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Spousal support and illness acceptance in breast cancer patients: the mediating function of meaning in life and sense of coherence

Abstract

The explanation as to why married cancer patients are characterised by better adjustment to illness than unmarried patients is not fully understood. This article aims to investigate a parallel mediation effect of meaning in life and sense of coherence in the relationship of spousal support and illness acceptance in breast cancer patients. A total of 213 women were included in this study. The Berlin Social Support Scales, the Personal Meaning Profile, the Sense of Coherence Scale, and the Acceptance of Life with the Disease Scale were used. Pearson's correlation coefficient and mediation analysis were performed. The results showed significant correlations between spousal support, meaning in life, sense of coherence, and illness acceptance. Except for protective buffering support, meaning in life mediated spousal supports' effect on illness acceptance. A sense of coherence mediated the relationship of perceived available support, actually received support, and protective buffering support in terms of illness acceptance. Meaning-based resources play a significant role in accepting the detrimental mental and physical consequences of breast cancer. Therefore, practitioners can incorporate these resources into rehabilitation programmes to improve adjustment to cancer.

Introduction

Breast cancer is a traumatic life event which triggers a broad set of reactions that determine thinking, emotion regulation, and behavioural mechanisms in coping with the disease at different stages of diagnosis and treatment. It is a complex and demanding difficult situation, which triggers an array of variations in the cognitive and emotional dimensions of the woman's body image. Due to its psychosocial character, breast cancer also involves changes in relationship with the spouse. It can cause disturbances in previous marital activities and aspirations, and force the woman to abandon plans and intentions, or, at least, to partially modify them. Therefore, it is important to recognise psychological factors responsible for the woman's adjustment to illness.

The role of spousal support in illness acceptance

Cancer severely disrupts the lives of patients and their families, and is responsible for huge distress, especially during the period of diagnosis and the wait for further detailed examinations. The cancer experience with its detrimental consequences (e.g. pain, anxiety, and suffering) is related to the increasing use of such terms as 'cancer-related distress', 'cancer-specific stress' or 'cancer-related stress' (Ernst *et al*, 2021, p. 2; Martins-Klein *et al*, 2021, p. 251). While struggling with cancer individuals express different attitudes to the disease which can be characterised as 'adjustment to cancer'. For a female patient, it includes new forms of thinking, feeling, and behaving that reflect the relationship between her capacities and the development of the disease (Fathollahi Anvigh *et al*, 2021, p. 67–68). Adjustment to cancer includes both positive and negative indicators of functioning in the cognitive, emotional, and social dimensions. It also reflects how much cancer patients are able to accept the illness.

Research has demonstrated that having a husband or wife plays a significant role in adjustment to cancer, and increases the likelihood of cancer survival (Goldzweig *et al*, 2019, p. 4224). In comparison to unmarried patients, married patients have a lower risk of mortality that was lower among males (Gomez *et al*, 2016, p. 1622). From a psychological perspective, spousal support

is a powerful source of strength for women with breast cancer, and a study investigating this area indicated three major roles played by the husband: (1) before diagnosis, the spouse concentrated on 'stress resolution' to prepare the patient for the doctor's diagnosis, to help her cope with traumatising information, and to support her in coping with the treatment regimen; (2) during treatment, the spouse provided 'functional compensation' to counterbalance the patient's limited ability to provide self-care and care for her family; and (3) after treatment, the spouse concentrated on 'role return' by adapting to the patient's modifications and helping her return to her family and society (Gao *et al.*, 2020, pp 9–10).

Spousal support was found to increase the level of adjustment to cancer and its acceptance among people with various types of cancer, such as lung cancer (Quinn, Fontana and Reznikoff, 1986, p. 87), colorectal cancer (Emslie *et al*, 2009, p. 1172), and breast cancer (Weihs *et al*, 2008, p. 122). However, the effects were diverse for different cancers and differed between men and women. One possible explanation for this relationship is that marriage provides greater social and emotional support. People with a spouse have someone with whom they can share the burden of receiving a difficult diagnosis, which, in turn, reduces depression and anxiety. A spouse helps to relieve negative emotions, and enables their partner to overcome stress. In addition, in times of an illness, the presence of a spouse is an important source of psychological security and comfort. This interpretation is reinforced by a study among cancer patients, in which the lack of acceptance of an illness was found to be attributable to unsatisfactory relationships with a spouse (Quinn *et al*, 1986, p. 88). Support from a spouse can therefore play an important role not only in the care and treatment of cancer patients, but also in their approach to – and acceptance of – cancer.

