

The role of gratitude and a sense of support for well-being in cancer

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Abstract

Introduction: The level of gratitude may explain the increase in psychological well-being. Some studies demonstrated also the mediating effect of social support for the relationship of gratitude to well-being. The aim of the research was to present the role of the sense of social support and gratitude for the quality of life of patients. It was hypothesized that social support mediates the relationship between gratitude and the quality of life in the group of oncological patients with a moderating effect of gender.

Material and methods: The participants comprised 96 Polish cancer patients, with breast or prostate cancer, hospitalized during 5–7 weeks of radiotherapy, and aged 31–79 years. A gratitude questionnaire, the social support scale by Kmiecik-Baran, and the sense of quality of life questionnaire by Straś-Romanowska *et al.* were used [1].

Results: Social support has not proven to be a mediator of the relationship of gratitude to any dimension of quality of life. However, gender turned out to be a moderator in terms of the relationship between gratitude and instrumental support for the global, psychosocial, and subjective quality of life, but only in women.

Conclusions: Gender also turned out to be a moderator of the instrumental support relationship with the global, psychosocial, and subjective sphere of quality of life, and this relationship was found only in men. There was also moderation in the emotional support relationship with psychosocial quality of life in the group of men.

Key words: well-being, quality of life, gratitude, sense of social support, cancer.

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INTRODUCTION

Social support is an important variable for the quality of life of people suffering from cancer [2]. Studies on social support and quality of life in neoplastic diseases are numerous [3–5], but less research concerns the relationship between the dispositional gratitude and support [6].

Gratitude is most often understood as an emotion or affective feature, i.e. a generalized tendency to recognize and respond with the emotion of gratitude to the contribution of other people to positive experiences and achieved results [7, 8]. The level of gratitude may explain the increase in psychological well-being [6, 9, 10]. One such explanation is the mediating role of coping with stress in the relationship between gratitude and well-being [9, 10]. The relationship between gratitude and stress turned out to be mediated by coping styles, and coping styles also mediated the relationship between gratitude and life satisfaction. People more prone to experiencing gratitude more often sought and used instrumental

and emotional social support. This raises questions about other potential mediators of the relationship between gratitude and well-being.

Studies that consider the roles of gratitude, social support, and well-being at the same time are rare [11]. Some of them demonstrated the mediating effect of social support for the relationship between gratitude and well-being [12].

Gratitude studies in cancer patients are sparse. One of them [13] examined patients with metastatic breast cancer. The aim of the study was to measure the emotion of gratitude and its relationship with social relationships. Gratitude was aroused by writing about an event in which someone offered help or a favour. Then, the respondents assessed the described events using an adjective scale, containing positive and negative emotions and 3 terms of gratitude.

It was hypothesized that favours evoke positive emotions (including gratitude), if the recipient notices and accepts the positive consequences of the favour, for the relationship with the helper [13]. The task of the respondents was to describe the situ-

ations in which they received favours that could be received positively, neutrally, or negatively, and to assess the extent to which the helper reacted to their real needs. (For example, “He really thought about my needs”, “He had his own needs in mind”). The respondents also assessed their own ego-transcendence (e.g. “I gladly accepted the help”, “The help obliged me to reciprocity, which I accepted reluctantly”). The emotions related to the previously described event were also assessed (negative, including 3 emotions of anger, and positive, including 3 expressions of gratitude – gratitude, thankfulness, appreciation). In this study, high correlations of gratitude with the perceived responsiveness of the helper ($r = 0.80$) were obtained, which turned out to be a strong predictor of gratitude ($b = 0.77$). There was a negative ($r = -0.73$) correlation of gratitude with the perception of help as an unwanted commitment. The correlation between gratitude and the willingness to accept the helping person was positive and high ($r = 0.82$) [13].

In another study of the above-mentioned authors [13], it was hypothesized that people who often respond to favours with gratitude have an increasingly high sense of social support. The emotional responses to favours received from the last month were measured twice, with another measurement after 3 months. Social approval and the ambivalence of expressing emotions were also measured (e.g. “Often I would like to show others how I feel, but something is holding me back”). In this study, an interaction effect was obtained: in those who often expressed gratitude in situations of receiving help, there was an increase in the sense of support, but only in those who did not express their emotions in an ambivalent manner.

The role of gratitude in the course of breast cancer and the correlation of gratitude with posttraumatic growth, mental well-being, and distress was indicated in a group of patients with non-metastatic breast cancer [14]. Gratitude, mental well-being, and post-traumatic growth as well as symptoms of anxiety, depression, somatization, and hostility as well as relaxation, satisfaction, physical well-being, and friendliness were measured. The aim of the study was to establish the role of gratitude in the course of breast cancer and the correlation of gratitude with posttraumatic growth, mental well-being, and distress. Patients with high gratitude were also compared to patients with low gratitude in the above measures to see if gratitude as a disposition contributed to better mental health.

Low to moderate correlations of gratitude with posttraumatic growth were found [14]. Relationships of gratitude and well-being turned out to be important only for positive relationships with others. No relationship was demonstrated for the above

measures when dividing the patients into groups with a higher and lower tendency to experience gratitude. In contrast, when age was taken into account, there were significant differences in personal growth and purpose in life (in younger age groups). Low correlations of gratitude with relaxation and satisfaction were obtained, and negative low correlations with anxiety, depression, and hostility.

Purpose of research and hypotheses

Considering the above research on gratitude, social support, and well-being among people suffering from cancer, a question arises about the role of the sense of social support and gratitude for the quality of life of patients. One possible explanation for the relationship between gratitude and well-being is mediation. Therefore, the relationship between gratitude and the quality of life in the group of oncological patients is postulated with the participation of a mediatory variable in the form of social support. Because there are differences between men and women in the intensity of gratitude and the sense of support, it is assumed that there will also be differences between genders in terms of the studied dependencies.

The following hypotheses were made:

- gratitude, sense of social support, and quality of life correlate with each other;
- the sense of social support is the mediator of the relationship between gratitude and quality of life;
- the mediation of gratitude with quality of life is moderated by gender.

MATERIAL AND METHODS

Gratitude questionnaire gratitude questionnaire

The gratitude questionnaire tool [7] adapted by Kossakowska and Kwiatek [15] measures the tendency to experience gratitude (dispositional gratitude) according to the theory of McCullough and Emmons. The scale consists of 6 statements, rated on a 7-point scale (from “I strongly disagree” to “I strongly agree”). In the Polish version, a confirmatory analysis on data from studies of 511 people confirmed the relative goodness of matching Polish data to the original one-factor structure of the questionnaire. The reliability coefficient is good and amounts to 0.72.

Scale of social support

The social support scale [16] is a Polish tool that measures the type and strength of support received by an individual from specific social groups. Support

is understood here as a kind of social interaction undertaken by 1 or 2 parties in a problem situation. There is an informational, instrumental, or emotional exchange that can be either 1-way or 2-way, constant or variable. In this system, it is possible to distinguish a person helping and receiving support, and the effectiveness of the support depends on the consistency between the recipient's needs and the type of support [17].

