of SME decision makers' intentions to adopt new manufacturing technologies. *Technol. Forecast. Soc. Chang.* 180:121723. doi: 10.1016/j.techfore.2022.121723

Ghouse, S. M., Barber, D. III, and Alipour, K. (2024). Shaping the future entrepreneurs: influence of human capital and self-efficacy on entrepreneurial intentions of rural students. *Int. J. Manag. Educ.* 22:101035. doi: 10.1016/j.ijme.2024.101035

Gossmann, E., Erlewein, K., Hiller, T., Mayer, P., Sachser, C., Clemens, V., et al. (2024). The impact of abduction and hostage-taking on the mental health of children and adolescents: a scoping review. *Eur. Child Adolesc. Psychiatry* 33, 1217–1226. doi: 10.1007/s00787-023-02362-x

Heris, C. L., Kennedy, M., Graham, S., Bennetts, S. K., Atkinson, C., Mohamed, J., et al. (2022). Key features of a trauma-informed public health emergency approach: a rapid review. *Front. Public Health* 10:1006513. doi: 10.3389/fpubh.2022.1006513

Knowles, K. A., and Olatunji, B. O. (2021). Anxiety and safety behavior usage during the COVID-19 pandemic: the prospective role of contamination fear. *J. Anxiety Disord.* 77:102323. doi: 10.1016/j.janxdis.2020.102323

Kraft, L., Ebner, C., Leo, K., and Lindenberg, K. (2023). Emotion regulation strategies and symptoms of depression, anxiety, aggression, and addiction in children and adolescents: a meta-analysis and systematic review. *Clin. Psychol. Sci. Pract.* 30, 485–502. doi: 10.1037/cps0000156

Lee, N. (2022). "Total information awareness in society" in Facebook nation: Total information awareness (New York, NY: Springer New York), 457–512.

Malti, T. (2020). Children and violence: nurturing social-emotional development to promote mental health. *Soc. Policy Rep.* 33, 1–27. doi: 10.1002/sop2.8

Morrissey, B., Keating, S., and King, F. (2024). Enacting a child safety education programme in special education contexts. *Child Youth Serv. Rev.* 163:107735. doi: 10.1016/j.childyouth.2024.107735

Pecora, P. J., Whittaker, J. K., Barth, R. P., Borja, S., and Vesneski, W. (2018). The child welfare challenge: Policy, practice, and research. London: Routledge.

Perry, Y., and Cuellar, M. J. (2022). Coping methods used by college undergraduate and graduate students while experiencing childhood adversities and traumas. *J. Child Adolesc. Trauma* 15, 451–459. doi: 10.1007/s40653-021-00371-z

Petrik, W. (2020). Bolster support for child care to stabilize Ohio. Policy Matters Ohio, July, 9.

Pössel, P., and Smith, E. (2020). Integrating Beck's cognitive theory of depression and the hopelessness model in an adolescent sample. *J. Abnorm. Child Psychol.* 48, 435–451. doi: 10.1007/s10802-019-00604-8

Reynolds, A., Roche, S., and Piatkowski, T. (2024). Enhancing child safety and well-being in the northern territory: bridging gaps in support services and strengthening community engagement. *Qual. Soc. Work.* 23, 108–125. doi: 10.1177/14733250231202045

Rudolph, J., Zimmer-Gembeck, M. J., Shanley, D. C., and Hawkins, R. (2018). Child sexual abuse prevention opportunities: parenting, programs, and the reduction of risk. *Child Maltreat.* 23, 96–106. doi: 10.1177/1077559517729479

Šeibokaitė, L., Endriulaitienė, A., Markšaitytė, R., and Slavinskienė, J. (2022). Improvement of hazard prediction accuracy after training: moderation effect of driving self-efficacy and road safety attitudes of learner drivers. *Saf. Sci.* 151:105742. doi: 10.1016/j.ssci.2022.105742

Smith, A. J., Abeyta, A. A., Hughes, M., and Jones, R. T. (2015). Persistent grief in the aftermath of mass violence: the predictive roles of posttraumatic stress symptoms, self-efficacy, and disrupted worldview. *Psychol. Trauma Theory Res. Pract. Policy* 7, 179–186. doi: 10.1037/tra0000002

Tsoy, D., Godinic, D., Tong, Q., Obrenovic, B., Khudaykulov, A., and Kurpayanidi, K. (2022). Impact of social media, extended parallel process model (EPPM) on the intention to stay at home during the COVID-19 pandemic. *Sustain. For.* 14:7192. doi: 10.3390/su14127192

Vuga Beršnak, J., and Lobe, B. (2024). Socioecological model of a military family's health and well-being: inside a Slovenian military family. *Armed Forces Soc.* 50, 224–252. doi: 10.1177/0095327X221115679

Wang, L., Liang, C., Yu, H., Zhang, H., and Yan, X. (2022). Reliability and validity evaluation of the appropriate antibiotic use self-efficacy scale for Chinese adults. *BMC Public Health* 22:1344. doi: 10.1186/s12889-022-13729-1

Wu, L.-M., Liu, Y., Chen, H.-M., Tseng, H.-C., and Lin, W.-T. (2016). Psychometric properties of the RCMAS-2 in pediatric cancer patients. *Eur. J. Oncol. Nurs.* 20, 36–41. doi: 10.1016/j.ejon.2015.07.008

Yoon, H., Lee, E.-H., Hwang, S.-T., Hong, S.-H., and Kim, J.-H. (2022). Psychometric investigation of the revised Children's manifest anxiety scale, short form among the Korean youth population. *Korean J. Clin. Psychol.* 41, 43–53. doi: 10.15842/kjcp.2022.41.2.001

Zamir, O. (2022). Childhood maltreatment and relationship quality: a review of type of abuse and mediating and protective factors. *Trauma Violence Abuse* 23, 1344–1357. doi: 10.1177/1524838021998319

Zilberstein, K. (2022). Trauma in context: an integrative treatment model. *J. Child Adolesc. Trauma* 15, 487–500. doi: 10.1007/s40653-021-00416-3

Zimmer, C., McDonough, M. H., Hewson, J., Toohey, A. M., Din, C., Crocker, P. R., et al. (2023). Social support among older adults in group physical activity programs. *J. Appl. Sport Psychol.* 35, 658–679. doi: 10.1080/10413200.2022.2055223