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Resilience and self-efficacy as supportive resources in accepting a spouse's cancer

Coping strategies as parallel mediators

Abstract

Associations between resilience, self-efficacy, and coping strategies play an important role in the process of accepting the disease in cancer patients by their spouses. This study aims to examine whether coping strategies act as parallel mediators between resilience, self-efficacy, and the acceptance of the partner's illness by the spouse. Two hundred and thirty-two people were examined: 106 women ($M = 55.36$, $SD = 14.13$) and 126 men ($M = 62.15$, $SD = 11.55$). Their ages ranged from 24 to 85 years ($M = 59.06$, $SD = 13.20$). Questionnaires measuring resilience, self-efficacy, coping, and illness acceptance were utilized. Correlational and mediational analyses were employed to examine the mediation effects. The findings demonstrated that resilience and self-efficacy were positively correlated with both the overall score of illness acceptance and its three dimensions (satisfaction with life, reconciliation with the disease, and self-distancing from the disease) in spouses of cancer patients. Furthermore, coping strategies were positively associated with illness acceptance. The main result revealed that problem-focused coping and meaning-focused coping served as parallel mediators in the relationship between resilience and self-efficacy with illness acceptance. This suggests that the way in which spouses cope with the stress caused by their partners' cancer determines the utilization of supportive resources in accepting the partner's illness.

Keywords: resilience, self-efficacy, spouses of cancer patients, cancer, coping strategies, illness acceptance.

1. Introduction

Personal resources, such as resilience and self-efficacy, have a significant impact on accepting disease and can influence individuals' ability to cope with and adapt to illness (Steward & Yuen, 2011, p. 205). This becomes particularly evident in the case of cancer, which involves numerous adverse changes in thinking and emotions, as well as disruptions in family and social relationships (Lau *et al.*, 2021, p. 6). Coping with the stress of the cancer situation also depends significantly on an individual's resources, including resilient and self-efficacious attitudes. The interaction of the aforementioned factors plays an important role in the case of either spouse's cancer (Li *et al.*, 2018, p. 82).

1. 1. Resilience and self-efficacy as supportive resources and their role in illness acceptance

Resilience refers to the ability to withstand adversity and bounce back from it (Herrman *et al.*, 2011, p. 259), while self-efficacy refers to an individual's belief in their ability to accomplish specific tasks and goals (Maddux and Gosselin, 2012, p. 199). From a psychological perspective, resilience and self-efficacy can be regarded as personal resources that share several commonalities in their underlying concepts and their impact on individuals' well-being and ability to accept illness. Both concepts emphasize an individual's belief in their ability to influence and control outcomes in the face of adversity, such as chronic illness. They are also associated with positive attitudes and optimistic outlooks, which can enhance adaptive coping strategies, problem-solving abilities, and well-being. Finally, resilience and self-efficacy facilitate adaptation to life adversity and promote adaptive and successful functioning in demanding situations (Feng and Sun, 2022, p. 889–890). Despite these similarities, there are also some differences; namely, while resilience focuses more broadly on an individual's ability to cope with adversity and navigate life's challenges, self-efficacy is rather more specific to an individual's belief in their ability to perform particular tasks or behaviours (Schwartz and Warner, 2013, p. 140).

Resilience and self-efficacy are important factors that can determine one's adjustment to illness (Babić *et al.*, 2020, p. 227; Minshall *et al.*, 2020, p. 175). This is because resilience and self-efficacy enable individuals to cope with illness and

manage its impact on their lives (Kurpas *et al.*, 2013, p. 116). Research has also shown that resilience and self-efficacy play a significant role in managing the consequences of one's illness for personal caregivers (e.g., spouses, family members) (Biclar *et al.*, 2022, p. 402; Palacio *et al.*, 2020, p. 656). This is not surprising when one considers that family relationships form a cohesive system within which spouses show concern and interest in each other's health.

On the other hand, illness acceptance refers to one's ability to reconcile oneself with the disease and retain overall satisfaction with life despite the disease burden (Krok, 2017, p. 215). Thus, it does not reflect one's identification with the illness in the sense of being a sick person, but rather one's acceptance of the illness. In other words, it is an individual's ability to acknowledge and adapt to their medical condition, incorporating it into their identity and daily life. It represents a broad spectrum of responses from the person with the illness, who uses a range of measures to adapt effectively to the stressful life situations associated with the illness. Research has shown that illness acceptance is extremely important for people with cancer as it determines their personal and social dimensions (Chabowski *et al.*, 2017, p. 2956; Krok and Telka, 2022, p. 289). By accepting the illness, cancer patients can better manage their emotional challenges, adopt healthy coping mechanisms, and develop a more positive outlook, which can positively impact their mental health and overall quality of life (e.g. Czerw *et al.*, 2021, p. 9).

