Linking Pathways from Perceived Absolute Risk and Social Support to Female Regular Health Screening: Integrated with Social Cognitive Theory Model

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Abstract

The increasing incidence of cancer among women of childbearing age has emerged as a significant health crisis, necessitating urgent attention from both individuals and societal medical systems. Cancer-related screening and prevention strategies are prevalent public health responses to this challenge. This study integrates the Social Cognitive Theory (SCT) with the Health Belief Model (HBM) and Self-Determination Theory (SDT) to examine the psychological and behavioral factors influencing health outcomes. Specifically, it investigates how perceived absolute risk, self-efficacy, self-regulation, social support, and health screening behaviors interrelate, focusing on their mutual reinforcement in the context of female health regulation. Addressing a gap in existing research on health behavior change in a sustainable loop, this study employs a nationally representative online survey with 904 female participants. Data were analyzed using Structural Equation Modeling (SEM), revealing that the integrated model exhibited a good fit and that all five hypotheses were supported. The findings emphasizing the importance of psychological and behavioral impacts on public health behaviors.

Keywords: Social Cognitive Theory, Perceived Absolute Risk, Self-Efficacy, Self-Regulation, Social Support, Female Health Regular Screening.

Introduction

Four types of cancers affecting women—breast, cervical, endometrial, and ovarian—constitute roughly 20% of all cancer cases (Roux et al., 2022). Among these, breast and cervical cancers are particularly common, placing them among the top ten malignancies worldwide (Canelo-Aybar et al., 2020). These cancers are exclusive to women and have established screening protocols. Due to the considerable variability in a woman's risk of developing these cancers— influenced by factors such as age, genetics, family history, history of benign tumors, body mass index, hormonal levels, and other exposures—risk-based screening has become an attractive cancer prevention approach (Millert-Kalińska et al., 2024). A recent review on cancer screening for women found that, while screening can prevent early death, it also reveals potential harms, indicating that more adaptable screening strategies could be advantageous (Canelo-Aybar et al., 2020). For example, risk-stratified breast screening programs have been implemented in Italy, France, Israel, the UK, Belgium, and Spain, encountering specific challenges associated with the shift in focus from traditional tumor detection to a broader approach that includes assessing the risk of developing breast cancer in the future (Roux et al., 2022).

Previous literature review displayed that the most commonly employed theories for promoting breast cancer screening include the Transtheoretical Model (TTM), the Theory of Planned Behavior (TPB), the Health Promotion Model (HPM), the Social Cognitive Theory (SCT), the Health Belief Model (HBM), and the Socio-Ecological Model (SEM). Beyond breast cancer, these health behavior theories have also been shown to enhance screening behaviors for other types of cancer. For instance, Theory of Planned Behavior (TPB) (Abamecha et al., 2019), Health Belief Model (HBM) and Theory of Reasoned Action (TRA) (Shida et al., 2018;

Aldohaian et al., 2019) could effectively predict cervical cancer screening behaviors. To the comparison of health behavior theories, HBM does not emphasize the environmental context or the interactive nature of determinants as strongly as SCT, TPB does not integrate environmental factors and personal behavioral interactions as comprehensively as SCT.

Health promotion involves empowering individuals to gain greater control over their health and enhance their well-being (Shamizadeh et al., 2019). This process fundamentally includes actions aimed at addressing all modifiable determinants of health, which are inextricably linked to achieving health equity. Disease prevention encompasses actions designed to reduce the occurrence of risk factors, prevent the onset of diseases, halt their progression, and mitigate their consequences (Robinson & Thomson, 2001). These actions typically involve recommendations and prompts for behavioral change but may also extend to addressing environmental, economic, and social conditions known to elevate these risks (Nutbeam & Muscat, 2021).

Sustainability is a relatively new field of study, with most research originating from healthcare (Nutbeam & Muscat, 2021). SCT can be applied to explores how the widespread promotion of health screening for common women's cancers as a public event measures direct effects (perceived absolute risk) and indirect effects (social support) based on social cognitive theoretical foundations. This holistic approach is crucial for developing sustainable health interventions.