Although the positive role of spousal support in illness acceptance seems reasonable, little is currently known about the role of specific types of support and their contribution to adjustment to illness. It is likely that different forms of social support, for instance perceived available support and actual received support, may have slightly different features. This view is substantiated by Ruszkiewicz and Kreft (2017, p. 41) who found that while perceived available support and actual received support were positively related to illness acceptance among cancer patients, two other forms – the need for support and support seeking – did not have statistically significant associations. More research is thus needed to clearly establish relationships between spousal support and illness acceptance.

Meaning in life and sense of coherence as potential mediators

There is research indicating the vital role of meaning in life and the sense of coherence in cancer patients, which stems from the fact that both constructs have long been recognised as important factors in the psychological adjustment to cancer. A meta-analysis of 62 different studies provided strong support for the clinical relevance of meaning in life and sense of coherence, which turned out to have significant negative associations with distress in patients with different types of cancer. Furthermore, statistical analysis revealed two interesting things; first there was a significant difference between the two relationships–the relationship of meaning in life with distress was moderate, whereas the relationship of sense of coherence with distress association was large. Second, meaning in life and sense of coherence are related but distinct constructs that serve unique functions in cancer patients' psychological adjustment (Winger *et al*, 2016, p. 8). They seem to share some conceptual similarity on a basis of meaning structures as constructs which include the sphere of goals and comprehension (Heintzelman *et al*, 2013, p. 992). It is thus justifiable to examine them simultaneously in research on cancer patients.

Some studies have investigated meaning in life and sense of coherence within mediation analysis. In a sample of breast cancer survivors, meaning in life fully mediated the association of social functioning with distress, whereas the association of physical functioning with distress was partially mediated by meaning (Jim and Andersen, 2007, p. 379). Meaning in life played a positive role here, as its higher level was related to lower levels of depressive symptoms. The mediating function of meaning in life was found in relationships between self-acceptance and psychological wellbeing (measured by psychological symptoms and life satisfaction) in a group of gastrointestinal cancer patients (Zhou and Xu, 2019, p. 728). In addition, meaning in life was a mediator in the relationship of affect with psychological well-being in spouses of cancer patients (Krok and Gerymski, 2021, p. 284). The results indicate that meaning and purpose facilitate well-being and cancer adaptation processes, which, in turn, may have positive consequences for accepting the illness.

Similar mediational effects were discovered for the sense of coherence among breast cancer patients. Rohani *et al* (2015, p. 6) found sense of coherence mediated time changes (over six months) of global quality of life, as well as cognitive and social functioning in breast cancer patients. Interpreting their findings the authors concluded that sense of coherence was an inner resource that served as a protective psychological factor in the adaptation process to illness. Examining newly diagnosed breast cancer patients, Wei *et al* (2019,

p. 3526) established that sense of coherence was a mediator in associations between the effect of a type C personality and depression, as it tended to alleviate detrimental symptoms of depression. In a similar clinical sample of newly diagnosed breast cancer patients, sense of coherence was found to mediate between perceived stress and depression, demonstrating that patients' comprehensibility, manageability, and meaningfulness (i.e. indicators of a sense of coherence) can provide positive psychological effects in times of illness (Guo *et al*, 2021, p. 6).

Taken together, the results imply a high likelihood of potential mediational roles of meaning in life and sense of coherence in the relationship between spousal support and illness acceptance in cancer patients. However, the question regarding parallel mediation effects of both factors remains to be investigated, especially as meaning in life and sense of coherence are related, but distinct constructs.

The above-mentioned relationships between support, meaning in life, sense of coherence, and illness acceptance can be examined within the theoretical background of the integrated meaning-making model (Park, 2013, pp. 42–43) and the salutogenic model (Antonovsky, 1987, pp. 10–13), which both include clear references to meaning structures. According to the integrated meaning-making model, the experience of cancer prompts patients to search for supportive resources, either internal (e.g. psychological resources) or external (social support) that could help them manage the ensuing stress and adjust to illness. From this perspective, if cancer challenges a person's resources, meaning-making efforts are initiated, which can result in a greater or restored meaning in life and better adjustment (Krok *et al*, 2019, p. 1730; Park *et al*, 2019, p. 2388). According to the salutogenic model, patients' physical and mental health is significantly determined by their attitude (i.e. global orientation) towards life. To adapt to illness and accept its negative consequences, individuals draw on their adaptive dispositional orientation, which enables them to cope with adverse experiences (Antonovsky, 1996, pp. 13–14; Winger *et al*, pp. 3–4). Consequently, patients characterised by a high degree of a sense of coherence are more likely to use available internal and external resources to meet the demands of life and, thus, accept the illness. However, as sense of coherence is a stable trait directly related to health, and meaning in life is a broader construct related to general psychological functioning, their mediational roles as two categories of meaning structures can differ in the context of spousal support and illness acceptance.