There is empirical evidence implying that resilience and self-efficacy are related to illness acceptance in cancer patients and their spouses. Wise and Marchand (2013, p. 80) showed that among patients with lung cancer, resilience was positively related to illness acceptance in areas such as engaging with life, deepening positive relationships with others, acting on priorities, and arranging long-term plans to ensure the surviving spouse's well-being. MacArtney and his collaborators (2015, p. 277) demonstrated that resilience was positively associated with illness acceptance and relational consequences in palliative care patients, most of whom (86%) had advanced cancer. A meta-analysis of more than a dozen study results of palliative patients with advanced cancer conducted by Lau and his collaborators (2021, p. 1038) showed that resilience is positively connected with the way in which patients accept their illness.

Spouses' resilience is also related to the well-being of cancer patients. A study on cancer survivor couples found that the resilience of spouses was a strong predictor of their personal psychological distress, i.e., higher levels of resilience were associated with lower psychological distress. Additionally, spouses' own resilience mediated the association between their reframing coping and psychological distress (Lim *et al.*, 2014, p. 3124–3125). Caregivers' per-

ceived family resilience was found to be negatively associated with the patients' post-traumatic stress symptoms (partner effect) among breast cancer patients. However, the patients' perceived family resilience was not significantly associated with their own or the caregivers' post-traumatic stress symptoms (Yan *et al.*, 2021, p. 10–11). Family resilience (i.e., resilience experienced by both spouses) was directly and indirectly related to psychological well-being among Chinese breast cancer survivors. The results of the structural equation modeling (SEM) showed that family resilience had direct effects as well as indirect effects through post-traumatic growth on psychological well-being (quality of life) (Li *et al.*, 2021, p. 6). Caregiver's resilience was also associated with cancer patients resilience due to higher perceived social support provided by a caregiver (Chen *et al.*, 2021, p. 4).

There are also studies demonstrating the positive role of self-efficacy in the sphere of illness acceptance among cancer patients and their spouses. When examining cancer patients after surgery, Luszczynska and her colleagues (2005, p. 372) found that self-efficacy had direct positive effects on affirmative indicators of well-being, such as personal growth, acceptance of life imperfection, and increased sensitivity to others in cancer patients. Krok and others (2020, p. 6) showed that self-efficacy was positively associated with illness acceptance in pelvic cancer patients. Additionally, self-efficacy mediated the relationship between total pain dimensions and illness acceptance – more specifically, higher pain led to lower illness acceptance through a decrease in self-efficacy.

Self-efficacy, as a belief system that enables people to achieve specific tasks and goals, also plays a role in helping spouses of cancer patients overcome the effects of the illness. Self-efficacy was positively related to the quality of life of male spouses of women with breast cancer (Duggleby *et al.*, 2014, p. 32). Furthermore, higher levels of symptom distress were related to lower caregiver family-related self-efficacy in a sample of people with advanced cancer (Ellis *et al.*, 2017, p. 191). Recent integrative review of over two hundred articles documented significant role of self-efficacy for caregiver's quality of life, social support, hope, depression and burden (Thomas Hebdon *et al.*, 2021, p. 13). Although the above-mentioned studies indicated positive associations of resilience and self-efficacy with measures of psychological well-being and illness acceptance, there is still a lack of research that: (1) jointly examines the association of resilience and self-efficacy with an explicit measure of illness acceptance, and (2) considers a mediating factor between these associations.

