Cancer Management and Research

Elevate Series

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ORIGINAL RESEARCH

Benefit Finding: The Mediator Linking Social Support to Self - Management Efficacy in Gynecological Cancer

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Purpose: This study aimed to investigate the relationships among benefit finding (BF), self-management efficacy, and social support in patients with gynecologic cancers.

Methods: A total of 180 patients with gynecological cancer were selected using a convenience sampling methodology from Maternal and Child Health Hospital in Shenzhen, China. The data collection tools included sociodemographic and disease-related information, the Chinese Version of the Benefit Finding Scale (BFS), the Chinese Self-Management Efficacy Scale for Cancer Patients (C-SUPPH), and the Social Support Rating Scale (SSRS). Data analysis involved descriptive statistics, independent-samples t-tests, one-way ANOVA, Pearson correlation analysis, and hierarchical multiple regression. The SPSS 29.0 and the PROCESS 4.2 macro were used to validate the mediating effects.

Results: BF was positively correlated with social support ($r = 0.235$, $P < 0.01$) and self-management efficacy ($r = 0.453$, $P < 0.01$). Social support also showed a correlation with self-management efficacy ($r = 0.268$, $P < 0.01$). BF partially mediated the relationship between social support and self-management efficacy, accounting for 36.28% of the total effect.

Conclusion: Self-management efficacy in patients with gynecological cancers is at a moderate level. Social support indirectly influences self-management efficacy through BF. Enhancing BF could serve as an effective strategy to improve self-management efficacy in this patient population.

Keywords: gynecological cancers, self-management efficacy, benefit finding, social support, mediation analysis

Introduction

Gynecologic cancers (GCs) are malignancies of the female reproductive system, including cervical, ovarian, endometrial, vulvar, and vaginal cancers.[1] According to the 2022 Global Cancer Data Statistics, GCs accounted for 1.47 million new cases and 680,000 deaths worldwide.[2] The incidence and mortality of GCs have been steadily increasing, with an increasing prevalence among younger individuals. In China, GCs represented approximately 5% of all new cancer cases, with the number of cases projected to reach 400,000 by 2030.[3,4]

Due to the unique characteristics of the affected anatomical areas, patients with GCs often face multiple challenges, including sexual dysfunction, infertility, and body image disturbances.[5] These issues are frequently accompanied by psychological problems such as shame, fear, depression, and anxiety, all of which severely impact patients' self-management efficacy and overall physical and mental health.[6,7] On the other hand, in traditional Chinese norms, if someone has a reproductive system disease, it will be considered that the patient's private life is disorderly. Perceptions will prevent patients from seeking help from outside, and even delay medical treatment, causing the condition to deteriorate. Self-management efficacy refers to a patients' confidence in their ability to manage their disease and adapt their lifestyle to address disease-related symptoms, treatment demands and physical and psychological changes.[8] Studies suggest that higher self-management efficacy significantly reduces anxiety and depression while improving quality of life, underscoring its importance as a focus of cancer care.[9]

Received: 14 May 2025
Accepted: 5 September 2025
Published: 12 September 2025

Benefit finding refers to an individual to identify positive and meaningful aspects during the process of adapting to disease.[10] According to cognitive adaptation theory, individuals facing stressful events, such as illness, adapt by reshaping their perceptions of the situation. Benefit finding emerges from this cognitive adjustment process.[11,12] In a longitudinal study of colorectal cancer patients, patients had moderate-to-high levels of BF at baseline, and they felt more benefits over time, which were reflected in positive feelings about life prospects, close interpersonal relationships, and coping skills.[13] Therefore, paying attention to patients' BF in the context of the disease is conducive to improving their perception of social support and coping capabilities. Additionally, patients with a higher capacity for benefit finding are more effective at self-management and exhibit great confidence in confronting their disease through positive health behaviors.[14]

Social support, defined as the emotional and material assistance received from social networks, including family, relatives and friends, play a critical role in relieving psychological distress, enhancing resilience, and improving self-management efficacy.[15,16]

External resources like social support can shape an individual's cognition processes, influencing their perception and evaluation of the disease.[17] Social support often encourages patients to adopt a more positive outlook, fostering benefit finding and promoting proactive behavioral and psychological adjustments to manage the disease.[18]

Given these dynamics, we hypothesize that benefit finding mediates the relationship between social support and self-management efficacy. However, the relationship among benefit finding, social support, and self-management efficacy remains underexplored, particularly regarding the mediating role of benefit finding as a positive psychological construct. Thus, this study aims to investigate from the perspective of positive psychology, the following: (1) the level of self-management efficacy among patients with gynecological cancers; (2) the correlations among benefit finding, social support, and self-management efficacy; (3) the mediating role of benefit finding in the relationship between social support and self-management efficacy. The findings are intended to to provide theoretical insights and practical guidance for healthcare professionals in offering effective psychological support to patients with gynecological cancers.