This tool alludes to the concept of support by Tardy [18], who distinguished 4 types of support. Informational support means delivering important news and advice. Instrumental support consists in providing specific help, e.g. financial. Another type of support is evaluative support, meaning that the individual has the abilities and skills important to proper functioning. The last type of support is emotional support, which is making it clear that someone is always there for you.

The method contains 24 items on a 5-point scale ("definitely yes", "rather yes", "sometimes yes, sometimes no", "probably no", and "definitely no"). It includes 4 subscales: informational support, instrumental support, evaluative support, and emotional support.

The psychometric properties of this tool are good. The internal consistency is 0.70–0.82. Convergent and differential validity was measured by correlating subscales with measures of alienation and the sense of control.

The sense of quality of life questionnaire

The sense of quality of life questionnaire [19] was created on the basis of Straś-Romanowska's personalistic and existential concept of the quality of life. It is used to assess the subjective and multidimensional level of life satisfaction and well-being.

It contains 60 items on a 4-point scale ("I strongly disagree", "I rather disagree", "I tend to agree", and "I strongly agree"). The criterion for selecting a par-

ticular category is the assessment of the level of subjective satisfaction [1]. The respondent assesses their values, beliefs, and daily functioning separately in 4 spheres: psychophysical, psychosocial, subjective, and metaphysical. The sum of the subscales is the global quality of life score.

The psychometric properties of the scale are satisfactory. The reliability (absolute stability for adult overall score) is 0.65. Cronbach's α internal consistency is 0.92 for the entire test. The accuracy, estimated as the agreement of the competent judges using the Kendall W coefficient, is 0.58, 0.50, 0.67, and 0.69 for individual subscales.

Participants

This research involved participation of Polish cancer patients, with breast or prostate cancer, hospitalized during 5–7 weeks of radiotherapy. The results of 96 patients were evaluated, aged 31–79 years ($M = 60.69$; $SD = 9.79$): 48 women aged 31–78 years ($M = 57.44$; $SD = 10.45$) and 48 men aged 44–79 years ($M = 63.94$; $SD = 7.93$). In middle adulthood (aged 30–60 years old) there were 47 patients – 29 women and 18 men; in late adulthood (age above 60 years) there were 49 patients – 19 women and 30 men.

The research obtained approval of the Ethics Committee of the John Paul II Catholic University of Lublin.

RESULTS

The intensity of gratitude (Tab. 1) was significantly higher in women than in men ($t = 2.67$; $p < 0.03$).

In terms of social support, emotional support was most often declared, and the other types of support were assessed at a slightly lower or similar level. Women felt that they received more information support than men, but the difference between the obtained

Table 1. Level of gratitude, social support and quality of life in the whole group and comparison of these variables in males and females

Parameters	Total N = 96		Females n = 48		Males n = 48		t-test	
	M	SD	M	SD	M	SD	t (94)	p
Gratitude	31.08	5.92	32.65	5.83	29.52	5.64	2.67	0.03
Informational support	25.59	3.01	26.10	3.07	25.08	2.89	1.68	0.097
Instrumental support	25.02	3.68	24.58	3.75	25.46	3.59	-1.17	0.246
Value support	25.22	3.08	25.35	3.48	25.08	2.66	0.43	0.669
Emotional support	28.57	2.34	28.58	2.68	28.56	1.97	0.04	0.965
Psychophysical QoL	43.20	7.64	43.58	7.21	42.81	8.10	0.49	0.623
Psychosocial QoL	50.13	5.93	49.13	5.97	51.12	5.78	-1.67	0.099
Subjective QoL	48.61	5.55	48.29	5.95	48.94	5.17	-0.57	0.572
Metaphysical QoL	51.59	5.28	51.44	5.43	51.75	5.19	-0.29	0.774
Global QoL	193.53	19.92	192.44	20.23	194.62	19.75	-0.54	0.593

QoL – quality of live

Table 2. Relationships between gratitude, quality of life and social support in the entire group of respondents, Pearson's *r* correlations

Parameters	Whole group								
	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Gratitude									
2. Information support	0.10								
3. Instrumental support	0.20 ^a	0.19							
4. Value support	0.03	0.19	0.19						
5. Emotional support	0.17	0.23	0.37 ^{***}	0.38 ^{***}					
6. Psychophysical QoL	0.26 [*]	0.14	0.08	0.28 ^{**}	0.25 [*]				
7. Psychosocial QoL	0.24 [*]	0.25 [*]	0.42 ^{***}	0.37 ^{***}	0.41 ^{***}	0.48 ^{***}			
8. Subjective QoL	0.17 ^b	0.18 ^c	0.35 ^{***}	0.43 ^{***}	0.46 ^{***}	0.52 ^{***}	0.69 ^{***}		
9. Metaphysical QoL	0.36 ^{***}	0.19 ^c	0.42 ^{***}	0.20 ^a	0.43 ^{***}	0.42 ^{***}	0.64 ^{***}	0.63 ^{***}	
10. Global QoL	0.30 ^{**}	0.23 [*]	0.37 ^{***}	0.39 ^{***}	0.46 ^{***}	0.78 ^{***}	0.84 ^{***}	0.85 ^{***}	0.79 ^{***}
	Females								
	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Gratitude									
2. Information support	0.06								
3. Instrumental support	0.51 ^{***}	0.17							
4. Value support	0.10	0.21	0.25 ^{**}						
5. Emotional support	0.26 ^b	0.25 ^b	0.33 ^{**}	0.40 ^{**}					
6. Psychophysical QoL	0.20	0.17	0.04	0.39 ^{**}	0.32 [*]				
7. Psychosocial QoL	0.33 [*]	0.34 [*]	0.29 [*]	0.48 ^{**}	0.32 [*]	0.53 ^{***}			
8. Subjective QoL	0.30 [*]	0.15	0.23	0.53 ^{***}	0.49 ^{**}	0.64 ^{***}	0.69 ^{***}		
9. Metaphysical QoL	0.47 ^{**}	0.15	0.40 ^{**}	0.23	0.42 ^{**}	0.37 [*]	0.62 ^{***}	0.60 ^{***}	
10. Global QoL	0.38 ^{**}	0.25 ^c	0.27 ^a	0.40 ^{***}	0.46 ^{**}	0.80 ^{***}	0.85 ^{***}	0.89 ^{***}	0.76 ^{***}
	Males								
	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Gratitude									
2. Information support	0.06								
3. Instrumental support	-0.05	0.27							
4. Value support	-0.09	0.14	0.12						
5. Emotional support	0.04	0.20	0.44 ^{**}	0.34 [*]					
6. Psychophysical QoL	0.24	0.11	0.14	0.17	0.18				
7. Psychosocial QoL	0.27 ^a	0.24	0.54 ^{**}	0.27 ^a	0.56 ^{**}	0.46 ^{**}			
8. Subjective QoL	0.07	0.25 ^b	0.49 ^{**}	0.30 [*]	0.42 ^{**}	0.42 ^{**}	0.70 ^{***}		
9. Metaphysical QoL	0.29 [*]	0.25 ^b	0.45 ^{**}	0.16	0.45 ^{**}	0.49 ^{**}	0.67 ^{***}	0.67 ^{***}	
10. Global QoL	0.27 ^a	0.25 ^b	0.47 ^{**}	0.27 ^a	0.47 ^{**}	0.78 ^{***}	0.84 ^{***}	0.82 ^{***}	0.83 ^{***}

QoL – quality of live

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ^a $p < 0.06$; ^b $p < 0.09$; ^c $p < 0.07$

means was statistically insignificant, indicating only a trend towards significance ($t = 1.68$; $p < 0.10$). There were no significant differences between women and men in terms of other types of support.