1.2. Coping as a mediator in the sphere of illness

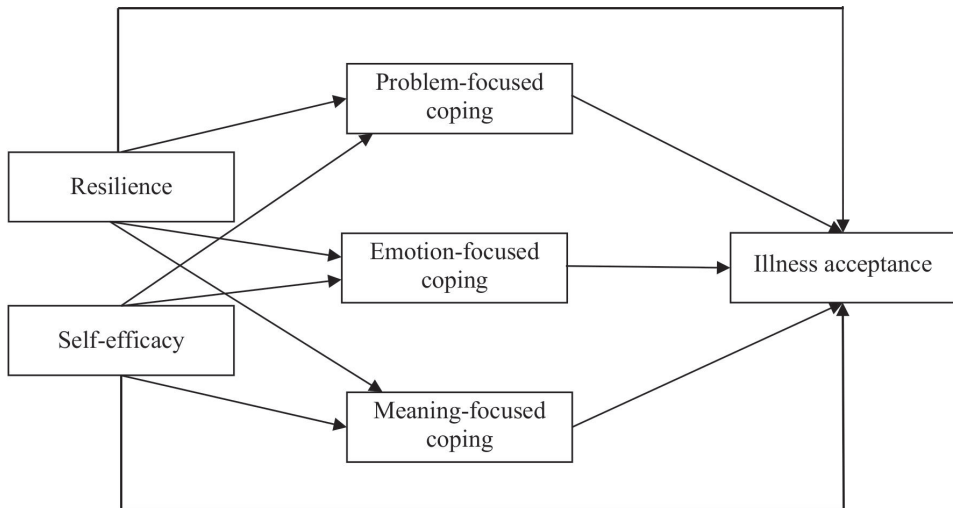
Research has clearly demonstrated the mediating role of coping between supportive resources and quality of life among cancer patients. For instance, positive coping strategies (such as positive emotional expression, positive reappraisal, and cultivating a sense of peace and meaning) mediated the relationship between resilience and quality of life among women newly diagnosed with gynecological cancers (Manne *et al.*, 2015, p. 380). Accommodative coping strategies also acted as mediators between the effects of self-efficacy on acceptance of life imperfection, while assimilative coping strategies mediated the effects of self-efficacy on personal growth and increased sensitivity to others among patients after cancer surgery (Luszczynska *et al.*, 2005, p. 372–373). Additionally, two coping strategies, avoidance and approach coping, mediated the relationship between resilience and post-traumatic growth in cancer patients (Gori *et al.*, 2021, p. 7–8). These results confirm the validity of studying coping as a mediator in the association between resilience, self-efficacy, and illness acceptance.

While coping was identified as a mediator in the relationship between resilience, self-efficacy, and indicators of disease acceptance, there is a lack of clear data showing similar relationships in the spouses of cancer patients. A few studies provide indirect results. In cancer survivor couples, spouses' own resilience mediated the association between their reframing coping and psychological distress (Lim *et al.*, 2014, p. 3125). Coping skills trainings were beneficial for developing self-efficacy among lung cancer patients caregivers (Porter *et al.*, 2011, p. 9). However, no studies have directly assessed the mediating role of coping strategies between spouses' resilience, self-efficacy, and their acceptance of their spouse's cancer. Identifying the mediating function of coping in the above relationships is justified from the spouses' perspective, considering that the characteristics of one spouse strongly influence the reactions of the other spouse within the family systems theory (Haefner, 2014, p. 835–836).

1.3. The present study

The thorough analysis of previous studies implies that both resilience, self-efficacy, and coping strategies play an important role in the ability of spouses to accept their partner's illness (Babić *et al.*, 2020, p. 227; Minshall *et al.*, 2021, p. 175). Furthermore, there is some empirical evidence suggesting that coping strategies might mediate the relationship between resilience, self-efficacy, and

illness acceptance among spouses of cancer patients (Luszczynska *et al.*, 2005, p. 372–373; Manne *et al.*, 2015, p. 380). However, no study has directly examined the parallel mediation effect of coping strategies on spouses' acceptance of their partner's illness. The main aim of this study is thus to examine whether coping strategies are parallel mediators between resilience, self-efficacy, and the acceptance of the partner's illness by the spouse (see Figure 1). Four hypotheses have been formulated: H1: resilience and self-efficacy will be positively related to illness acceptance; H2: coping strategies will be positively related to spouses' acceptance of their partner's illness; H3: coping strategies will parallelly mediate the relationship between resilience and spouses' acceptance of their partner's illness; H4: coping strategies will parallelly mediate the relationship between self-efficacy and spouses' acceptance of their partner's illness.



2. Method

2.1. Power analysis

An a priori power analysis using G*Power was conducted to determine an adequate sample size (N), which was computed based on the desired power level (1- β), a pre-specified significance level ($\alpha = .05$), and a test power of (1- β) = .90 (Faul *et al.*, 2009). The required sample size of $N = 212$ was estimated to be sufficient for our examination to detect a small/medium effect size (.08). However, we included a slightly larger sample ($N = 232$) to more accurately represent the population of late adolescents in our country. A sensitivity power analysis with the final

sample yielded an effect size of .07 and a test power of $(1-\beta) = .90$, thus validating the adequacy of our sample size for statistical analysis.

2.2. Participants

The participants in this study were spouses of cancer patients residing in the southern parts of Poland, consisting of 106 women ($M = 55.36$, $SD = 14.13$) and 126 men ($M = 62.15$, $SD = 11.55$). Their ages ranged from 24 to 85 years ($M = 59.06$, $SD = 13.20$). The cancer patients, who were the spouses of the participants, were either visiting oncological units for regular follow-up visits or undergoing chemotherapy and radiotherapy treatment. The patients had various types of cancer, including bladder cancer, breast cancer, colorectal cancer, kidney cancer, lung cancer, pancreatic cancer, intestinal cancer, and prostate cancer. Our aim was to cover a wide spectrum of cancers in order to obtain results that could be representative of the disease as a whole.