Materials and Methods

Participants

The study selected patients admitted to the gynecologic oncology ward of Shenzhen Maternal and Child Health Hospital between November 2023 and July 2024 using a convenience sampling method. The inclusion criteria were as follows: (1) diagnosed with stage I–III gynecological cancer; (2) aged 18–75 years; (3) capable of understanding and independently completing the questionnaires; and (4) willing to participate voluntarily and sign informed consent. The exclusion criteria included: (1) cognitive disorders or mental illnesses; and (2) other serious life-threatening illnesses or psychological and cognitive impairments.

According to the Kendall sample-size estimation method, the sample size should be 5 to 10 times the number of independent variables.[19] This study included a total of 24 independent variables. Considering a 30% non-response rate, the final sample size was 180 cases.

Measurements

General Information Questionnaire

A self-designed general information questionnaire collected data in two parts: (1) socio-demographic information, including age, religion, education level, marital status, occupation, place of residence, monthly per capita household income, and type of health insurance; and (2) disease-related factors, including cancer type, stage, treatment modality, and time since diagnosis.

Chinese Version of the Benefit Finding Scale (BFS)

The Chinese version of BFS translated by Liu Chunchun et al[20] was used in this study. The BFS comprises 22 items distributed across 6 dimensions: acceptance (items 1–3), family relationships (items 4–5), worldview (items 6–9), personal growth (items 10–16), social relationships (items 17–19), and health behaviors (items 20–22). Each item is rated on a 5-point Likert scale with total scores ranging from 22 to 110. Higher scores indicate greater levels of benefit finding. The scale demonstrated excellent internal consistency, with a Cronbach's α 0.95.

Chinese Self-Management Efficacy Scale for Cancer Patients (C-SUPPH)

The C-SUPPH, revised by Qian,[8] measures cancer patients' self-management efficacy. The scale contains 28 items across 3 dimensions: positive attitude, self-decision making, and self-stress reduction. Each item is scored on a 5-point Likert scale, yielding total scores ranging from 28 to 140. Higher scores reflect greater confidence in disease self-management. The Cronbach's α for this scale was 0.973, indicating high reliability.

Social Support Rating Scale (SSRS)

The SSRS, developed by Xiao,[21] evaluate social support through 3 dimensions: objective support, subjective support, and social support utilization. The scale includes 10 items, with total scores ranging from 12 to 66. Higher scores denote higher levels of social support. The SSRS demonstrated high internal consistency, with a Cronbach's α of 0.92.

Data Analysis

The electronic questionnaire was created and distributed via SoJump. For statistical analyses, SPSS version 29.0 was employed. The analytical methods included: (1) Descriptive statistics were utilized to summarize general and other participant data; (2) Pearson correlation analysis was employed to examine correlations among benefit finding, self-management efficacy, and social support; (3) The mediating role of benefit finding in the relationship between social support and self-management efficacy was analyzed using hierarchical multiple regression. The significance of the mediating effect was tested with Hayes's[22] PROCESS macro for SPSS (Model 4, bootstrap sample size = 5000), and a significance threshold of $P < 0.05$ was applied.

Ethical Considerations

The study was approved by the Ethics Committee of Shenzhen Maternal and Child Health Hospital (SFYLS[2023]039). Informed consent was obtained from all participants in written form. Each patient signed an informed consent form that clearly outlined the study's purpose, procedures, potential risks and benefits. Furthermore, it was explicitly stated that the research data would be maintained as completely anonymous and coded to protect the participants' privacy. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

Results

General Characteristics of Participants

The mean age of the 180 patients with gynecologic cancer was 47.32 ± 11.38 years. Among the demographic and clinical variables examined, the benefit finding score significantly differed only across occupational groups ($P < 0.05$). Detailed results are presented in Tables 1 and 2.