The present study

The precise examination of previous studies provides evidence suggesting that meaning in life and sense of coherence could mediate the relationship of spousal support with illness acceptance (McLennon *et al*, 2011, p. 528; Mullen *et al*, 1993, p. 44; Zamanian *et al*, p. 1737). Nevertheless, there has not been a study that has directly examined a parallel mediation effect of meaning in life and the sense of coherence among breast cancer patients. Therefore, the main purpose of this study is to investigate whether meaning in life and sense of coherence mediate associations in parallel between spousal support and illness acceptance among women with breast cancer (see Figure 1). Three hypotheses were formulated: (H1) spousal support will be positively associated with illness acceptance; (H2) meaning in life will mediate the relationship of spousal support with illness acceptance, specifically stronger spousal support will relate to higher illness acceptance indirectly through higher meaning in life; (H3) Sense of coherence will mediate the association of spousal support with illness acceptance, specifically stronger spousal support will relate to higher illness acceptance indirectly through higher sense of coherence.
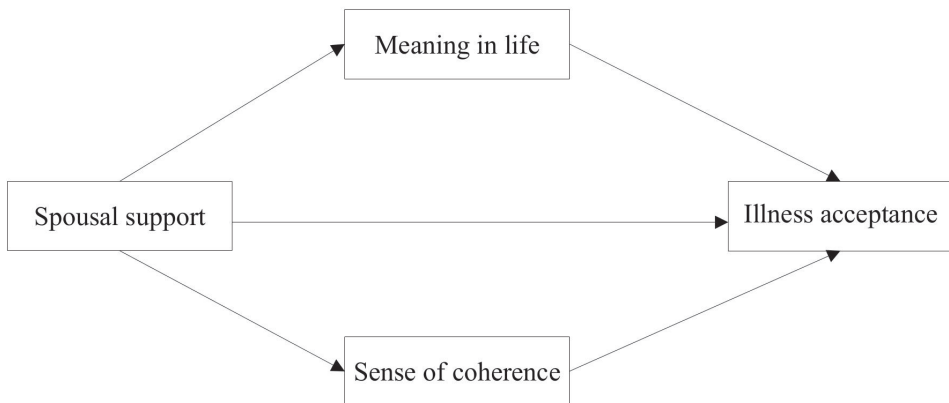
Methods

Power analysis

A priori power analysis was conducted to assess an adequate sample size for our mediation analyses. Power tables recommended by Preacher *et al*, (2007, pp. 880–885) were applied in accordance with their rules. A sample size of N = 200

or more persons was sufficient to obtain an effect size at p =.05, and provide a statistical power of over .80 in all variables.

Participants

Participants were outpatient and inpatient women with breast cancer (N = 213) from The Maria Sklodowska-Curie Institute – Oncology Centre (MSCI) branch in Gliwice, and The Opole Oncological Hospital from March 2021 to February 2022. Their age ranged from 23 to 85 years (*M* = 62.35, *SD* = 10.15). Participants were either women visiting the above institute for their regular follow-up visits, or who were receiving chemotherapy and radiotherapy treatment. The inclusion criteria were: women aged 18 and above with a confirmed diagnosis of any breast cancer (stages 1–4), having a husband/partner, cognitive ability to complete a set of questionnaires, and at least a one-month history since the diagnosis. The exclusion criteria comprised of cognitive impairments for any reason, a medically confirmed metastasis disease, the presence of any psychiatric disorder, and having a serious physical illness other than cancer during the last six months.

Procedure

Participants were recruited during their medical visits, or received treatment in The Maria Sklodowska-Curie Institute – Oncology Centre (MSCI) branch in Gliwice and a private oncology clinic in Opole. First, 265 patients were invited to participate in the study. However, 52 were excluded due to the inclusion/exclusion criteria or unfinished questionnaires. The final participation level in this study was thus 80.37%. Data were collected by means of a questionnaire which was administered by medical staff who had previously been debriefed. They followed an interview protocol designed by the lead researcher. This strategy enabled us to minimise the information bias since the same procedure was applied for each of the participants. After the study was completed, participants received briefings from medical staff; they were also able to ask any questions related to the study.