2.3. Procedure

Potential participants were recruited during their spouses' medical visits or while receiving treatment in oncological units. A total of 265 spouses were invited to participate in the study, but 33 declined to take part. The final participation rate in this study was therefore 87.54% (232 people). Spouses who agreed to participate were provided with relevant information about the study and given a set of questionnaires. Upon completion of the study, participants had the option to receive briefings from the medical staff and ask any questions related to the study if they wished to do so.

2.4. Measures

Resilience. The Brief Resilience Scale (BRS) was used to assess one's ability to recover from stress despite significant adversity (Smith *et al.*, 2008, pp. 195–196), (e.g. "I have a hard time making it through stressful events" or "I tend to take a long time to get over set-backs in my life"). The scale consists of six items rated on a 5-point Likert scale, ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Higher scores indicate higher resilience. The psychometric characteristics of the BRS scale have been confirmed in previous studies, including its structure, validity, and reliability (Amat *et al.*, 2014, pp. 243). The Polish version was adapted by Konaszewski, Niesiobędzka, and Surzykiewicz (2020, pp. 13–14). The Cronbach's alpha coefficient for the present study was .85.

Self-efficacy. The General Self-Efficacy Scale (GSE), developed by Schwarzer and Jerusalem (1995, pp. 35–37), was used in the current study. It measures a general sense of perceived self-efficacy, reflecting one's overall confidence in coping with demanding or novel situations (e.g. "Thanks to my resourcefulness, I know how to handle unforeseen situations", "I am confident that I could deal efficiently with unexpected events"). The scale consists of ten items rated on a 4-point scale, ranging from 1 (*Not at all true*) to 4 (*Exactly true*). Higher scores indicate higher perceived general self-efficacy. The scale has demonstrated high validity and reliability across various research contexts and ethnically diverse populations (Zeng *et al.*, 2022, p. 3978). The Polish version was adapted by Schwarzer, Jerusalem, and Juczyński (Juczyński, 2001, p. 93). The Cronbach's alpha coefficient for the present study was .89.

Coping. The Coping Questionnaire was used to assess three coping strategies: problem-focused, emotion-focused, and meaning-focused (Gruszczyńska and Knoll, 2015, p. 2876). The questionnaire comprises 37 items that form three dimensions: I've wondered how to deal with the problem (problem-focused coping – 13 items), "I've done anything to forget about my own emotions (emotion-focused coping – 11 items), and "I've told myself that everything that happens in my life makes sense" (meaning-focused coping – 13 items). Items are rated on a 5-point scale, ranging from 1 (*Not at all*) to 5 (*Very much*). Higher scores indicate greater use of the coping strategies. The questionnaire has been shown to be accurate in research on cancer samples (Krok, Telka, and Zarzycka, 2022a, p. 7). The Cronbach's coefficients for the present study were .86 (problem-focused coping), .82 (emotion-focused coping), and .88 (meaning-focused coping).

Illness acceptance. The Acceptance of Life with the Disease Scale was used to measure the overall level of illness acceptance among spouses of cancer patients (Janowski *et al.*, 2012, pp. 427–429). For the purpose of this study, the scale was slightly modified to assess the acceptance of their husbands'/spouses' disease by the spouses themselves. The scale consists of 20 items rated on a 4-point scale, ranging from 1 (*No*) to 4 (*Yes*). It includes three subscales: (1) satisfaction with life ("Despite the disease I feel I am a fully happy person" – 9 items), (2) reconciliation with the disease ("I have already learnt how to live with my disease" – 6 items), (3) self-distancing from the disease ("For most of the time I don't even bother to think that I have this disease" – 5 items). The scale has been successful in research on cancer patients (Krok, Telka, and Zarzycka, 2022b, p. 10). A total score is calculated based on the arithmetic mean. The Cronbach's alpha coefficients for the current study ranged from .75 to .83 for the subscales and .88 for the total score.