Literature Review

Theoretical Framework: Social Cognitive Theory (SCT)

Bandura (1986) proposed that the SCT describes a comprehensive framework for understanding how people acquire and maintain behaviors, considering the dynamic and reciprocal interaction of personal, behavioral, and environmental influences. The SCT focuses on the cognitive processes involved in behavior change, SCT offers valuable insights and strategies for effectively promoting and sustaining desirable behaviors across various domains (Bandura, 2004). The core tenet of SCT emphasizes changing unhealthy behaviors by altering the environment, providing role models, enhancing self-efficacy through mastery experiences, and shaping outcome expectations (Natalia et al., 2020). Since its establishment in the early 1990s, scholars have applied to demonstrate desired behaviors, promoting self-efficacy through successful experiences, and encouraging self-regulation through goal-setting in enhancing learning (Ugwuanyi et al., 2020), health promotion (Garland et al., 2021) and therapy counseling (Tetri & Juujärvi, 2022).

In particular, the SCT's theoretical development within health communication operates through a set of psychological subfunctions to influence health behavior (Liu et al., 2021) and interpersonal relationships (Jaspal & Breakwell, 2022). For instance, Rainey et al. (2019) introduced risk perception as a crucial motivation for leading people to think and act when they are aware of a crisis related to their lives. When individuals assess their vulnerability to harm during a crisis, they often rely on heuristic methods to make assumptions. Those who are more conscious of the risks are also more prone to overestimating the frequency of these risks (Kahneman et al., 1982). Perceived absolute risk has a direct effect on personal relationships, behaviors, and goals by influencing individuals' actions and emotional responses to perceived threats. Jensen et al. (2016) proposed social support as social interaction stimulates people to pay more attention to action. Social networks are psychologically beneficial primarily because they offer social support

(Jaspal & Breakwel, 2022). Social support has an indirect effect on personal relationships, behaviors, and goals by providing the resources, encouragement, and emotional support needed to navigate challenges and pursue objectives (Bandura, 1997).

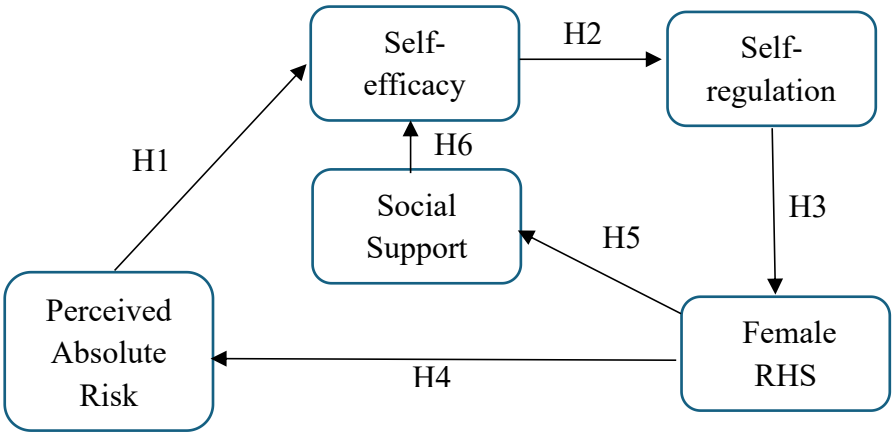

Figure 1: Research Model

Path 1: From perceived absolute risk to self-efficacy.

When conceptualizing risk, most health behavior models and related frameworks emphasize absolute risks. These are deliberative, systematic, cognitive, and rule-based assessments of vulnerability, such as the percentage likelihood of contracting a disease (Ferrer & Klein, 2015). Perceived risk has been shown to significantly influence behavior, particularly regarding health hazards like diseases (Myhre et al., 2020). Risk perception is recognized as a critical predictor of health outcomes in several health behavior models, including the Health Belief Model (HBM; Rosenstock, 1974) and the Risk Perception Attitude Framework (RPA; Rimal & Real, 2003).