There was a difference in the trend level ($p < 0.10$) between women and men in the psychosocial dimension of quality of life. The sense of quality of life in the psychosocial dimension turned out to be higher

in men than in women. The results in the remaining spheres of the quality of life did not differ between men and women.

To select potential mediators of social support, Pearson's *r* correlations between support and gratitude as well as support and quality of life were calculated for the entire group of respondents and separately for women and men (Tab. 2).

The sense of support vs. gratitude and the global sphere of the quality of life

In the entire group of respondents (Tab. 2), instrumental support correlated with gratitude at the level of $r = 0.20$ with significance on the edge of the trend ($p = 0.053$). This result means that the higher the level of gratitude, the greater the sense of instrumental support in the respondents. There was also a significant linear relationship between instrumental support and global quality of life in the entire group of respondents ($r = 0.37$; $p < 0.001$). This means that a higher level of gratitude goes hand in hand with a sense of greater instrumental support, and a sense of greater instrumental support is accompanied by a higher quality of life in the global sphere. In women, instrumental support was positively associated with gratitude at the level of $r = 0.51$ ($p < 0.001$), and the relationship between instrumental support and global quality of life was at the trend level ($r = 0.27$; $p = 0.06$). In the group of men, the relationship of gratitude with instrumental support was insignificant ($r = -0.05$; $p > 0.05$), and the relationship between instrumental support and the global dimension of quality of life was positive and significant ($r = 0.47$; $p < 0.01$). The above results mean that the groups distinguished by the gender variable differed in terms of the relationship between instrumental support and gratitude. In women, a higher tendency to experience gratitude was accompanied by a sense of greater instrumental support, and in men this relationship did not occur.

In the group of patients studied, the relationship of gratitude with emotional support was low and positive at the trend level ($r = 0.26$; $p = 0.07$), the relationship between emotional support and global quality of life was also low and positive ($r = 0.46$; $p < 0.01$). The relationship between gratitude and emotional support was irrelevant both for the entire study group ($r = 0.17$; $p > 0.05$) and for the group of men ($r = 0.04$; $p > 0.05$). Emotional support was significantly and positively associated with the global quality of life in the whole group ($r = 0.46$; $p < 0.001$) and in the male respondents ($r = 0.47$; $p < 0.01$). The above results mean that there is a higher sense of emotional support with an increase in the level of gratitude, but only in the surveyed women. The feeling of greater emotional support was accompanied by a higher quality of life on a global scale, but this correlation did not occur in women.

The remaining types of support were not significantly related to gratitude, although they correlated significantly with the global sphere of quality of life (with value support for the whole group $r = 0.39$; $p < 0.001$; in women $r = 0.40$; $p < 0.001$; with information support for the whole group, $r = 0.23$; $p < 0.05$).

In summary, the variables that correlated simultaneously with the explanatory variable (gratitude)

and the dependent variable (global quality of life) included instrumental support and emotional support.

Gratitude, a sense of support, and the psychophysical dimension of the quality of life

In the group of examined patients, the relationship of gratitude with emotional support was low and positive at the tendency level ($r = 0.26$; $p < 0.07$), and the relationship between emotional support and psychophysical quality of life was also low and positive ($r = 0.32$; $p < 0.05$). The relationship between gratitude and emotional support was insignificant both for the entire study group ($r = 0.17$; $p > 0.05$) and for the group of men ($r = 0.04$; $p > 0.05$). Emotional support was significantly and positively associated with the psychophysical quality of life in the whole group ($r = 0.25$; $p < 0.05$), while this relationship was insignificant in the studied men ($r = 0.18$; $p > 0.05$). The above results mean that a higher level of gratitude is associated with a feeling of greater emotional support, but only in the group of women. The feeling of greater emotional support coexists with a higher quality of life in the psychophysical dimension, apart from the group of men.

The other types of support were not significantly related to gratitude. In addition to emotional support, only evaluative support was significantly related to the psychophysical sphere of the quality of life (for the whole group, $r = 0.28$; $p < 0.01$; in women, $r = 0.39$; $p < 0.01$).

In conclusion, one of the variables that correlated simultaneously with the explanatory variable (gratitude) and the dependent variable (psychophysical quality of life) was emotional support.

The sense of support and gratitude and the psychosocial sphere of the quality of life

In the entire group of respondents (Tab. 2), instrumental support correlated with gratitude at the level of $r = 0.20$ with significance on the edge of the trend ($p = 0.053$). There was also a significant linear relationship between instrumental support and psychosocial quality of life ($r = 0.42$; $p < 0.001$). In women, instrumental support was positively associated with gratitude at the level of $r = 0.51$ ($p < 0.001$), and the relationship between instrumental support and psychosocial quality of life was significant ($r = 0.29$; $p < 0.05$). In the group of men, the relationship between gratitude and instrumental support was insignificant ($r = -0.05$; $p > 0.05$). The above results mean that the mutual relations between gratitude, instrumental support, and the psychosocial sphere of the quality of life occurred in the group of all respondents jointly and in the group of women. The ob-

tained results mean that the higher level of gratitude in these groups goes hand in hand with the feeling of greater instrumental support, and the feeling of greater instrumental support is accompanied by a higher quality of life in the psychosocial dimension.

In the group of patients studied, the relationship between gratitude and emotional support was low and positive at the level of the tendency ($r = 0.26$; $p = 0.07$), and the relationship between emotional support and psychosocial quality of life was also low and positive ($r = 0.32$; $p < 0.05$). The relationship between gratitude and emotional support was irrelevant for both the entire study group ($r = 0.17$; $p > 0.05$) and the group of men ($r = 0.04$; $p > 0.05$). Emotional support was significantly and positively associated with the psychosocial quality of life in the whole group ($r = 0.41$; $p < 0.001$) and in the men studied ($r = 0.56$; $p < 0.01$). The above results mean that a higher level of gratitude was associated with a greater sense of emotional support only in the surveyed women. The feeling of greater emotional support coexisted with a higher quality of life in the psychosocial dimension in all study groups.