2.5. Data analysis

To analyse our data, we conducted several steps of statistical analysis. First, we checked all the data for potential missing cases and outliers, and corrected any problematic cases. Second, since all variables were measured using questionnaires and our analysis relied on mediation, we used Harman's one-factor test to examine the possibility of common method variance (Podsakoff *et al.*, 2003). The results of Harman's one-factor test demonstrated that all items formed 17 distinct factors, and the first unrotated factor explained only 19.12% of the variance. Therefore, common method error is not present in our study. The variance inflation factor (VIF) was 1.89, indicating an acceptable level of multicollinearity that does not negatively impact the regression model. Third, descriptive statistics (mean and standard deviations) and Cronbach's coefficients for the study variables were calculated to provide adequate indicators. Fourth, Pearson's correlation analysis was conducted to assess the zero-order correlations among resilience, self-efficacy, coping, and illness acceptance. Finally, parallel mediation analysis (Model 4) was employed to evaluate the direct and indirect effects using bootstrap procedures (samples = 10,000; 95% bias-corrected confidence intervals; when confidence interval did not contain 0, an indirect effect in significant at $p < 0.05$). The PROCESS macro version 4.2 for SPSS software 29.0 was utilized to examine the aforementioned effects (Hayes, 2017, pp. 34–36). Three coping strategies: problem-focused, emotion-focused, and meaning-focused were entered simultaneously as parallel mediators.

3. Results

3.1. Descriptive statistics, correlations, and gender differences:

The mean scores for resilience and self-efficacy were 3.55 (SD = .84) and 2.42 (SD = .52), respectively, which are above their scale mid-point (3.0 and 2.5, respectively). The mean ratings for problem-focused coping (M = 3.48; SD = .66), emotion-focused coping (M = 3.43; SD = .69), and meaning-focused coping (M = 3.52; SD = .67) were also above the scale mid-point of 3.0. Finally, the mean scores for illness acceptance were slightly above or below the scale mid-point of 3.0: satisfaction with life (M = 3.07; SD = .52), reconciliation with the disease (M = 2.96; SD = .55), self-distancing from the disease (M = 2.68; SD = .59), and the overall score of illness acceptance (M = 2.90; SD = .48). Mean scores for all scales are shown in Table 1.

First, we calculated the correlations among resilience, self-efficacy, coping, and illness acceptance in spouses of cancer patients (see Table 1).

Table 1. Descriptive statistics and correlations among resilience, self-efficacy, coping, and illness acceptance in spouses of cancer patients.

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Resilience	3.55	.84	-							
2. Self-efficacy	2.42	.52	.41***	-						
3. Problem-focused coping	3.48	.66	.44***	.37***	-					
4. Emotion-focused coping	3.43	.69	.34***	.37***	.75***	-				
5. Meaning-focused coping	3.52	.67	.42***	.46***	.78***	.74***	-			
6. Satisfaction with life	3.07	.52	.41***	.40***	.36***	.34***	.40***	-		
7. Reconciliation with the disease	2.96	.55	.33***	.34***	.28***	.26***	.38***	.79***	-	
8. Self-distancing from the disease	2.68	.59	.17**	.14*	.13	.21***	.28***	.58***	.61***	-
9. Illness acceptance	2.90	.48	.34***	.33***	.29***	.31***	.40***	.89***	.90***	.84***

*** $p < .001$; ** $p < .01$; $p < .05$

Most of the correlations between the examined variables were found to be statistically significant. Resilience and self-efficacy (independent variables) were positively related to problem-focused coping, emotion-focused coping, and meaning-focused coping (mediators), as well as the overall score of illness acceptance and its three dimensions: satisfaction with life, reconciliation with the disease, and self-distancing from the disease (dependent variables). Problem-focused coping was positively associated with the overall score of illness acceptance and its two dimensions: satisfaction with life and self-distancing from the disease, while emotion-focused coping and meaning-focused coping were positively associated with the overall score of illness acceptance and its three dimensions.

We also conducted Student's t-test to examine whether there were differences in the above-mentioned variables between men and women. However, the calculations did not yield significant results for any of the variables examined: namely, the results of the t-tests ranged from -1.32 to .29, and the significance level (p-value) ranged from .18 to .89.

3.2. Parallel mediation analysis

Next, we conducted mediation analysis (Model 4) with three coping strategies as parallel mediators, resilience and self-efficacy as independent variables, and the overall score of spouses' acceptance of their partner's illness as the dependent variable. We applied the bootstrapping procedure recommended by Hayes (2017) to examine potential parallel mediation effects and their direct effects (parameters: samples = 10,000; 95% bias-corrected confidence intervals). The results for the mediating effects of coping strategies and resilience in the relationship between resilience and spouses' acceptance of their partner's illness are presented in Table 2.

Table 2. Mediation estimates for coping strategies in mediating the relationship between resilience and spouses' acceptance of their partner's illness (standardised coefficients).