Measures

Spousal support. The Berlin Social Support Scales (BSSS) were used to measure different domains of spousal support (Schulz and Schwarzer, 2003, pp. 78–80). The scale contains five subscales: perceived available support, need for support,

support seeking, actual received support, and protective buffering support. They measure both cognitive and behavioural aspects of support. For the purpose of the study, we slightly modified the instructions of the scale, and clarified that the items concerning support reactions are always about the spouse. The word 'spouse' was also introduced in some items, for instance, instead of the original item 'When I am worried, there is someone to help me', we stated 'When I am worried, there is my spouse to help me'. As a result, we were able to measure spousal support in the above-mentioned domains. The scale consists of 38 items rated on a four-point scale. The test-retest correlations show considerable stability, for instance between .62 and .80 over a two-week period. The Polish version of the BSSS adapted by Łuszczyńska *et al.* (2006, pp. 23–25) was used. The Cronbach alpha coefficients for the present study ranged from .77 to .86.

Meaning in life. The Personal Meaning Profile (Wong, 1998, pp. 121–124) was applied to measure a level of meaning in life which is conceptualised in terms of 'having an ideally meaningful life.' The scale assesses the level of meaning reported by respondents in seven domains: achievement, relationships, religion, self-transcendence, self-acceptance, intimacy, and fair treatment. A total score can also be calculated by adding results in the above domains. The scale contains 57 items rated on a seven-point scale. The Polish version of the BSSS adapted by Krok (2009, p. 197–199) was used. The Cronbach's alpha coefficients for the present study were from .82 to .91 for the subscales and .86 for the total score. Only the total score was used in our study.

Sense of coherence. The Sense of Coherence Scale (SOC-29) has been used to assess the level of sense of coherence understood as an individual's global view of life, based on how comprehensible, manageable, and meaningful their life is (Antonovsky, 1996, pp. 13–14). The scale includes 29 items rated on a seven-point scale. The higher the score, the stronger the sense of coherence. The scale consists of three subscales: comprehensibility, manageability, and meaningfulness. It has acceptable validity and reliability; the test-retest correlations show considerable stability, for instance, 0.54 over a two-year period. An adapted Polish version of the SOC-29 was applied in this study (Dudek and Makowska, 1993, pp. 383). The Cronbach's alpha coefficients for the present study ranged from .77 to .89 for the subscales and .82 for the total score. We only used the total score in our study.

Illness acceptance. The Acceptance of Life with the Disease Scale (the original Polish version) was used to examine an overall level of accepting the disease, understood as one's ability to reconcile oneself with the disease and retain overall satisfaction with life in spite of the disease burden (Janowski *et al*, 2012, pp. 427–429). The scale comprises the three following subscales: (1) satisfaction with life,

(2) reconciliation with the disease, (3) self-distancing from the disease. A total score can be obtained by summing the three subscale scores. The scale contains 20 items rated on a seven-point scale. The Cronbach's alpha coefficients for the current study ranged from .75 to .86 for the subscales, and .90 for the total score. Only the total score was used in our study.

Data analysis

We used an analytical cross-sectional design in our study. Prior to statistical calculations all the data were cleaned, and missing data were identified (there were six instances of this). Following statistical guidelines, data were also checked as to whether they contained potential outliers, by applying descriptive statistics analyses and data visualisation methods (i.e. scatterplots and histograms). As a result, no outliers were found in the final version of the database. Statistical calculations were conducted in the following steps. First, descriptive statistics using mean and standard deviation (SD) were reported. Second, Cronbach's coefficients for the present study were calculated to ensure sufficient reliability indicators. Next, Pearson's correlation coefficient was used to assess zero-order correlations among spousal support, illness acceptance, meaning in life, and sense of coherence. Finally, mediation analysis was performed via conditional process modelling in PROCESS macro version 3.5 for SPSS (Hayes, 2017, pp. 34–36). A parallel mediation model (Model 4) was applied using the PROCESS macro for SPSS software; the statistical significance of the direct and indirect effects was examined with bootstrap procedures (samples = 5,000; 95% bias-corrected confidence intervals). Two mediating variables, meaning in life and sense of coherence, were entered simultaneously as parallel mediators.