Other types of support were not significantly related to gratitude, although they correlated significantly with the psychosocial sphere of quality of life (with value support for the whole group $r = 0.37$; $p < 0.001$; in women $r = 0.48$; $p < 0.01$; with information support for the whole group, $r = 0.25$; $p < 0.05$; in women, $r = 0.34$; $p < 0.05$).

In conclusion, the variables that correlated simultaneously with the explanatory variable (gratitude) and the dependent variable (psychosocial quality of life) were instrumental support and emotional support.

Gratitude, a sense of support, and the subjective dimension of the quality of life

In the entire group of respondents, instrumental support correlated with gratitude at the level of $r = 0.20$ with significance on the border of the tendency ($p = 0.053$). There was also a significant linear relationship between instrumental support and subjective quality of life ($r = 0.35$; $p < 0.001$). In women, instrumental support was positively associated with gratitude at the level of $r = 0.51$ ($p < 0.001$), but the relationship between instrumental support and subjective quality of life was insignificant ($r = 0.23$; $p > 0.05$). In the group of men, the relationship of gratitude with instrumental support was insignificant ($r = -0.05$; $p > 0.05$), and the relationship between instrumental support and subjective quality of life was low and positive ($r = 0.49$; $p < 0.001$). The above results mean that the higher level of gratitude was accompanied by a sense of greater instru-

mental support, except for the group of men in which this relationship did not occur. The feeling of greater instrumental support coexisted with a higher quality of life in the subjective dimension, but this relationship did not occur in the group of women.

In the group of examined patients, the relationship of gratitude with emotional support was low and positive at the tendency level ($r = 0.26$; $p = 0.07$), and the relationship between emotional support and subjective quality of life was also low and positive ($r = 0.49$; $p < 0.01$). The relationship between gratitude and emotional support was insignificant both in the entire study group ($r = 0.17$; $p > 0.05$) and in the group of men ($r = 0.04$; $p > 0.05$). Emotional support was significantly and positively associated with the subjective quality of life in the entire group ($r = 0.46$; $p < 0.01$) and in the male respondents ($r = 0.42$; $p < 0.01$). The obtained results mean that the higher level of gratitude was accompanied by a feeling of greater emotional support, but the relationship also occurred only in women. The feeling of greater emotional support coexisted with a higher quality of life in the subjective area in all the studied groups.

Other types of support were not significantly related to gratitude, and the subjective sphere of the quality of life was significantly correlated with, as well as instrumental and emotional support, evaluative support (for the whole group $r = 0.43$; $p < 0.001$; in women $r = 0.53$; $p < 0.001$; in men $r = 0.30$; $p < 0.05$).

In conclusion, the variables that correlated simultaneously with the explanatory variable (gratitude) and the dependent variable (subjective quality of life) included instrumental support and emotional support.

The sense of support and gratitude and the metaphysical sphere of the quality of life

In the entire group of respondents, instrumental support correlated with gratitude at the level of $r = 0.20$ with significance on the border of the tendency ($p = 0.053$). There was also a significant linear relationship between instrumental support and metaphysical quality of life ($r = 0.42$; $p < 0.001$). In women, instrumental support was associated positively and moderately with gratitude at the level of $r = 0.51$ ($p < 0.001$), and the relationship between instrumental support and metaphysical quality of life was low and positive ($r = 0.40$; $p < 0.01$). In the group of men, the relationship of gratitude with instrumental support was insignificant ($r = -0.05$; $p > 0.05$), and the relationship between instrumental support and metaphysical quality of life was low and positive ($r = 0.45$; $p < 0.01$). The above results mean

that the higher level of gratitude was accompanied by a sense of greater instrumental support, except for the group of men in which this relationship did not occur. In all studied groups, the sense of greater instrumental support coexisted with a higher quality of life in the metaphysical sphere.

In the group of examined patients, the relationship of gratitude with emotional support was low and positive at the level of tendencies ($r = 0.26$; $p < 0.07$), the relationship between emotional support and metaphysical quality of life was also low and positive ($r = 0.42$; $p < 0.01$). The relationship between gratitude and emotional support was irrelevant for both the entire study group ($r = 0.17$; $p > 0.05$) and the group of men ($r = 0.04$; $p > 0.05$). Emotional support was significantly and positively associated with the metaphysical quality of life in the whole group ($r = 0.43$; $p < 0.01$) and in the male respondents ($r = 0.45$; $p < 0.01$). The obtained results mean that the higher level of gratitude was accompanied by a feeling of greater emotional support, but the relationship also occurred only in women. In all the studied groups, the feeling of greater emotional support coexisted with a higher quality of life in the metaphysical sphere.

The other types of support were not significantly related to gratitude, nor with the metaphysical sphere of the quality of life.

In summary, the variables that correlated simultaneously with the explanatory variable (gratitude) and the dependent variable (metaphysical quality of life) included instrumental support and emotional support.

Considering all areas of quality of life, the variables that most often correlated with the explanatory variable (gratitude) and the dependent variable (individual spheres of quality of life and its global index) were 2 types of social support: informational support and emotional support.

Sense of social support as a mediator of the relationship between gratitude and quality of life

The purpose of the following analysis is the relationship between gratitude and the global sphere of quality of life, along with the sense of social support as a mediator of this relationship, with the participation of gender as a moderator of the above mediation relationship. In the first step of the analysis, it was checked whether moderation occurs in the proposed model of the impact of gratitude on the global sphere of quality of life mediated by social support.

The comparison of the unlimited model and the model of structural weights ($\chi^2 (9) = 15.10$; $p = 0.088$) indicates the possibility of moderation be-

Table 3. Comparison of individual models for each path with the model of structural weights (gratitude – support – global quality of life)

Paths' models	$\chi^2 (1)$	p
Gratitude → global QOL	0.32	0.571
Gratitude → informational support	0.45	0.501
Gratitude → instrumental support	6.74	0.009
Gratitude → value support	0.15	0.702
Gratitude → emotional support	0.08	0.779
Informational support → global QOL	0.09	0.763
Instrumental support → global QOL	5.71	0.017
Value support → global QOL	0.10	0.749
Emotional support → global QOL	0.95	0.329

QoL – quality of life

cause there was a tendency towards significance, despite the lack of significance at the level of $p < 0.05$. Next, it was checked which paths were moderated by building models for each path and comparing each model for each path with the structural weight model, as shown in Table 3.

It turned out that the release of the paths gratitude → instrumental support and instrumental support → global quality of life means that the model is significantly better suited to the data ($\chi^2 (2) = 12.46$; $p = 0.002$) than the model of structural weights. This means that there is moderation on these paths.