Table 1 Univariate Analysis of BF in Patients with Gynecological Cancer (N = 180)

Variable	N (%)	M±SD	*t/F*	*P*
Age (years)			2.464	0.088
19-44	79 (43.9%)	60.20±14.79		
45-59	71 (39.4%)	63.95±13.31		
60-75	30 (16.7%)	65.90±10.58		
Religious beliefs			−1.570	0.118
No	152 (84.4%)	61.94±13.27		
Yes	28 (15.6%)	66.35±15.62		
Education level			0.433	0.785
Primary school and below	21 (11.7%)	62.47±9.60		
Junior high	53 (29.4%)	63.60±12.53		
Senior high or polytechnic school	40 (22.2%)	63.10±13.80		
College degree	31 (17.2%)	63.48±13.03		
Bachelor and above	35 (19.4%)	59.97±17.79		

(*Continued*)

Table 1 (Continued).

Variable	N (%)	M±SD	*t/F*	*P*
Marital status			0.405	0.668
Unmarried	19 (10.6%)	60.00±11.15		
Married	129 (71.7%)	63.03±14.58		
Divorced or Widowed	32 (17.8%)	62.56±11.40		
Occupations			2.999	0.008*
Farmer	10 (5.6%)	66.50±13.52		
Worker	25 (13.9%)	59.24±15.63		
Enterprises and institutions	22 (12.2%)	59.50±15.07		
Professional and technical personnel	17 (9.4%)	58.88±11.99		
Self-employment	12 (6.7%)	73.58±14.69		
Unemployed	46 (25.6%)	60.13±10.25		
Retired	48 (26.7%)	66.02±13.67		
Residence			0.003	0.998
Rural area	14 (7.8%)	62.64±15.10		
Town	166 (92.2%)	62.63±13.64		
Monthly family income (RMB)			0.650	0.584
<5000	52 (28.9%)	61.26±11.43		
5000-10,000	74 (41.1%)	63.04±12.60		
10,001-15,000	38 (21.1%)	62.05±15.71		
>15,000	16 (8.9%)	66.56±19.78		
Insurance status			−1.425	0.156
No	4 (2.2%)	53.00±10.03		
Yes	176 (97.8%)	62.85±13.73		
Tumor types			1.250	0.312
Cervical cancer	78 (43.3%)	61.50±12.05		
Endometrial cancer	39 (21.7%)	66.54±14.44		
Ovarian cancer	56 (31.1%)	62.21±13.20		
Other	7 (3.9%)	56.86±25.86		
Disease staging			1.086	0.357
Carcinoma in situ	20 (11.1%)	57.45±16.11		
Istage	48 (26.7%)	63.35±13.07		
IIstage	54 (30.0%)	63.50±13.30		
III stage	58 (32.2%)	63.01±13.69		
Duration of disease (months)			1.885	0.155
<6	110 (61.1%)	63.65±13.95		
6~12	54 (30.0%)	59.72±13.21		
>12	16 (8.9%)	65.50±12.84		
Treatment modality			0.912	0.415
Chemotherapy	11 (6.1%)	67.36±20.33		
Operation and chemotherapy	115 (63.9%)	61.53±12.50		
Other	54 (30.0%)	64.02±14.54		

Note: * P < 0.05.
Abbreviation: BF, benefit finding.

Scores for BF, Self-Management Efficacy, and Social Support

The mean scores for the key study variables were as follows: benefit finding, 62.63 (13.71); self-management efficacy, 92.04 (17.55); and social support, 42.63 (7.17). Detailed descriptive statistics are showed in Table 3.

Table 2 Multiple Comparisons of BF Scores in Different Occupational Groups (N = 180)

Group 1 vs Group 2	Mean Difference	SE	Cohen's d	*P*
Self-employment vs Worker	14.34	4.66	0.47	0.002
Self-employment vs Enterprises and institutions	14.08	4.76	0.48	0.004
Self-employment vs Professional and technical personnel	14.70	5.00	0.55	0.004
Self-employment vs Unemployed	13.45	4.30	0.59	0.002
Retired vs Unemployed	5.89	2.74	0.25	0.033
Retired vs Worker	6.78	3.27	0.23	0.040

Table 3 Descriptive Statistics of the Measured Variables (N = 180)

Variable	Mean	SD	Range
BF	62.63	13.71	22-110
Personal growth	19.08	5.02	7-35
Health behaviors	10.38	2.30	3-15
Social relations	9.46	2.29	3-15
Worldview	9.15	2.59	4-20
Acceptance	8.77	2.63	3-15
Family relations	6.58	1.75	2-10
C-SUPPH	92.04	17.55	28-140
Positive attitude	49.30	9.68	15-75
Self-decompression	32.42	6.78	10-50
Self-determination	10.32	1.92	3-15
SSRS	42.63	7.17	12-66
Subjective support	24.80	4.44	8-32
Objective support	10.56	2.60	1-22
Social support exploitation	7.27	1.95	3-12

Abbreviations: BF, benefit finding; C-SUPPH, self-management efficacy; SSRS, social support.