Variables	<i>B</i>	<i>SE</i>	<i>t</i> [<i>LLCI</i> , <i>ULCI</i>]	Model <i>R</i> ²
Direct effects				
Resilience - Problem-focused coping	.43	.03	7.32 [.17, .30]	.19***
Resilience - Emotion-focused coping	.33	.03	5.46 [.13, .27]	.11***
Resilience - Meaning-focused coping	.41	.03	6.97 [.17, .30]	.17***
Problem-focused - Illness acceptance	.22	.08	2.21 [.06, .24]	
Emotion-focused - Illness acceptance	.06	.07	.68 [-.08, .17]	
Meaning-focused - Illness acceptance	.35	.07	3.47 [.11, .40]	
Resilience - Illness acceptance	.22	.03	3.31 [.04, .14]	.19***
Indirect effects				
	Effect	SE	<i>LLCI</i>	<i>ULCI</i>
Resilience - Problem-focused - Illness acceptance	.13	.03	.06	.18
Resilience - Emotion-focused - Illness acceptance	.02	.01	-.04	.10
Resilience - Meaning-focused - Illness acceptance	.15	.02	.05	.26
Total indirect effect	.30	.01	.04	.19
Total effect				
Resilience - Illness acceptance	.14	.03	.18	.34

****p*<.001

The examination of direct effects showed that resilience was positively associated with problem-focused coping, emotion-focused coping, meaning-focused coping, and illness acceptance. Additionally, problem-focused coping and meaning-focused coping were positively associated with illness acceptance. The

indirect effect analysis revealed that the total mediating effect was statistically significant. Problem-focused coping and meaning-focused coping mediated the relationship between resilience and spouses' acceptance of their partner's illness. However, there was no mediating effect for emotion-focused coping. The total effect of resilience on illness acceptance was significant.

Next, we calculated the mediating effects of coping strategies in the relationship between self-efficacy and spouses' acceptance of their partner's illness. The results are presented in Table 3.

Table 3. Mediation estimates for coping strategies in mediating the relationship between self-efficacy and spouses' acceptance of their partner's illness.

Variables	<i>B</i>	<i>SE</i>	<i>t</i> [<i>LLCI</i> , <i>ULCI</i>]	Model <i>R</i> ²
Direct effects				
Self-efficacy - Problem-focused coping	.37	.06	6.13 [.26, .50]	.14***
Self-efficacy - Emotion-focused coping	.38	.06	6.11 [.27, .53]	.12***
Self-efficacy - Meaning-focused coping	.46	.06	7.90 [.35, .59]	.21***
Problem-focused - Illness acceptance	.16	.07	2.59 [.09, .11]	
Emotion-focused - Illness acceptance	.04	.07	.68 [-.10, .16]	
Meaning-focused - Illness acceptance	.33	.07	3.47 [.11, .40]	
Self-efficacy - Illness acceptance	.18	.05	2.69 [.04, .23]	.18***
Indirect effects				
	Effect	<i>SE</i>	<i>LLCI</i>	<i>ULCI</i>
Self-efficacy - Problem-focused - Illness acceptance	.10	.04	.02	.19
Self-efficacy - Emotion-focused - Illness acceptance	.02	.03	-.05	.11
Self-efficacy - Meaning-focused - Illness acceptance	.15	.06	.05	.27
Total indirect effect	.27	.05	.07	.23
Total effect				
Self-efficacy - Illness acceptance	.24	.04	.15	.33

*** $p < .001$

Regarding the direct effects, self-efficacy was positively related to problem-focused coping, emotion-focused coping, meaning-focused coping, and illness acceptance. Moreover, problem-focused coping and meaning-focused coping were positively related to illness acceptance. The examination of indirect effects revealed that the total mediating effect was statistically significant. Problem-focused coping and meaning-focused coping served as mediators in the relationship between self-efficacy and spouses' acceptance of their partner's illness. However, emotion-focused coping did not play a mediating role. Finally, the total effect of self-efficacy on illness acceptance was significant.

4. Discussion

The aim of the present study was to verify whether coping strategies acted as parallel mediators in the relationship between resilience, self-efficacy, and the acceptance of the partner's illness by the spouse. Our findings supported the mediating effects, which clearly demonstrated a complex pattern of associations among these variables. This study is the first to examine these effects specifically among spouses of cancer patients, providing added value to previous data.