The next step was to build a final model in which all paths are limited except for the gratitude → instrumental support and instrumental support → global quality of life paths, which have been identified as moderated. The final model was compared with the unlimited model ($\chi^2 (7) = 2.64$; $p = 0.916$). The insignificant result of this comparison indicates that the final model does not fit the data worse than the unconstrained model. Therefore, the final model was adopted as appropriate.

The fit coefficients of the adopted model of structural weights turned out to be good: CMIN(7) = 2.64; $p > 0.05$; CMIN/DF = 0.38; TLI = 1.25; CFI = 1.00; RMSEA = 0.00 (LO90 = 0; HI90 = 0.04). The model explained 37% of the variance in the global quality of life in the group of women and 44% of the variance in the group of men (Tab. 4).

Comparing the models of the relationship of gratitude to social support and the global sphere of the quality of life in women and men, it can be concluded that the direct effect of gratitude on the global quality of life turned out to be significant both in the groups of women and of men, which means that possible mediation is partial ($B = 0.31$; $p = 0.018$).

The direct effect of gratitude for instrumental support turned out to be statistically significant in the group of women ($B = 0.49$; $p = 0.003$), while it

Table 4. Non-standardized coefficients for the paths of the final model (gratitude – social support – global quality of life)

Paths (final model)	Effects in females		Effects in males	
	Direct effect			
	B	p	B	p
Gratitude → informational support	0.14	0.196	0.14	0.196
Gratitude → instrumental support	-0.01	0.951	-0.01	0.951
Gratitude → value support	0.49	0.003	-0.01	0.965
Gratitude → emotional support	0.05	0.511	0.05	0.511
Gratitude → global QOL	0.31	0.018	0.31	0.018
Emotional support → global QOL	0.23	0.010	0.23	0.010
Value support → global QOL	0.28	0.039	0.28	0.039
Instrumental support → global QOL	-0.1	0.736	0.35	0.001
Informational support → global QOL	0.09	0.415	0.09	0.415
Indirect effect				
	B		p	
Gratitude → global QOL	0.09		0.179	
Total effect				
	B		p	
Gratitude → global QOL	0.34		0.004	

QoL – quality of live

was insignificant in the group of men ($B = -0.01$; $p = 0.965$). The obtained results mean that gender is the moderator of the relationship between gratitude and instrumental support. In women, the higher level of gratitude explains the sense of higher instrumental support.

The direct effect of instrumental support on the global sphere of quality of life was statistically significant in the group of men ($B = 0.35$; $p = 0.001$), while in women it was insignificant ($B = -0.06$; $p = 0.736$), which means that gender turned out to be a moderator of the relationship between instrumental support and global quality of life. In men, a greater sense of support explains the higher quality of life in the global sphere.

Both in the groups of women and of men, the direct effect of gratitude on emotional support turned out to be insignificant ($B = 0.14$; $p = 0.196$), while the direct effect of emotional support on the quality of life in the global sphere was significant in both sexes ($B = 0.23$; $p = 0.010$). This means that for both men and women, the level of gratitude does not explain the level of perceived emotional support, but a greater sense of emotional support explains the higher quality of life globally.

Similarly, the direct effect of gratitude on evaluative support turned out to be insignificant in both the female and male groups ($B = -0.01$; $p = 0.951$), while the direct effect of evaluative support on global quality of life was significant in both sexes ($B = 0.28$; $p = 0.039$). This means that for both men and women, the level of gratitude does not explain

the level of perceived value support, but a greater sense of value support explains the higher quality of life globally.

The direct effect of gratitude for information support was insignificant in both groups ($B = 0.05$; $p = 0.511$), as was the direct effect of information support on the global quality of life ($B = 0.09$; $p = 0.415$). The obtained results mean that the level of the tendency to experience gratitude does not explain the feeling of informational support, nor does this type of support explain the level of quality of life in the global sphere.

In the proposed model of the impact of gratitude on the global sphere of quality of life mediated by social support, the total effect ($B = 0.34$; $p = 0.004$) was significant, but the indirect effect was insignificant ($B = 0.09$; $p = 0.179$), which indicates a lack of mediation. Social support did not mediate the relationship of gratitude to global quality of life. The presence of moderation in this model proves that there were single gender-moderated paths, while there was no moderated mediation.

Overall, social support has not been found to mediate the relationship between gratitude and global quality of life. In the proposed model, gender turned out to be a moderator in terms of the relationship between gratitude and instrumental support. The relationship of gratitude with instrumental support occurred in women, which means that the greater tendency to experience gratitude favours a greater sense of instrumental support only in the group of women. Gender also turned out to be a moder-

Table 5. Comparison of the individual models for each path with the model of structural weights (gratitude – support – psychosocial quality of life)

Paths' models	χ^2 (1)	p
Gratitude → informational support	1.30	0.255
Gratitude → instrumental support	0.45	0.501
Gratitude → value support	6.74	0.009
Gratitude → emotional support	0.15	0.702
Gratitude → psychosocial QOL	0.08	0.779
Emotional support → psychosocial QOL	0.19	0.661
Value support → psychosocial QOL	6.85	0.009
Instrumental support → psychosocial QOL	0.04	0.838
Informational support → psychosocial QOL	4.93	.026

QoL – quality of life

ator of the relationship between instrumental support and the global sphere of quality of life, and this relationship occurred only in men. This means that a greater sense of social support increases the global quality of life in men.

Sense of social support as a mediator of the relationship between gratitude and the psychophysical sphere of the quality of life, taking into account gender as a moderator

There was no relationship between gratitude and the psychophysical quality of life mediated by social support and gender moderation of this relationship. Neither type of support mediated the above relationship.

Sense of social support as a mediator of the relationship of gratitude with the psychosocial sphere of quality of life, taking into account gender as a moderator

In the first step of the analysis, it was checked whether moderation occurs in the proposed model of the impact of gratitude on the psychosocial sphere of the quality of life mediated by social support. The comparison of the unlimited model and the model of structural weights (χ^2 (9) = 20.43; p = 0.015) indicates the occurrence of moderation. It was then checked which paths were moderated by building models for each path and comparing each model for each path with the model of structural weights, as presented in Table 5.

It turned out that the release of gratitude paths à instrumental support and instrumental support à quality of life psychosocial and emotional support à quality of life psychosocial means that the model fits the data significantly better than the model of struc-

tural weights (χ^2 (3) = 15.54; p < 0.001) (Tab. 5). This means there is moderation on these tracks.

The next step was to build a final model where all paths are limited except gratitude → instrumental support and instrumental support → psychosocial quality of life and emotional support → psychosocial quality of life, which were identified as moderated. The final model was compared with the unlimited model (χ^2 (6) = 4.89; p = 0.558). The insignificant result of this comparison indicates that the final model does not fit the data worse than the unconstrained model. Therefore, the final model was adopted as appropriate.

The fitting coefficients of the final model turned out to be good:

$CMIN(6)$ = 4.89; p > 0.05; $CMIN/DF$ = 0.81; TLI = 1.07; CFI = 1.00; $RMSEA$ = 0.00 ($LO90$ = 0; $HI90$ = 0.12). The model explained 27% of the variance in psychosocial quality of life in the group of women and 54% of the variance in the group of men.