Correlation Analysis

Positive correlations were observed among the three key variables: benefit finding, self-management efficacy, and social support (r = 0.453, r = 0.253, and r = 0.268, respectively). Detailed results are showed in Table 4.

Mediating Effect of BF on the Relationship Between Social Support and Self-Management Efficacy

To assess the mediating effect of benefit finding, a three-step regression analysis was conducted: In step 1, social support (independent variable) significantly influenced self-management efficacy (dependent variable) ($\beta = 0.268$, $P < 0.001$). In

Table 4 Correlations Among BF, C-SUPPH, and SSRS (N = 180)

	BF	C-SUPPH	SSRS
Patient's BF	1		
C-SUPPH	0.453**	1	
SSRS	0.235**	0.268**	1

Note: **P < 0.01.
Abbreviations: BF, benefit finding; C-SUPPH, self-management efficacy; SSRS, social support.

https://doi.org/10.2147/CMAR.S540258

Table 5 Mediating Effects of BF on the Relationship Between SSRS and C-SUPPH (N = 180)

Step	Independent Variables	Dependent Variables	B	SE	β	R^2	F	P
1	SSRS	C-SUPPH	0.656	0.177	0.268	0.072	13.759	<0.001
2	SSRS	BF	0.449	0.139	0.235	0.055	10.394	<0.01
3	SSRS	C-SUPPH	0.418	0.166	0.171	0.233	26.892	<0.05
	BF	C-SUPPH	0.529	0.087	0.413			<0.001

Abbreviations: BF, benefit finding; C-SUPPH, self-management efficacy; SSRS, social support.

Table 6 Mediatory Model of BF (N = 180)

Effects	Paths	Effect values	95% CI	Proportion of Effect (%)
Total effects	SSRS→C-SUPPH	0.656	0.307–1.005	
Direct effects	SSRS→C-SUPPH	0.418	0.091–0.745	63.72
Indirect effect	SSRS→BF→C-SUPPH	0.238	0.050–0.512	36.28

Abbreviations: BF, benefit finding; C-SUPPH, self-management efficacy; SSRS, social support; CI, confidence interval.

step 2, social support significantly affected benefit finding (mediating variable) (β = 0.235, P = 0.002). In step 3, regression analysis was performed with both social support and benefit finding as independent variables and self-management efficacy as the dependent variable. Both social support (β = 0.171, P = 0.013) and benefit finding (β = 0.413, P = 0.001) significantly predicted self-management efficacy. These results confirm the mediating role of benefit finding. The Durbin–Watson statistic ranged from 1.578 to 1.975, indicating no residuals autocorrelation. Additionally, tolerance values (0.945–1.000) and variance inflation factors (1.000–1.058) indicated the absence of multicollinearity, confirming the suitability of the model for regression analysis. Detailed results are showed in Table 5.

Using Model 4 in PROCESS 4.0, we further validated the mediating effect of benefit finding between social support and self-management efficacy. Social support (independent variable), benefit finding (mediator), and self-management efficacy (dependent variable) were analyzed using 5000 bootstrap samples and 95% confidence intervals. The results indicated that benefit finding partially mediated the relationship between social support and self-management efficacy, with a mediating effect value of 0.238, accounting for 36.28% of total effect. The 95% confidence interval (0.050–0.512) excluded 0, indicating statistical significance. Detailed results are presented in Table 6 and Figure 1.