Social Cognitive Theory (SCT) centralizes the concept of self-efficacy, which is the belief in one's ability to successfully execute a desired behavior, a crucial factor for maintaining health behaviors (Taba et al., 2022). Both risk perception and self-efficacy are influenced by the information obtained about a crisis (Hassan et al., 2021). High perceived risk can drive behavior change to avoid negative outcomes. While perceived risk can motivate individuals to consider change, self-efficacy determines their confidence in making those (Edmonds et al., 2022). For example, an individual who perceives a high risk of breast cancer and believes they can successfully follow a healthy diet and adhere to regular health checks is more likely to engage in those preventive behaviors. Hassan et al. (2021) indicated a positive relationship between risk perception and self-efficacy.

H1: Perceived absolute risk is positively associated with self-efficacy.

Path 2: From self-efficacy to self-regulation.

Self-regulation has become a crucial topic in the fields of psychology, health, and medicine. It focuses on the active role individuals can take to improve their health and prevent or mitigate the impact of illnesses (Weidner et al., 2016). Self-regulation is the process by which individuals control their thoughts, emotions, and behaviors to achieve long-term goals. It involves managing impulses, delaying gratification, and sustaining attention on tasks (Fan & Cui, 2024). Individuals with high levels of self-efficacy often demonstrate superior self-regulation skills (Etherton et al., 2022). These individuals are more likely to engage in proactive and adaptive self-regulatory behaviors, which contribute to maintaining a healthy state (Lee et al., 2014). Existing research highlights a significant correlation between self-efficacy and self-regulation (Fan & Cui, 2024).

H2: Self-efficacy is positively associated with self-regulation.

Path 3: From self-regulation to female health regulation screening.

Female health regulation and screening encompass a variety of tests and procedures designed to monitor and maintain women's health. Cancer prevention is a primary concern for both women and medical practitioners. Key screenings include the Pap test for cervical cancer and precancerous changes, mammograms for breast cancer, obstetric ultrasounds, colonoscopies, and lung cancer screenings. Ensuring regular healthcare, inclusive of routine cancer screening tests, is crucial for preventing future cancer cases (Adefemi et al., 2024). The purpose of regular cancer examinations is to identify potential cancers at an early stage, before any signs and symptoms appear, allowing for easier and more successful treatment. Numerous effective cancer screening tests are available to detect probable cancers before they fully develop (Ayenigbara, 2023). Effective self-regulation helps in establishing and maintaining health routines, including scheduling and attending regular screenings (Teklehaimanot et al., 2024).

H3: Self-regulation is positively associated with female health regulation screening.

Path 4: From female health regulation screening to perceived absolute risk.

Regular health screenings enhance awareness of one's health status, potentially leading to a more accurate perception of personal health risks (Roux et al., 2022). Women who undergo regular screenings are more likely to be informed about their health, which influences their perceived absolute risk (Huang et al., 2021). During screening appointments, healthcare providers often

discuss risk factors and health outcomes, helping women understand their individual risk profiles and leading to a more informed perception of their absolute risk (Rainey et al., 2019).

Regular screenings can either reassure women of their low risk or prompt early intervention if risks are detected. This process helps manage anxiety related to health uncertainties, contributing to a balanced perception of absolute risk (Huang et al., 2021). Studies have shown that women who engage in regular health screenings tend to have a more realistic and often heightened perception of their absolute risk of developing certain conditions. This correlation is particularly strong in populations with a family history of diseases such as breast cancer (Rainey et al., 2019).

H4: Female health regulation screening is positively associated with perceived absolute risk.

Path 5: From female health regulation screening to social support.

Social support is generally defined as any type of help available to an individual during difficult times and is closely related to the concepts of social integration and social networks (Janowski et al., 2020). Various people and social groups can provide this support, including family members, friends, neighbors, coworkers, therapists, doctors, support groups, and religious communities. Social support is typically divided into different types: emotional, informational, instrumental, tangible, and spiritual support (Jensen et al., 2016). Higher levels of social support are often linked to positive perceptions, helping individuals redefine living with a disease as a personal challenge (Janowski et al., 2020). Studies have found that a cancer diagnosis greatly increases the need for social support, as both medical treatment and the progression of cancer impact nearly every aspect of a patient's life (Szymona-Pałkowska et al., 2016).

H5: Female health regulation screening is positively associated with social support.

Path 6: From social support to self-efficacy.