The comparison of the models (Tab. 6) of the relationship between gratitude, social support, and the psychosocial sphere of the quality of life in women and men indicates that the direct effect of gratitude on the psychosocial quality of life was significant (B = 0.28; p = 0.013), which indicates that possible mediation is partial.

The direct effect of gratitude for instrumental support turned out to be statistically significant in the group of women (B = 0.49; p = 0.003), while it was insignificant in the group of men (B = -0.01; p = 0.965). This means that gender turned out to be a moderator in terms of the relationship between gratitude and instrumental support. In women, a higher level of gratitude explains the feeling of greater instrumental support.

The direct effect of instrumental support on the psychosocial sphere of quality of life was statistically significant in the group of men (B = 0.38; p = 0.002), while in women it was insignificant (B = 0.03; p = 0.919), which means that gender was a moderator of the relationship between instrumental support and psychosocial quality of life. The higher level of instrumental support explains the higher psychosocial quality of life, but only in men.

The direct effect of emotional support on the psychosocial sphere of quality of life was statistically significant in the group of men (B = 0.32; p = 0.007), while in women it was insignificant (B = 0.08; p = 0.512), which means that gender was moderator of the relationship between emotional support and the psychosocial dimension of quality of life. In men, a sense of greater emotional support explains the higher psychosocial quality of life.

In both men and women, a higher level of sense of value support was associated with a higher quality of life in the psychosocial dimension (B = 0.26; p = 0.013), while the direct effect of gratitude on

Table 6. Non-standardized coefficients for the paths of the final model (gratitude – social support – psychosocial quality of life)

Paths (final model)	Effects in females		Effects in males	
	Direct effect			
	B	p	B	p
Gratitude → emotional support	0.14	0.196	0.14	0.196
Gratitude → value support	-0.01	0.951	-0.01	0.951
Gratitude → instrumental support	0.49	0.003	-0.01	0.965
Gratitude → informational support	0.05	0.511	0.05	0.511
Gratitude → psychosocial QOL	0.28	0.013	0.282	0.013
Emotional support → psychosocial QOL	0.078	0.512	0.320	0.007
Value support → psychosocial QOL	0.260	0.013	0.260	0.013
Instrumental support → psychosocial QOL	0.026	0.919	0.376	0.002
Informational support → psychosocial QOL	0.121	0.171	0.121	0.171
Indirect effect				
	B		p	
Gratitude → psychosocial QOL	0.11		0.113	
Total effect				
	B		p	
Gratitude → psychosocial QOL	0.33		0.001	

QoL – quality of life

evaluative support was insignificant ($B = -0.01$; $p = 0.951$).

In both women and men, the direct effect of gratitude on information support was negligible ($B = 0.05$; $p = 0.511$), as was the effect of information support on psychosocial quality of life ($B = 0.121$; $p = 0.171$). The above results mean that the feeling of gratitude does not explain the intensification of the feeling of informational support, nor does this support explain the quality of life in the psychosocial sphere.

In the proposed model of the impact of gratitude on the global sphere of quality of life mediated by social support, the total effect was significant ($B = 0.33$; $p = 0.001$), but the indirect effect was negligible ($B = 0.11$; $p = 0.113$), indicating a lack of mediation. Social support did not mediate the relationship between gratitude and psychosocial quality of life. The presence of moderation in this model proves that there were single gender-moderated paths, but there was no moderated mediation due to the lack of mediation.

Overall, social support has not been found to mediate the relationship between gratitude and psychosocial quality of life. In the proposed model, gender turned out to be a moderator in terms of the relationship between gratitude and instrumental support. The relationship between gratitude and instrumental support occurred only in women, which means that a higher level of gratitude goes hand in hand with a greater sense of instrumental support in women.

Gender was also the moderator of the relationship between instrumental support and the psychosocial sphere of quality of life. The relationship between instrumental support and the psychosocial dimension of quality of life occurred only in men, which means that a greater sense of instrumental support in men is associated with a higher quality of life in the psychosocial area. There was also moderation in the relationship between emotional support and psychosocial quality of life. This means that in the group of men a greater sense of emotional support increases the perceived quality of life in the psychosocial dimension.

Sense of social support as an intermediary variable between gratitude and subjective quality of life, along with gender as a moderator of the above relationship

In the first step of the analysis, it was checked whether moderation occurs in the proposed model of the impact of gratitude on the subjective sphere of the quality of life mediated by social support. The comparison of the unlimited model and the model of structural weights ($\chi^2(9) = 15.08$; $p = 0.089$) indicates the possibility of moderation, as there was a tendency despite the lack of significance at the level of $p < 0.05$.

Next, it was checked which paths were moderated by building models for each path and comparing each model for each path with the structural weight model, as shown in Table 7.

Table 7. Comparison of individual models for each path with the model of structural weights (gratitude – support – subjective quality of life)

Models for paths	χ^2 (1)	p
Gratitude → subjective QOL	0.02	0.888
Gratitude → informational support	0.45	0.501
Gratitude → instrumental support	6.74	0.009
Gratitude → value support	0.15	0.702
Gratitude → emotional support	0.08	0.779
Informational support → subjective QOL	0.58	0.447
Instrumental support → subjective QOL	4.16	0.041
Value support → subjective QOL	0.46	0.496
Emotional support → subjective QOL	0.001	0.987

QoL – quality of live

It turned out that the paths release gratitude → instrumental support and instrumental support → subjective quality of life mean that the model is significantly better suited to the data (χ^2 (2) = 10.91; p = 0.004) than the model of structural weights. This means that there is moderation on these paths (Tab. 7).

The next step was to build the final model in which all paths are limited except for gratitude → instrumental support and instrumental support → subjective quality of life, which were identified as moderated. The final model was compared with the unlimited model (χ^2 (7) = 4.18; p = 0.759). The insignificant result of this comparison indicates that the final model does not fit the data worse than

the unconstrained model. Therefore, the final model was adopted as appropriate.

The fitting coefficients of the final model turned out to be good: $CMIN(7)$ = 4.18; p > 0.05; $CMIN/DF$ = 0.60; TLI = 1.18; CFI = 1.00; $RMSEA$ = 0.00 ($LO90$ = 0; $HI90$ = 0.09). The model explained 31% of the subjective quality of life variance in the group of women and 40% of the variance in the group of men.

As indicated by the comparison of direct effects coefficients in models of gratitude relationship with social support and the subjective sphere of the quality of life in women and men (Tab. 8), the direct effect of gratitude for instrumental support turned out to be statistically significant in the group of women (B = 0.49; p = 0.003); however, it was insignificant in the group of men (B = -0.01; p = 0.965). The obtained results mean that gender is the moderator of the relationship between gratitude and instrumental support. A higher level of gratitude promotes a sense of greater instrumental support, but only in women.