4.1. The relationship among resilience, self-efficacy, coping, and illness acceptance

Hypothesis 1 proposed that resilience and self-efficacy would be positively related to illness acceptance. This hypothesis was fully confirmed as the results showed a positive relationship between resilience and self-efficacy and both the overall score of illness acceptance and its three dimensions (satisfaction with life, reconciliation with the disease, and self-distancing from the disease) in spouses of cancer patients. This means that spouses with a higher capacity to endure adversity and achieve specific tasks and goals are characterized by higher levels of acceptance of their spouse's illness. They experience higher levels of happiness and fulfillment, possess the ability to coexist with the illness despite associated difficulties and inconveniences, and are able to distance themselves from the illness symptoms and engage in activities that help them separate from the illness. These results are consistent with previous studies that highlight the significant role of resilience and self-efficacy in adjusting to cancer (Luszczynska *et al.*, 2005, p. 372; Wise and Marchand, 2013, p. 79–80). They also reveal that resilience and self-efficacy are particularly important for spouses of cancer patients due to their adaptive nature (e.g., Hebdon *et al.*, 2021; pp. 10–11).

However, our study expands on previous research by demonstrating that the spouses' ability to overcome adversity and accomplish specific tasks and goals is extremely important for accepting the adverse consequences of their spouses' illness. When faced with the traumatic situation of their spouse having cancer, individuals strive to develop a coherent and rational understanding of their own psychological experiences and the physical condition of their spouse (Chung *et al.*, 2023, p. 2; Yan *et al.*, 2021, p. 2). Resilient and self-efficacious attitudes play a crucial role in this process, as they are based on one's mental capacities. These attitudes are particularly beneficial in interpreting and responding to events such as cancer, which are largely beyond an individual's control and of which they become aware only after a diagnosis (Chen *et al.*, 2021, p. 4).

Hypothesis 2 posited that coping strategies would be positively associated with spouses' acceptance of their partner's illness. This hypothesis was confirmed as the results revealed that problem-focused coping was positively associated with both the overall score of illness acceptance and its two dimensions: satisfaction with life and self-distancing from the disease. Additionally, emotion-focused coping and meaning-focused coping were positively associated with the overall score of illness acceptance and its three dimensions in spouses of cancer patients. These findings demonstrate that coping strategies aimed at finding solutions, reducing emotional distress, and adapting goals are positively related to the acceptance of the spouse's illness. These results align with previous studies on cancer patients (Teixeira *et al.*, 2021, p. 209), which showed e.g. a positive association between coping strategies and quality of life among gynecological cancer patients (Manne *et al.*, 2015, p. 380) and personal growth among patients after cancer surgery (Luszczynska *et al.*, 2005, p. 372–373). Thus, different coping strategies provide a framework for interpreting, exerting personal control, and accepting illness in the face of suffering and unexpected situations.

This study also expands on previous work by demonstrating the significant role of the prevalence and diversity of coping strategies used by spouses in understanding how different coping mechanisms may impact the process of accepting the disease. Cancer brings specific challenges in terms of adaptation, resulting from the imbalance between an individual's capabilities and demands, the accumulation of stress, and the personal harm caused by the illness (Krok *et al.*, 2022a, p. 1852; Lim *et al.*, 2014, p. 3209). When confronted with their partner's illness, the spouse perceives it as a distressing and stressful situation, prompting them to employ coping measures. It is important to emphasize that coping with stress caused by cancer has a dual nature for the spouse. On one hand, it follows general patterns of stress coping, as it is a broad phenomenon that extends beyond the context of illness and occurs in various life situations. On the other hand, it possesses specific characteristics due to the significant impact of cancer as a powerful stressor on the individual's psychosocial functioning (Yan *et al.*, 2021, p. 2). As a result, spouses utilize a wide range of coping strategies to mitigate the negative effects of their partner's illness and, to some extent, facilitate acceptance (Teixeria *et al.*, 2018, p. 212).

4.2. The role of coping as a mediator

The main finding of our study pertains to hypothesis 3, which predicted that coping strategies would mediate the relationship between resilience and spouses' acceptance of their partner's illness, and hypothesis 4, which anticipated

that coping strategies would mediate the relationship between self-efficacy and spouses' acceptance of their partner's illness. Both hypotheses were largely confirmed, as problem-focused coping and meaning-focused coping mediated the association of resilience and self-efficacy with illness acceptance.

This result is interesting and valuable as it indicates the indirect nature of the relationship between supportive ability-oriented resources (resilience and self-efficacy) and adaptation to the spouse's cancer (Ellis *et al.*, 2017, p. 186–187; Teixeira *et al.*, 2018, p. 212). It aligns with earlier studies in which coping strategies mediated the effects of self-efficacy and resilience on measures of adaptation to illness in cancer patients, such as acceptance of life imperfections and personal growth (Gori *et al.*, 2021, p. 7–8; Luszczynska *et al.*, 2005, p. 372–373). When facing the highly stressful situation of cancer, spouses strive to enhance their level of adaptation by employing problem-focused and meaning-focused coping strategies. This enables them to reduce their stress levels and find effective ways to adjust to the stressors resulting from their spouse's illness.