Results

Correlations between spousal support, illness acceptance, meaning in life, and sense of coherence

The results of bivariate correlations indicated all the spousal support dimensions were associated with illness acceptance. However, they had different signs of correlations. Perceived available support, need for support, support seeking, and actual received support were positively correlated with illness acceptance, and protective buffering support was negatively correlated with illness accept-

ance. Of these, perceived available support and actual received support obtained the highest correlational values. Perceived available support and actual received support were also positively associated with both meaning in life and sense of coherence. In addition, need for support and support seeking positively correlated with meaning in life, and protective buffering support negatively correlated with sense of coherence. Finally, both meaning in life and sense of coherence were positively related to illness acceptance (Table 1).

Table 1. Descriptive statistics and correlations among spousal support, meaning in life, sense of coherence and illness acceptance in breast cancer patients.

Variables	M	SD	1	2	3	4	5	6	7
1. Perceived available support	3.33	.50	–						
2. Need for support	2.96	.63	.35***	–					
3. Support seeking	2.95	.66	.47***	.75***	–				
4. Actually received support	3.37	.55	.48***	.22***	.27***	–			
5. Protective buffering support	2.30	.58	−.17**	−.09	−.09	−.04	–		
6. Meaning in life	4.89	.71	.47***	.15*	.26***	.42***	.01	–	
7. Sense of coherence	4.48	.67	.41***	.01	.06	.30***	−.18**	.59***	–
8. Illness acceptance	5.32	.88	.60***	.14*	.29***	.46***	−.15*	.58***	.57***

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

Parallel mediation effects of meaning in life and sense of coherence in the relationship of spousal support and illness acceptance

As some of our variables – especially meaning in life and sense of coherence – had relatively significant inter-correlations, we decided to examine whether our study was affected by a common method bias. Therefore, the collinearity assessment method was used as it can identify common method bias in a situation, where usually used factor analysis fails (Knock, 2015, pp. 7–8). Variance Inflation

Factors (VIF) was applied as a measure of multicollinearity in the studied model, and its results ranged from 1.09 to 1.57 with a tolerance between 0.59 and 0.79, indicating that our model does not depend on common method bias (Knock and Lynn, 2021, pp. 575–578).

Having checked the common method bias, we decided to examine whether meaning in life and sense of coherence were parallel mediators between spousal support dimensions and illness acceptance. Five spousal support dimensions (i.e. perceived available support, need for support, support seeking, actual received support, and protective buffering support) were consecutively introduced into the model as independent variables in accordance with Hayes' (2017) recommen-

Table 2.

Variables				
DIRECT EFFECTS	B	SE	t [LLCI, ULCI]	Model R^2
Perceived available support as an independent variable				
Perceived available support → Meaning in life	.47	.08	7.74 [.50, .83]	.22**
Perceived available support → Sense of coherence	.41	.08	6.53 [.38, .72]	.16***
Meaning in life → Illness acceptance	.30	.09	3.86 [.15, .45]	
Sense of coherence → Illness acceptance	.35	.08	4.52 [.20, .50]	
Perceived available support → Illness acceptance	.67	.09	6.88 [.47, .86]	.52***
Need for support as an independent variable				
Need for support → Meaning in life	.15	.07	2.26 [.02, .33]	.03*
Need for support → Sense of coherence	.01	.07	.21 [−.12, .16]	.001
Meaning in life → Illness acceptance	.34	.08	5.36 [.27, .60]	
Sense of coherence → Illness acceptance	.36	.08	5.50 [.30, .63]	
Need for support → Illness acceptance	.08	.07	1.57 [−.02, .26]	.42***
Support seeking as an independent variable				
Support seeking → Meaning in life	.25	.07	3.88 [.13, .41]	.07**
Support seeking → Sense of coherence	.05	.07	.80 [−.08, .19]	.001
Meaning in life → Illness acceptance	.31	.08	4.66 [.22, .54]	
Sense of coherence → Illness acceptance	.37	.08	5.88 [.33, .65]	
Support seeking → Illness acceptance	.19	.07	3.54 [.11, .39]	.45***