In the process of adapting to a cancer diagnosis, robust social support can significantly enhance patients' ability to cope with the disease and reintegrate into society (Wang et al., 2022). It can also help improve individual self-efficacy, reduce adverse physical and psychological symptoms, and alleviate negative emotions (Liu et al., 2021). Effective social support has been shown to increase self-efficacy and promote positive coping strategies in children undergoing treatment for malignant tumors, thereby preventing or reducing psychological stress (Janowski et al., 2020). For breast cancer patients, the need for spiritual support is particularly pronounced, whereas other types of support may be more crucial for other medical conditions. Spiritual support is a key predictor of better acceptance of life with the disease, higher quality of life, and fewer depressive symptoms (Wang et al., 2022). Conversely, reduced access to a social network can lead to feelings of loneliness, which may diminish one's ability to acquire information, self-efficacy, and capacity for action during COVID-19 (Stickley et al., 2020). Therefore, providing spiritual support to women post-surgery should be a primary goal of psychological counseling, as it is associated with improved psychosocial adjustment (Jensen et al, 2016).

H6: Social support is positively associated with self-efficacy.

Methods

Study Participants

In May 2024, a nationally representative online survey was conducted in China. Participants were recruited via an online survey. The target respondents were Chinese nationals aged 18 and above who visited the obstetrics and gynecology female visitors in public hospitals and are located in Beijing (9.9%), Shanghai (11.5%), Guangzhou (10.4%), Dali (8.1%), Jinan (5.1%), Chengdu (5.3%), Ningbo (8.1%), Shenyang (6.9%), Xiamen (8.4%), Xi'an (7.6%), Yinchuan (5.8%), Fuzhou (6.2%), Wuhan (6.7%), the cities where the participants are located cover China's first-tier, second-tier and third-tier cities. Out of the 2,432 individuals contacted, 987 completed the survey, resulting in a completion rate of 40.58%. After performing a data quality check, we analyzed 904 responses, all from female participants, with an average age of 32.48 years old. The demographic details of the respondents are provided in Appendix 1.

Measurement

The perceived absolute risk was assessed using three ratio estimation items, which were adopted from Thomas et al., (2024). The three items were: (1) “How would you rate your current risk of developing breast cancer, cervical cancer, endometrial cancer, or ovarian cancer? (From 0 to 10),” (2) “What is the chance that you will develop breast cancer, cervical cancer, endometrial cancer, or ovarian cancer? (From 0 = none/low to 10 = high),” and (3) “What is the likelihood that you will develop breast cancer, cervical cancer, endometrial cancer, or ovarian cancer? (From 0 = 0% to 10 = 100%).” These measures were adapted from Rose and Nagel (2013). Higher scores indicate a greater perceived absolute risk ($\alpha = .92$, $M = 13.45$, $SD = 6.03$).

Health self-efficacy was assessed using five items adapted from Young Lee et al. (2008). Participants indicated their agreement with the following statements in both surveys: "I am

confident I can have a positive effect on my health," "I have set some definite goals to improve my health," "I have been able to meet the goals I set for myself to improve my health," "I am actively working to improve my health," and "I feel that I am in control of how and what I learn about my health" ($\alpha = 0.93$, $M = 3.85$, $SD = 1.06$). Responses were rated on a 6-point scale from 0 (strongly disagree) to 6 (strongly agree).

The TSRQ (Treatment Self-Regulation Questionnaire) was developed by Ryan and Connell (1989) to evaluate autonomous self-regulation in health-related behaviors. It consists of a series of questionnaires designed to understand why individuals engage in or would engage in various health behaviors, such as adopting healthy habits, seeking treatment for an illness, attempting to change unhealthy behaviors, adhering to a treatment plan, or participating in other health-related activities. In this study, four items adapted from the TSRQ were used to assess participants' motives for engaging in health behaviors. The four items included statements such as “Because I feel that I want to take responsibility for my health,” “Because I think it is best for my health,” “Because I have considered it seriously and believe that it is important to many aspects of my life,” and “Because it is in line with my goals of life.” Respondents rated their agreement with these statements on a 6-point scale ranging from 1 (strongly disagree) to 6 (strongly agree). Higher scores on the scale displayed a greater level of attention to digital media ($\alpha = 0.88$, $M =$ $M = 3.90$, $SD = 1.03$).