Our study also sheds new light on previous findings by highlighting the importance of spouses' coping skills in accepting their partner's illness. Thus, the coping strategies used by individuals are not only effective for accepting their own illness but also for accepting their spouse's illness (Pasek *et al.*, 2017, p. 4990–4991; Porter *et al.*, 2011; p. 9). This observation underscores the significant mediating role of problem-focused and meaning-focused coping in the relationship between supportive resources and illness acceptance. It raises the question of why strategies based on cognitive restructuring, finding solutions, and deriving meaning and goals from actions prove to be highly effective in the context of a spouse's illness.

When interpreting the above results, two important conclusions can be drawn. Firstly, what matters more in the relationship between resilience and self-efficacy and illness acceptance is not just the spouses' ability to overcome illness-related adversity (although it does play a role), but rather how individuals utilize cognitive and meaningful content as part of their coping strategies. In other words, in a situation of illness, particularly one as serious and stressful as cancer, the functional aspect of coping strategies (how cognitive and meaningful resources are utilized) is more crucial than the structural aspect (supportive resources per se). This interpretation is supported by Park and colleagues (2019, p. 2389–2390), who emphasize a dynamic understanding of cognitions and goals in coping processes based on the meaning-making model. By providing spouses of cancer patients with ways to find constructive solutions and interpret the world and events related to suffering and illness within the realms of meaning and purpose, coping strategies help develop a relatively coherent and meaning-

ful understanding of reality, wherein stress and uncertainty can be managed (Krok and Telka, 2022, p. 289).

Secondly, the mediating function of problem- and meaning-focused coping, but not emotion-focused coping, may arise from negative thoughts about the future and a lack of goals and meaning. Numerous authors point out that in cancer situations, people tend to experience anxiety, despair, and a loss of perspective on potential solutions or meaning in life (Ayubi *et al.*, 2021, p. 500; Chung *et al.*, 2023, p. 2; Wise and Marchand, 2013, p. 77). This can be perceived as “the dark side of cancer.” (Rodgers and Stemmler, 2020, p. 273). Using coping strategies focused on finding realistic solutions and meaning in life enables spouses of cancer patients to accept the challenges of the disease by identifying potential solutions, prioritizing important areas, and discovering deeper meaning and purpose in their partner’s illness.

The absence of emotion-focused coping in the mediation effects calls for clarification. Although emotions and moods are intense in cancer patients, this strategy did not play a mediating role. This may seem surprising, but it could be due to the fact that spouses of cancer patients primarily seek adequate explanations and meaning in their stressful experiences (Krok *et al.*, 2022a, p. 1853; LI ET AL., 2019, p. 2). Therefore, to alleviate tension, spouses tend to avoid strategies aimed at regulating their emotional state (emotion-focused coping) and instead seek concrete explanations and a meaningful understanding of the illness and related events. As a result, emotion-focused strategies, although often used by patients, are less prevalent in their spouses.

4.3. Limitations and conclusions

The present study is not without limitations. First, the data covered a wide range of cancers, which means that the relationships among resilience, self-efficacy, coping, and illness acceptance may differ to some extent within specific cancer types. Therefore, caution should be exercised when generalizing our findings to specific types of cancer. Second, due to its cross-sectional nature, our study does not allow for causal conclusions. The mediation effects can only be considered within the postulated model, and future research needs to implement a longitudinal design to establish causal relationships. Third, we only considered three types of coping: problem-focused, emotion-focused, and meaning-focused coping. However, other types of coping exist (Gori *et al.*, 2021, p. 7–8; Manne *et al.*, 2015, p. 380), and future research should explore different coping strategies (e.g., avoidant coping or religious coping) using alternative methods.

In summary, the present study provides justified support for the role of coping strategies as mediators in the relationship between resilience and self-efficacy with the acceptance of the partner's illness by the spouse. Specifically, this study demonstrates that meaning-focused coping predominantly mediates the aforementioned relationships. Additionally, investigating the role of resilience and self-efficacy provides deeper insights into the complex and interactive nature of the relationships among resilience, self-efficacy, and illness acceptance in spouses of cancer patients. These findings have practical implications for the development of support programs not only for the patients themselves but also for their spouses (e.g., Porter *et al.*, 2011, p. 11). Such programs should consider supportive resources based on adaptation to life adversity and successful functioning in the face of adversity, such as chronic illness, as well as coping capacities encompassing meaning and purpose. They should focus on an ability to transfer personal resources into adaptive (problem-focused or meaning making-focused) coping which seems to be the primary process explaining the associations between personal resources in developing acceptance of illness among caregivers of cancer patients (Rj *et al.*, 2018, p. 212) .

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