Table 2. continued

Actually received support as an independent variable				
Actually received support → Meaning in life	.41	.08	6.69 [.38, .70]	.17**
Actually received support → Sense of coherence	.30	.08	4.61 [.21, .52]	.09***
Meaning in life → Illness acceptance	.28	.08	4.32 [.19, .51]	
Sense of coherence → Illness acceptance	.32	.08	5.41 [.27, .59]	
Actually received support → Illness acceptance	.23	.08	4.24 [.20, .55]	.46***
Protective buffering support as an independent variable				
Protective buffering support → Meaning in life	.04	.08	.16 [−.15, .17]	.0001
Protective buffering support → Sense of coherence	−.18	.08	−2.69 [−.36, −.05]	.04**
Meaning in life → Illness acceptance	.39	.08	5.96 [.32, .64]	
Sense of coherence → Illness acceptance	.32	.09	4.79 [.24, .59]	
Protective buffering support → Illness acceptance	−.10	.08	−1.86 [−.31, .01]	.42***
Total effect model				
Perceived available support → Illness acceptance	.60	.10	11.01 [.61, .89]	.36***
Need for support → Illness acceptance	.14	.09	2.11 [.01, .38]	.03*
Support seeking → Illness acceptance	.29	.09	4.39 [.21, .56]	.08***
Actually received support → Illness acceptance	.45	.10	7.46 [.53, .92]	.20***
Protective buffering support → Illness acceptance	−.15	.10	−2.28 [−.43, −.03]	.03*

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

dations. Due to their large numbers, direct effects are given in Table 2 and indirect effects are in Table 3.

The direct effect results revealed that most effects were statistically significant. Perceived available support, need for support, support seeking, and actual received support were positively associated with meaning in life and illness acceptance. Only perceived available support and actually received were positively associated with sense of coherence. In contrast, protective buffering support was negatively related to sense of coherence and illness acceptance. Both meaning in life and sense of coherence were positively associated with illness acceptance in case of all the dimensions of spousal support. The analysis of total effect models revealed that perceived available support, need for support, support seeking, actual received support, and protective buffering support were positively associated with illness acceptance.

Next, we calculated indirect effects which are presented in Table 3; they represent mediational relationships.

Table 3.

Variables				
INDIRECT EFFECTS	*Effect*	*SE*	*LLCI*	*ULCI*
Perceived available support as an independent variable				
Perceived available support → Meaning in life → Illness acceptance	.11	.03	.05	.18
Perceived available support → Sense of coherence → Illness acceptance	.11	.03	.06	.17
Total	.22	.03	.16	.30
Need for support as an independent variable				
Need for support → Meaning in life → Illness acceptance	.05	.02	.01	.11
Need for support → Sense of coherence → Illness acceptance	.001	.02	−.04	.05
Total	.05	.02	−.03	.14
Support seeking as an independent variable				
Support seeking → Meaning in life → Illness acceptance	.08	.03	.03	.14
Support seeking → Sense of coherence → Illness acceptance	.02	.03	−.03	.07
Total	.10	.05	.01	.18
Actually received support as an independent variable				
Actually received support → Meaning in life → Illness acceptance	.11	.04	.06	.19
Actually received support → Sense of coherence → Illness acceptance	.09	.03	.05	.15
Total	.22	.04	.15	.29
Protective buffering support as an independent variable				
Protective buffering support → Meaning in life → Illness acceptance	.001	.03	−.05	.05
Protective buffering support → Sense of coherence → Illness acceptance	−.06	.03	−.11	−.01
Total	−.05	.04	−.14	.04

The indirect effect measures demonstrated that meaning in life was a mediator between the following four dimensions of spousal support: perceived available support, need for support, support seeking, and actually received support,

as well as illness acceptance. In all these cases, stronger spousal support was related to higher meaning in life, which, in turn was related to higher illness acceptance. Sense of coherence mediated the relationship of perceived available support, actual received support, and protective buffering support with illness acceptance. In case of perceived available support and actual received support, stronger spousal support was related to higher sense of coherence, which, in turn was related to higher illness acceptance. In contrast, stronger protective buffering support was associated with a lower sense of coherence, which, in turn was related to higher illness acceptance. The analysis of total indirect effects showed that they were significant for perceived available support, support seeking, and actual received support. It can thus be concluded that most of the mediational effects turned out to be significant.

In the last step of analysis we decided to test contrasts among mediated effects in our multiple mediator models. Therefore, contrasts compare specific indirect effects, namely the unique abilities of each mediator (meaning in life and sense of coherence) to account for the effect of X (dimensions of spousal support) on Y (illness acceptance). For perceived available support, the result of contrasts (i.e. meaning in life minus sense of coherence) was insignificant (Effect = .002; 95% CI[-.17, .18]), which means that their unique abilities to mediate do not differ between each other. The contrasts were also insignificant for need for support (Effect = .07; 95% CI[-.01, .15]), support seeking (Effect = .08; 95% CI[-.01, .16]), and actual received support (Effect = .03; 95% CI[-.11, .18]). The only significant contrast occurred in case of protective buffering support, (Effect = .09; 95% CI[.01, .17]).