The direct effect of instrumental support on the subjective sphere of quality of life was statistically significant in the group of men (B = 0.34; p = 0.002), while in women it was insignificant (B = -0.02; p = 0.937), which means that gender turned out to be a moderator of the relationship between instrumental support and the subjective sphere of the quality of life. In men, the sense of greater instrumental support is associated with achieving a higher quality of life in the subjective dimension.

Both in women and in men, the higher level of the sense of value support explained the higher

Table 8. Non-standardized coefficients for the paths of the final model (gratitude – social support – subjective quality of life)

Paths (final model)	Directs in females		Directs in males	
	Direct effect			
	B	p	B	p
Gratitude → emotional support	0.14	0.196	0.14	0.196
Gratitude → value support	-0.01	0.951	-0.01	0.951
Gratitude → instrumental support	0.49	0.003	-0.01	0.965
Gratitude → informational support	0.05	0.511	0.05	0.511
Gratitude → subjective QOL	0.16	0.172	0.16	0.172
Emotional support → subjective QOL	0.25	0.014	0.25	0.014
Value support → subjective QOL	0.31	0.016	0.31	0.016
Instrumental support → subjective QOL	-0.02	0.937	0.34	0.002
Informational support → subjective QOL	0.04	0.787	0.04	0.787
	Indirect effect			
	B		p	
Gratitude → subjective QOL	0.09		0.181	
	Total effect			
	B		p	
Gratitude → subjective QOL	0.33		0.074	

QoL – quality of live

quality of life in the subjective dimension ($B = 0.25$; $p = 0.014$), but the level of the sense of value support was not explained by the intensity of gratitude ($B = -0.01$; $p = 0.951$).

In both women and men, the direct effect of gratitude on information support was insignificant ($B = 0.05$; $p = 0.511$), as was the effect of information support on quality of life in the subjective dimension ($B = 0.04$; $p = 0.787$). The above results mean that the sense of gratitude does not explain the intensification of the sense of information support, nor does this support explain the quality of life in the subjective sphere.

In the proposed model of the impact of gratitude on the subjective sphere of quality of life mediated by social support, the total effect was at the trend level ($B = 0.33$; $p = 0.074$), and the indirect effect was insignificant ($B = 0.09$; $p = 0.181$), which indicates a lack of mediation. Social support was not a mediator of the relationship between gratitude and subjective quality of life. The presence of moderation in this model proves that there were single gender-moderated paths, while there was no moderated mediation.

Summing up, social support did not prove to be a mediator of the relationship between gratitude and subjective quality of life. In the proposed model, gender turned out to be a moderator in terms of the relationship between gratitude and instrumental support (this relationship occurred in women) and instrumental support with the subjective sphere of quality of life (in men). This means that the greater tendency to experience gratitude favours the achievement of a feeling of greater instrumental support only in women, and the feeling of greater instrumental support is associated with achieving a higher quality of life in the subjective dimension, but only in men.

Sense of social support as a mediator of the relationship between gratitude and the metaphysical sphere of the quality of life, taking into account gender as a moderation

None of the types of support turned out to be a mediator of the relationship between gratitude and the metaphysical sphere of the quality of life, and there were no moderations in terms of the measured variables.

DISCUSSION

Social support has not proved to be a mediator of the relationship of gratitude to any dimension of quality of life. However, there was an influ-

ence of gender on some dependencies included in the model. Gender turned out to be a moderator in terms of the relationship between gratitude and instrumental support for the global, psychosocial, and subjective quality of life. The relationship of gratitude with instrumental support occurred in women, which means that the greater tendency to experience gratitude favours a greater sense of instrumental support only in this group. Gender also turned out to be the moderator of the instrumental support relationship with the global, psychosocial, and subjective sphere of quality of life, and this relationship was found only in men. This means that the feeling of greater social support increases the quality of life in the global, psychosocial, and subjective dimensions of life in men only.

There was also moderation in the emotional support relationship with psychosocial quality of life. This means that in the group of men a greater sense of emotional support increases the perceived quality of life in the psychosocial dimension.

Neither type of support has been found to mediate a gratitude relationship with the psychophysical or metaphysical sphere of the quality of life, there were also no moderations in terms of the psychophysical and metaphysical dimensions of the quality of life.

The hypothesis regarding the relationship between gratitude and quality of life with the participation of a mediator in the form of social support and moderating this relationship by gender has not been confirmed. Instrumental support and emotional support were associated with gratitude and quality of life simultaneously, suggesting that these types of support could act as a mediator between gratitude and quality of life. Instrumental support was associated with a higher level of gratitude in the entire group of patients, and emotional support was associated with gratitude only in the group of women. Social support did not prove to be a mediator of the relationship of gratitude to global, psychophysical, psychosocial, subjective, or metaphysical quality of life. The lack of an intermediary nature of support for the relationship of gratitude to quality of life is surprising because research on the relationship of gratitude to well-being has shown a mediating effect of social support on the relationship of gratitude and well-being [20].

A higher level of gratitude can lead to a greater sense of social support [21, 22]. This relationship was also confirmed in this study. There is also a relationship between the sense of social support and subjective well-being in cancer patients [23], and this study showed a relationship between the sense of support and the quality of life in people suffering from cancer.

The relationship of support (emotional and informational) with gratitude may have occurred because of the mediating nature of positive emotions

in the relationship of gratitude and well-being. According to the theory of Fredrickson [24], positive emotions, including gratitude, fulfil the function of expanding the possible repertoire of thoughts and behaviours, favouring building personal resources, such as social relationships or coping skills. Positive emotions are believed to increase connection with others as well as the quality of social interactions [25]. There are studies supporting Barbara Fredrickson's [24] theory of positive emotions in terms of gratitude. People in a more positive mood are likely to participate in more activities to strengthen relationships with other people, compared to people in a less positive mood. Lin [22] points out that gratitude in this way can help build friendships and other social ties and lead to greater perceived social support. In a study by Lin [22], a higher level of gratitude caused a sense of greater social support, thanks to the feeling of being loved and valued, and due to the presence of prosocial behaviours that strengthened self-esteem and perceived social support. Social support is one of the resources in coping with chronic illness. Thanks to the support, chronically ill people obtain various benefits that positively affect their health, such as increased self-esteem and self-efficacy [26].

The lack of mediation in all spheres of quality of life may indicate that the received relationships of support with gratitude and quality of life constitute another type of indirect effects. One of them is the spurious correlation that consists in the fact that the third variable is related to both the dependent variable and the independent variable, but the causal direction runs from this third variable to both dependent and independent variables, i.e. the direction of the relation is not from the independent variable to the mediator, but from the mediator to the independent variable [27].