Social support was assessed using four items adapted from Saracino et al. (2015). These items were rated on a 6-point scale from 1 (strongly disagree) to 6 (strongly agree). An example item included, “I receive the caring from family and friends about health screening.” “If the serious disease is diagnosed during the health screening, The health insurance will pay for my cost.” “Social workers will help me, if I get seriously sick in bed.” “Community members will take care

of me if I get seriously sick in bed, deliver food etc al." A higher score indicated a higher level of screening intention ($\alpha = .90$, $M = 4.13$, $SD = 1.11$).

Female regular health screening was measured by the frequency of self-report screening history based on the participant's specific health problem; the three items were "I think my health situation needs to do regular screening to monitor the potential health risk." "I think I am closely following the doctor's recommendations for specific periodic health screening based on my health condition" and "I can strictly follow the same regular health screening schedule as before if I move to another city." with these statements rated on a 6-point scale from 1 (strongly disagree) to 6 (strongly agree). Higher scores reflect a greater perceived absolute risk ($\alpha = 0.81$, $M = 4.20$, $SD = 1.07$).

Data Analysis

A confirmatory factor analysis (CFA) was initially conducted to assess the dimensionality of the proposed concepts in the hypothesized model (see Appendix 2) and to establish the combined measurement model (see Appendix 3). Following this, structural equation modeling (SEM) using the maximum likelihood estimation method was employed to construct the structural model and test each hypothesis. Both CFA and SEM were performed with the lavaan package in R (Rosseel, 2012). Demographic variables were controlled to reduce confounding effects.

Model fit was evaluated using several criteria: (1) model chi-square (χ^2), (2) relative chi-square (χ^2/df), (3) comparative fit index (CFI), (4) Tucker-Lewis index (TLI), and (5) root mean square error of approximation (RMSEA). A good model fit is indicated by a relative chi-square value between 1.0 and 5.0. Additionally, CFI and TLI values should fall between 0.90 and 1.00. For RMSEA, a value below 0.05 is preferred (Hu & Bentler, 1999).

Result

We employed a comprehensive confirmatory factor analysis (CFA) method to test the measurement model as shown in Table 1, it exhibited a good fit (χ^2 = 725.04, df = 174, χ^2/df = 2.09, CFI = .94, TLI = .93, RMSEA = .41). The model accounted for 38.6% (R^2 = .386) of the variance in self-regulation, 38.0% (R^2 = .380) in female regular health screening (RHS), 27.9% (R^2 = .279) in perceived absolute risk, 25.4% (R^2 = .254) in social support, and together perceived absolute risk and social support explained 40.3% (R^2 = .403) of the variance in health self-efficacy, while perceived absolute risk explained 29.7% (R^2 = .297) of the variance in health self-efficacy, social support explained 30.8% (R^2 = .308) of the variance in health self-efficacy

Analyzing each pathway, the results (Figure 2) revealed that perceived absolute risk was positively associated with self-efficacy (β = .458, $p < .001$), supporting H1. Health self-efficacy was positively associated with self-regulation (β = .525, $p < .001$), thus supporting H2. Similarly, self-regulation positively predicted attention to female regular health screening (RHS) (β = .518, $p < .001$), supporting H3. Figure 2 showed that female regular health screening (RHS) was positively associated with perceived absolute risk (β = .436, $p < .001$), supporting H4. Additionally, social support was positively linked to health self-efficacy (β = .466, $p < .001$), supporting H5.

Table 1. Summary of Model fit for structural Model.