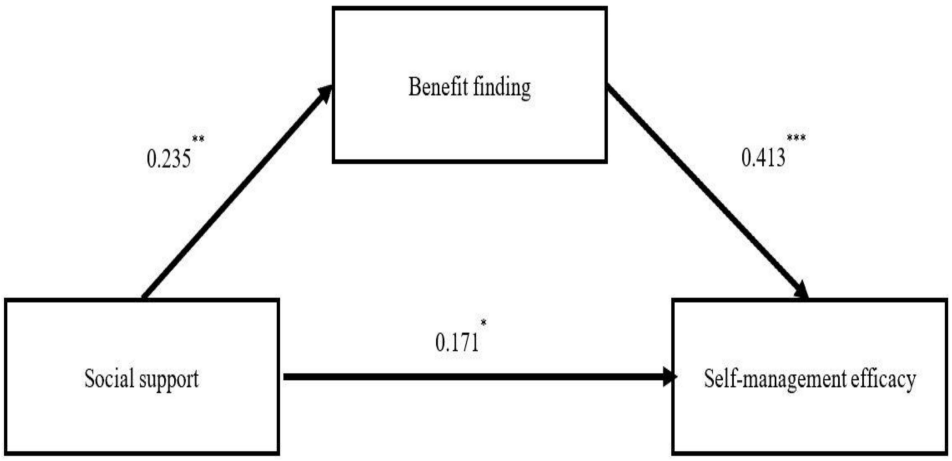

Figure 1 Mediatory model of benefit finding for the relationship between social support and Self-management efficacy.
Note: ***P < 0.001, **P < 0.01, *P < 0.05.

Discussion

Levels of BF, Self-Management Efficacy, Social Support in Patients with Gynecologic Cancer

The mean benefit finding score in this study (mean = 62.63, SD = 13.71) was moderate, aligning with the finding of Manner.[19] However, previous studies have reported inconsistent results regarding factors influencing BF in cancer patients.[23–25] One-way ANOVA indicated significant differences in BF scores across various occupational groups. Post-hoc analysis showed that self-employed individuals have significant differences with unemployed, workers, staff of enterprises and institutions, and professional technical personnel. Similarly, retirees have significant differences with the unemployed and workers. These findings may reflect that self-employed individuals and retirees, being outside highly competitive work environments and having stable incomes, experience less psychological burden and are more likely to undergo positive psychological changes when confronted with cancers.

Among the BF dimensions, the highest scores were observed in health behavior changes, indicating that patients are motivated to take positive adjustments to maintain their health, such as improved dietary habits and better compliance with medical advice. Conversely, the lowest scores were in the worldview dimension, possibly because patients primarily focus on the immediate impacts of the disease, such as survival, rather than long-term life goals. Cancer, often viewed as a psychosomatic disorder, can diminish patients' sense of meaning and value in life. BF can help patients develop physiological and psychosocial resilience during cancer-related stress and mitigate negative emotions.[26] Healthcare providers should prioritize enhancing patients' cognitive framework to foster benefit finding and support their mental and physical health.

The self-management efficacy score in this study (mean = 92.03, SD = 17.54) was moderate but lower than that reported in breast cancer patients.[27] This discrepancy may result from side effects of treatment for gynecologic cancers, such as long-term indwelling urinary catheters, lymphedema and constipation, which require more time and effort to manage. Second, the 5-year survival rate of gynecologic cancer patients is lower than that of breast cancer patients, which undermines patients' confidence in their recovery. Regular assessments of patients' self-management efficacy and influencing factors are recommended, alongside the implementation of individualized nursing interventions to improve self-efficacy.[28,29]

The social support score was (42.63±7.17) was moderate but slightly lower than that reported in patients with other cancers.[30] Factors contributing to this include the impact of gynecologic cancers on sexual function, fertility, and the urinary system. Traditional Chinese cultural values, which place high importance on fertility and usually discourage open discussion about sexual health, may further limit patients' willingness to seek support. Higher levels of social support have been shown to foster positive societal perceptions and encourage emotional interactions with family, healthcare professionals, and friends, all of which benefit the patient's psychosocial well-being.

Correlation Between Benefit Finding, Self-Management Efficacy, and Social Support

Correlation analysis revealed a positive association between self-management efficacy and benefit finding ($r = 0.453$, $P < 0.01$). This interdependence suggests that higher self-management efficacy is linked to higher levels of benefit finding, while greater BF reinforces self-management efficacy. Patients who derive positive meaning from their disease are more motivated and confident in their self-management behaviors.[31] Successful self-management, such as symptom control or improved quality of life, further improves patients' ability to view their disease in a positive light, fostering personal growth and a reshaping of values.[32,33]

Social support also plays a crucial role in promoting benefit finding.[34] The positive correlation between social support and benefit finding scores ($r = 0.235$, $P < 0.01$) indicates that patients with greater social support are more likely to derive positive meaning from their illness.[35] As Conley suggested, emotional support enables patients to find positive aspects in their health challenges.[36]

Additionally, social support was positively correlated with self-management efficacy ($r = 0.268$, $P < 0.01$), consistent with previous research.[37] Patients with higher self-management efficacy tend to have more optimistic attitudes, better self-management skills, and enhanced communication abilities. Social support, inturn, bolsters their confidence and facilitates these behaviors.[38,39]

Women are expected to take on more caring responsibilities in society and may experience greater emotional stress, self-neglect, increased psychological stress, and conflicts between their roles and identities after illness. These factors affect patients' access to social support, disease perception, health behavior and treatment compliance, and indirectly affect individuals' perceived support and BF.