Discussion

The purpose of the current study was to empirically examine the multiple mediating roles of meaning in life and sense of coherence in the relationship of spousal support with illness acceptance in breast cancer patients. Our study yielded interesting findings, as there has not previously been clear evidence that has examined the following variables together: spousal support, meaning in life, sense of coherence, and illness acceptance in women suffering from breast cancer.

Spousal support and illness acceptance

Hypothesis 1 assumed that spousal support would be positively associated with illness acceptance. In accordance with previous research (Goldzweig *et al.*

2019, p. 4224; Weihs *et al*, 2008, p. 121), correlational results and estimates of direct effects showed that all the spousal support dimensions were related to illness acceptance. Nonetheless, their signs differed; while perceived available support, need for support, support seeking, and actually received support were positively associated with illness acceptance, protective buffering support had negative associations with illness acceptance. This pattern thus confirms the first hypothesis. These results indicate that women in a highly stressful situation with breast cancer, who perceive the possibility of receiving support from their spouse as a potential opportunity, also have a need for support for themselves, and seek help from their spouse, actually receiving help in the form of emotional, instrumental, or informational support. These women are more able to accept their illness and treat it as something to live with. In contrast, those women who strenuously try to protect spouses from adverse and negative news related to their illness, and who hide personal problems while avoiding talking about existing difficulties, tend to be less accepting of the negative health consequences arising from their illness.

Thus, a spouse's attitude plays an important role in the psychological functioning of cancer patients. Taking into account all the statistically significant associations between spousal support and illness acceptance obtained in our study, it can be concluded that this mechanism seems to be particularly strong in women with breast cancer. In times of cancer, the value of close, loving relationships takes on special significance as the spouse offers 'functional compensation' to counterbalance the woman's limited ability to provide self-care and care for her family (Gao *et al*, 2020, p. 8). Previous research has clearly demonstrated that loneliness and lack of support by a partner is very distressing for patients, and can cause a number of harmful consequences not only of a cognitive and emotional nature, but also in terms of medical health (Deckx, *et al*, 2015, p. 1526). Our study broadens that perspective by showing that all forms of spousal support are beneficial for women suffering from breast cancer. Interestingly, perceived available support had the strongest association with illness acceptance which suggests that the very fact of being aware of the availability of support from a spouse is of great value in itself. The support and presence of a loved one allows breast cancer patients to perceive their illness with more hope and optimism, and increases motivation to constructively cope with illness.

Mediational effects of meaning in life and sense of coherence

Hypothesis 2 stated that meaning in life would mediate the relationship of spousal support with illness acceptance; specifically that stronger spousal support would relate to higher illness acceptance indirectly through higher meaning in life. Our results showed that meaning in life was a mediator between perceived available support, need for support, support seeking, and actual received support, and illness acceptance. In all these cases, stronger spousal support was related to a higher level of meaning in life, which, in turn was related to higher illness acceptance. The second hypothesis was thus largely confirmed.

These central results support previous findings regarding the mediating role of spousal support in relationships between various psychological factors (e.g. social functioning, self-esteem) and adjustment to illness among cancer patients (Jim and Andersen, 2007, pp. 377–378; Zhou and Xu, 2019, pp. 727–728). Yet, the current study extends the literature by demonstrating that meaning in life can specifically mediate the relationship of spousal support with illness acceptance in women with breast cancer. This appears very interesting and though-provoking as it highlights a vital role of meaningful beliefs, goals, and strivings for cancer patients in forming attitudes directed at reconciling with the fact of being ill, experiencing satisfaction with life despite difficulties connected with the illness, and maintaining cognitive and emotional distance from one's illness. Thus, the successful adaptation to cancer in the context of spousal support, to a certain degree, depends on the patients' ability to interpret and process their difficult experience, to achieve a sense of meaning, and to effectively pursue their purpose and goals (Krok and Telka, 2018, p. 179; Steger *et al*, 2015, p. 594). The more individuals are able to comprehend their lives and the world around them, the better their adaptation to cancer.

The findings can be better understood within Park's integrated meaning-making model (Park, 2013, pp. 42-43). In accordance with the model, the findings reveal two crucial aspects of positive adaptation to illness. First, higher levels of meaning in life seem to reflect successful meaning-making efforts in the context of spousal relationships and, thus, better acceptance of illness. The presence of meaning in life predisposes cancer patients to see or understand their relationships with a spouse in a more mature and satisfying way, as well as reviewing and reformulating their beliefs and goals in order to maintain consistency between them. This interpretation is backed by research in which meaning-making efforts were associated with less distress through meanings made in patients with various cancers (Park *et al*, 2019,

p. 2384). Second, as there was no mediating effect for the relationship between protective buffering support, meaning in life, and illness acceptance, hiding one's problems from a partner and avoiding talking about difficulties may lead to unsuccessful meaning-making attempts, and an inability to identify important things, as well as to achieving a sense of meaning and significance. In that case, insincere relationships with a spouse can find a negative resonance in the patient's meaning structures.