Model	x^2	p	df	x^2/df	CFI	TLI	RMSEA
Structural Model	1021.61	.000	489	2.089	.937	.930	.041

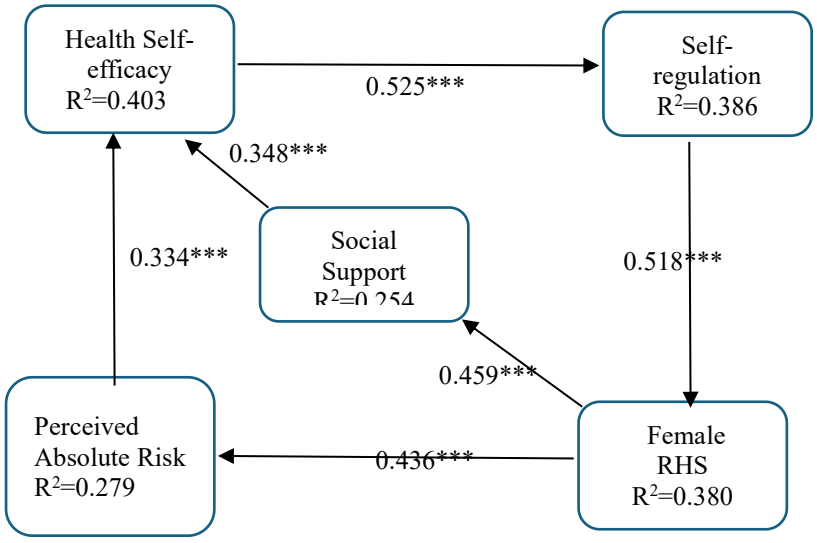

Figure 2: Research Model Path Diagram (***p<0.001).

Discussion

This study aimed to understand the interrelationships among perceived risk, self-efficacy, self-regulation, social support, and health screening behaviors, with a particular focus on how these factors influence and reinforce each other in the context of women's health regulation. First, this study fulfills the gap between complex interrelationships and comprehensive models that examine how these factors interact and influence each other simultaneously. The results showed a good model fit and provided significant findings. The results of this study explained less than half of the variance in each outcome variable, suggesting that the model needs more factors and jointly explains the direct (perceived absolute risk) and indirect effects (social support) on cognitive mechanisms to change women's health behaviors.

Second, we shed light on context-specific insights, which focused on general health behaviors or specific populations (women of childbearing age with high risk of disease). The respondents' average age is 32 years old, and more than half of respondents had a disease history of a benign

tumor on the breast or uterus, at the same time they had a family cancer history. Patients with benign uterine and breast tumors are getting younger year by year. From 2010 to 2020, a survey by the Shanghai Insurance Company in China showed that the number of patients increased sharply year by year, and the probability of benign tumors becoming malignant increased year by year (Liu et al., 2021). Among the respondents who visited the Obstetrics and Gynecology department, the majority were females with higher education. Additionally, those who regularly underwent regular health screening predominantly had stable incomes. Among these individuals, civil servants were the most likely to engage in regular health screening to prevent the occurrence of malignant diseases. This result is consistent with the conclusion of the European study. In the cross-cultural context, distinct differences emerged in the attitudes of women toward risk-based breast cancer screening and prevention. Notably, Swedish respondents exhibited a stronger preference for autonomous participation than British women due to the higher education they hold. Previous research indicates that medical decision-making is influenced by factors such as gender, age, and education, with younger, highly educated women showing a greater desire for autonomy (Robinson & Thomson, 2001). Our findings are consistent with trends observed in the Netherlands, the United Kingdom, and Sweden (Rainey et al., 2019).

Third, we combined several theories (such as Social Cognitive Theory, Health Belief Model, and Self-Determination Theory) to create a comprehensive model aimed at better predicting women's health screening behaviors. The findings suggest that believing in one's risk of health problems is positively linked to self-efficacy, or the confidence in one's ability to take action. This self-confidence is proposed to be positively related to self-regulation, the ability to control behavior

and impulses to achieve long-term goals. This ability to manage actions and impulses is, in turn, positively associated with women's participation in health screening, which refers to the behaviors and practices women engage in to maintain their health; engagement in health regulation behaviors is hypothesized to be positively associated with perceived absolute risk, potentially suggesting a feedback loop where health behaviors influence risk perception; engagement in health regulation behaviors is also hypothesized to be positively associated with the level of social support received, indicating that women who participate in health screening are likely to have more social support; the presence of social support is hypothesized to be positively associated with self-efficacy, suggesting that having support from others can boost one's confidence in managing health-related tasks. Previous research conducted in European countries on women's perceptions of risk-based screening and prevention has been grounded in behavioral theory (Rainey et al., 2019). These studies indicate that women's views are best explained by the Health Belief Model (HBM) and Self-determination Theory (SDT) (Hagger et al., 2009). These models suggest that people evaluate the costs and benefits of certain health behaviors by considering aspects like the psychological factors, social environment, personal autonomy, and self-efficacy (Rainey et al., 2019).