Healthcare professionals should not only address the physical aspects of gynecologic cancers but also focus on fostering positive psychological adaptation. This includes helping patients discover the beneficial aspects of their disease and enhancing their self-management abilities. Coordinating resources to provide sufficient social support is also crucial for promoting patients' recovery and overall wellbeing.

BF as a Partial Mediator Between Social Support and Self-Management Efficacy

The mediation analysis in this study revealed that the mediating effect of BF accounted for 36.28% of the total effect. This indicates that benefit finding partially mediates the relationship between social support and self-management efficacy. Social support for gynecologic cancer patients directly influences self-management efficacy while also exerting an indirect influence through BF.

BF involves identifying positive and meaningful aspects through cognitive adaptation when facing negative events such as illness. According to cognitive adaptation theory, individuals adjust their mental state through cognitive processes when confronting stress, which benefits finding representing a positive outcome of these adaptations.[40] Social support, as a vital external resource, significantly influences these cognitive processes. Positive perceptions derived from social support encourage proactive self-management behaviors, thereby enhancing self-management efficacy.

Cultural factors may also impact the extent to which patients leverage support. For instance, Chinese cultural norms, which of the favor subtle and restrained communication, may lead individuals to be hesitant in discussing sensitive topics or expressing emotions openly. Additionally, traditional perceptions linking reproductive system diseases to personal indiscretions may discourage patient seeking timely medical assistance or emotional support. This hesitancy can delay interventions and exacerbate their condition.

To address these barriers, it is essential to strengthen social support systems, foster benefit finding, and provide training in self-management skills. In outpatient follow-up or nurse-led education courses, on the one hand, face-to-face session can be implemented to teach patients strategies to cope with disease-related stress, such as mindfulness training and positive psychological exercises, etc. On the other hand, peer support groups or online communities can also be established to integrate patient self-management education, thereby enhancing patients' benefit finding from the disease through multi-dimensional intervention. Such measures can significantly improve the self-management efficacy of gynecologic cancer patients, ultimately enhancing their recovery outcomes and quality of life.

Strengths and Limitations

This study investigated the levels of BF, social support, and self-management efficacy in patients with gynecologic cancer and explored the relationships among these variables. The findings offer foundational data for designing targeted care interventions.

However, the study has some limitations. First, the relatively small sample size from a single hospital may limit the generalizability of the mediation effect model. Second, as a cross-sectional study, it cannot establish causal relationships between variables. Also, since all the data came from self-report scales, there's a chance of social desirability bias. Furthermore, while this study demonstrated that BF partially mediates the relationship between social support and self-management efficacy, other potential mediating variables remain unexplored.

Future research should involve a larger sample sizes and adopt longitudinal designs across multiple centers to examine dynamic relationships and confirm causality among benefit finding, social support, and self-management efficacy. Additionally, exploring other potential mediators could provide a more comprehensive understanding of the mechanisms underlying these relationships, offering a stronger theoretical basis for nursing interventions.

Conclusion

This study found that self-management efficacy among gynecologic cancer patients was moderate and positively correlated with benefit finding and social support. Moreover, BF was identified as a partial mediator between social support and self-management efficacy. By exploring the mechanisms of these interactions, the findings provide new perspectives on the psychological and behavioral responses of patients during their disease journey. Healthcare professionals can use this knowledge to design clinical interventions aimed at enhancing patients' self-management efficacy by fostering benefit finding. Such approaches hold promise for improving both the quality of life and clinical outcomes for patients with gynecologic cancers.

Abbreviations

BF, benefit finding; GCs, gynecologic cancers; C-SUPPH, self-management efficacy; SSRS, social support.

Data Sharing Statement

The datasets generated and/or analysed during the current study are not publicly available due to confidentiality issues but are available from the corresponding author on reasonable request. Liyuan Sun (liyuandali@126.com) should be contacted if someone wants to request the data from this study.

Ethical Approval

Approval was obtained from the Ethics Committee of Shenzhen Maternal and Child Health Hospital (SFYLS[2023]039).

Acknowledgments

We thank all the participants in this study.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

This work was funded by the 2022 Shenzhen Science and Technology Innovation Commission Basic Research General Project(No. JCYJ20220531102612029).

Disclosure

All authors declare no conflicts of interest in this work.

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