Next, hypothesis 3 assumed that sense of coherence would mediate the association of spousal support with illness acceptance. Furthermore, specifically stronger spousal support would relate to a higher illness acceptance indirectly through a higher sense of coherence. This was largely confirmed, as our study demonstrated that sense of coherence mediated the relationship of perceived available support, actually received support, and protective buffering support with illness acceptance. As regards perceived available support and actually received support, stronger spousal support was associated with a higher sense of coherence, which, in turn was linked to a higher illness acceptance. Conversely, stronger protective buffering support was related to a lower sense of coherence, which, in turn was linked to higher illness acceptance. These results are in line with earlier studies showing that sense of coherence was a mediator in associations between psychological factors (personality, perceived stress) and indicators of adjustment to illness (Guo *et al*, 2021, p. 6; Rohani *et al*, 2015, p. 7). This confirms the notion that cancer patients' mental health is significantly determined by their attitude (i.e. global orientation) towards life as expressed in terms of comprehensibility, manageability, and meaningfulness.

The mediating role of sense of coherence between spousal support and illness acceptance sheds new light on our understanding of the complex processes responsible for accepting the illness among breast cancer patients in the view of the salutogenic model (Antonovsky, 1987, pp. 10-13). According to the model, a positive sense of association between coherence and illness acceptance suggests that women who view life as comprehensible, manageable, and meaningful (i.e., high levels of SOC) experience their illness less negatively. Women with high levels of a sense of coherence can rely on their available resources and, thus, are able to accept their illness despite its detrimental mental or physical consequences (Antonovsky, 1996, p. 15–16; Winger *et al*, 2008, p. 7). In this context, spousal support may be considered a resource. Specifically, women who perceive the possibility of receiving support from their partner, treating it as an opportunity to help in solving problems, and who actually receive emotional or informational support from their partner, have

a greater sense of coherence, which translates into their greater ability to accept their own health conditions and fewer negative emotions associated with the illness. This explanation is congruent with Antonovsky's model, which posits the sense of coherence–illness acceptance association within a wider spectrum of psychosocial factors (e.g. psychological support) that may influence this association.

Finally, our findings demonstrated a parallel mediation effect of meaning in life and sense of coherence. Of the five possible total mediation effects, three turned out to be significant for perceived available support, support seeking, and actual received support. This suggests that meaning in life and sense of coherence are related, but distinct, constructs which are embedded in meaning structures (Antonovsky, 1987, p. 14-15; Wong, 1998, pp. 115–117). Though they both incorporate the degree to which individuals feel that their life is meaningful and comprehensible, only sense of coherence includes the perceived manageability of life circumstances. The manageability factor can somehow explain the different mediating effects between both factors.

The present study is limited by some elements resulting from the research approach used. First, the cross-sectional design is not able to establish the stability of spousal support, and whether the relationship between spousal support and illness acceptance remains the same over time. Therefore, further longitudinal studies could disclose the direction of the effects. Second, the patients were recruited using a convenience sampling method, which largely relies on volunteers. Although multiple units were approached over a longer period of time (12 months) to minimise the selection bias, this sampling method could risk recruiting a non-representative sample. Third, we did not measure the women's body image, which may be an important determinant as to how much they accept their illness overall. Future research should take into consideration this aspect, as it is likely to affect adjustment to illness in breast cancer patients (Fathollahi Anvigh *et al*, 2021, pp. 66–67).

Conclusion

Despite the above limitations, the current study provides a new contribution to knowledge about relationships between spousal support and illness acceptance in breast cancer patients, by exploring the parallel mediation effects of meaning in life and sense of coherence with the same sample and variables. We found evidence of the parallel mediation for most dimensions of spousal support, which is a new finding that warrants further investigation. Taken together,

our study suggests that meaning-based resources likely play a significant role in explaining the positive effect of spousal support experienced by women with breast cancer. Given this evidence, meaning-based interventions can be applied by psychologists and rehabilitation professionals working with breast cancer patients, and this is likely to improve the mental and physical recovery of the patients.

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