Implications, Limitations, and Future Directions

This paper provides significant insights into health communication theory and health promotion practices. Theoretically, we provided contributions to the integrated model of SCT scholarship. The significant contribution is that we introduced the loop effect from perceived absolute risk and social support to female health regular screening, it triggers the process of psychology motivation-behavior-- medical decision making. In terms of praxis, our findings suggest that

public health practitioners should emphasize messages focused on absolute personal risk in their communications. Health education campaigns should leverage the influence of close social networks to address health inequalities and facilitate behavioral change, particularly among hard-to-reach and high-risk populations. Additionally, government funding for risk-based health screening projects should be increased to make these processes making the process easy-touch and burden-free.

This study exposes several limitations. While the study establishes associations between various constructs, the underlying mechanisms through which self-efficacy, perceived risk, and social support influence health behaviors are not fully explored. Other psychological constructs such as emotional regulation, resilience, or perceived behavioral control might also play significant roles in health screening behaviors and could be integrated into future models. Besides, the social dimension may be focused on the health system's efficiency and satisfaction, Future research could delve deeper into these mechanisms, possibly using qualitative methods to gain more nuanced insights.

Conclusion

Given the rising incidence of breast, cervical, ovarian, and endometrial cancers among Chinese women of childbearing age, it is imperative for health communication researchers and practitioners to utilize diverse communication strategies to monitor and prevent these malignancies. In our study, we proposed and tested an integrated social cognitive theory (SCT) Model from the perspective of health crisis and social support, specifically within the context of multiple cancers in women, achieving a good model fit. We urge future research to further

investigate the critical role of SCT in health communication, aiming to provide a more nuanced understanding of social support and healthcare systems.

Note

1. The factor loading values for the measured items and the correlation matrix (Appendix 2) are provided in the supplemental file.

Disclosure statement

The author(s) reported no potential conflicts of interest.

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Appendix 1

Demographic Information (n=904 Female)

Age	n	Percentage
Average Age:32.48	/	/
Standard Deviation: 8.54	/	/
Education Levels		
<Primary School	10	1.1%
Middle School	38	4.2%
High School	64	7.1%
College Education	239	26.4%
Bachelor	402	44.5%
Master or Ph.d	151	16.7%
Employment Types:		
Government Employees	358	39.6%
Private Company Employees	267	29.6%
Entrepreneurs	105	11.6%
Unemployed Individuals	23	2.5%
Students	46	5.1%
Retirees	105	11.6%
Personal Benign Tumor History (breast or uterus)		
Yes	512	56.6%
No	392	43.4%
Personal Cancer History		
Yes	24	2.7%
No	880	97.3%
Family Cancer History		
Yes	489	54.1%
No	415	45.9%

Appendix 2

Correlations Analysis Result (n = 904)

	(1)	(2)	(3)	(4)	(5)
(1) Perceived absolute risk	1				
(2) Self-efficacy	.314***	1			
(3) Self-regulation	.307***	.291***	1		
(4) Social support	.266***	.304***	.273***	1	
(5) Female RHS	.598***	.248***	.166***	.247***	1

Appendix 3

Measurement Model CFA Results (n = 904)

Variable	**Item number**	**Normalized load**	**CR**	**AVE**
Perceived absolute risk	A1	0.874	0.907	0.761
	A2	0.868		
	A3	0.876		
Health self-efficacy	B1	0.764	0.867	0.571
	B2	0.646		
	B3	0.813		
	B4	0.764		
	B5	0.776		
Self-regulation	C1	0.618	0.868	0.627
	C2	0.851		
	C3	0.921		
	C4	0.746		
Social support	D1	0.884	0.921	0.746
	D2	0.856		
	D3	0.862		
	D4	0.855		
Female RHS	E1	0.847	0.890	0.731
	E2	0.864		
	E3	0.856		