Methodological reasons could also be the reason why social support did not appear to be a mediator of the relationship between gratitude and quality of life. The distributions of results in individual types of support significantly differed from the normal distribution and were left-skewed. This means that most patients declared a high level of perceived support. The reason for the high scores in terms of sense of support may be the social approval variable, which was not measured in the study. It is possible that patients receiving insufficient or inadequate support were ashamed to admit it and gave answers that indicated a high sense of social support. This points to the need to replicate research taking into account the measurement of the variable of social approval. In addition, it would be worthwhile to conduct further studies using a scale designed specifically for people suffering from neoplastic diseases.

Although the hypothesis regarding the relationship between gratitude and quality of life has not

been confirmed in the global sphere, with the participation of an intermediary variable in the form of social support and moderating this relationship by gender, a relationship of gratitude and global quality of life was demonstrated with the sense of emotional, instrumental, evaluative, and informative support. As shown by studies on the relationship between support and health-related quality of life in breast cancer patients [28], all types of measured support turned out to be associated with a sense of higher quality of life conditioned by health in all dimensions. Emotional, informational, instrumental, social interaction, and love support were all associated with better physical functioning, less pain, fewer physical limitations, better overall health perception, vitality, social functioning, emotional well-being, and mental health. The above results indicate that the relationship between support and the feeling of higher quality of life in the global dimension can be explained by the impact of the feeling of support on physical, social, and emotional aspects of functioning, such as less pain or lowering the level of depression.

The hypothesis regarding the relationship between gratitude and psychophysical quality of life with the participation of the mediating variable in the form of social support has not been confirmed and moderating this relationship by gender. Despite the lack of the above-mentioned mediation relationship, a relationship between gratitude and the quality of psychophysical life and the sense of emotional support in women was demonstrated. As shown by studies on the relationship between support and health-related quality of life in breast cancer patients [28], all types of measured support turned out to be associated with a sense of higher quality of life conditioned by health in all dimensions. Emotional, informational, and instrumental support, readiness for social interactions and support consisting of showing love involved, among others, better physical functioning, less pain, fewer physical limitations, and a better overall perception of one's health and vitality. The above results indicate that the relationship between emotional support and the feeling of higher quality of life in the psychophysical dimension could occur in this project through the influence of the feeling of emotional support on physical aspects of functioning, such as pain or the perception of health.

The hypothesis regarding the relationship between gratitude and quality of life has not been confirmed in the psychosocial sphere with the participation of an intermediary variable in the form of social support and moderation of this relationship by gender. Gratitude relates to a phenomenon that shares some parallels with the psychosocial sphere of quality of life: loneliness. Research indicates

a negative relationship between the tendency to experience gratitude and loneliness, i.e. a higher level of gratitude goes hand in hand with a lower feeling of loneliness [29]. In a study conducted in a group of Chinese students [30], support turned out to be a mediator in the relationship between gratitude and loneliness, understood as the perception by an individual of social relations as not meeting expectations [31]. It turned out that a higher level of gratitude was protected against loneliness thanks to the mediating role of social support. The feeling of loneliness may be associated with a feeling of low quality of life in the psychosocial dimension. However, in the group of people suffering from cancer, there was no indirect effect of support on the relationship of gratitude to the psychosocial sphere of quality of life. Perhaps support does not mediate the relationship of gratitude to all aspects of psychosocial quality of life, but only with a sense of loneliness as one of the many areas of this dimension of the quality of life. Therefore, the impact of the support variable may turn out to be too weak. This prompted us to conduct research on the mediating role of social support for the relationship between gratitude and loneliness in a group of people suffering from cancer.

In the research, each of the types of support turned out to be associated with a sense of higher quality of life in the psychosocial dimension. The disease may deteriorate the ability of patients to maintain interpersonal relationships, which may reduce social connections [26]. The research results obtained in this project regarding the relationship between social support and quality of life indicate that social support can strengthen relationships between people, as shown by the coexistence of a sense of greater support with a higher quality of life in the psychosocial sphere.

In studies on the relationship between support and health-related quality of life in breast cancer patients [28], social support turned out to be associated with the feeling of a higher quality of life conditioned by health in all dimensions, including with better social functioning. The above result may explain the relationship between support and a higher psychosocial quality of life, because the feeling of higher support may lead to paying more attention to social relationships and thus improving the quality of life in the psychosocial dimension.

The hypothesis regarding the relationship between gratitude and quality of life has not been confirmed in the subjective sphere with the participation of an intermediary variable in the form of social support and moderation of this relationship by gender. The presence of social support also makes it possible to predict the occurrence of optimism and positive expectations for the future, and optimism contributes to an increase in the quality of life [32].

The above relationships between support, optimism, and quality of life explain the obtained relationship between support and the subjective sphere of the quality of life, because optimism is an important subjective quality of a human being. A greater sense of support may increase the sense of quality of life in the subjective dimension by facilitating the adoption of an optimistic perspective in the process of adaptation to a difficult situation.

The hypothesis regarding the relationship between gratitude and quality of life has not been confirmed in the metaphysical sphere with the participation of an intermediary variable in the form of social support and moderation of this relationship by gender. Gratitude turned out to be associated with instrumental support in all respondents, and with emotional support only in women. Each type of support (emotional, instrumental, evaluative, and informative) was associated with a higher quality of life in the metaphysical sphere. In a study of Korean women suffering from breast and reproductive organ cancer [33], social support turned out to be a mediator of the relationship between spirituality and quality of life, which may explain the obtained relationships between support and the metaphysical sphere of quality of life.

CONCLUSIONS

The sense of social support was not an intermediary variable between the tendency to experience gratitude and the quality of life in people suffering from cancer, although both a higher level of gratitude and a sense of a higher quality of life were associated with a higher rating of received support.

In terms of social support, interesting results were also obtained, which were not directly related to the research hypotheses. Gender turned out to be the moderator in terms of the relationship between gratitude and instrumental support. The relationship of gratitude to instrumental support occurred only in women. This means that a higher level of gratitude coexisted with the feeling of greater instrumental support only in women. Gender was also the moderator of the relationship between instrumental support and the global, psychosocial, and subjective sphere of quality of life. The gender variable also differentiated the relationship between emotional support and psychosocial quality of life. The above dependencies occurred only in men. This means that a greater sense of instrumental support coexisted with a higher quality of life in the global, psychosocial, and subjective spheres in men, and a higher sense of emotional support was associated with a sense of higher quality of life in the psychosocial dimension, also in the group of men.

The differences between women and men in terms of the sense of social support are not surprising. In research on social support [34], there were differences between women and men in various aspects of support. Women achieved a higher level of perceived available social support, i.e. the assessment of the availability of help from other people. Women in a difficult situation assess the possibilities of obtaining support in the environment more effectively than men and treat support as an opportunity to solve problems. Women also expected support in a stressful situation more than men and had a greater need for support. Moreover, women more than men sought support, i.e. they were more aware of the need for help they sought from other people. Men, compared to women, were more concerned with protecting their loved ones from negative news, hiding their problems, and avoiding talking about it.

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