

Coping with stress by women diagnosed with gynecologic cancer

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Kupcewicz E, Olewińska J, Pikus H, Jóźwik M. Coping with stress by women diagnosed with gynecologic cancer. *J Pre-Clin Clin Res.* 2018; 12(1): 16–21. doi: 10.26444/jpccr/85643

Abstract

Introduction. Gynecologic cancers are associated with numerous ailments affecting the cognitive, emotional and behavioral outcomes for the ill women. The purpose of the study was to determine the impact of selected sociodemographic and medical variables on stress levels and to describe the predictors of stress intensity among women with diagnosed gynecologic cancer.

Material and methods. The study was conducted from January 2015 to April 2016 in a group of 102 women hospitalized in gynecologic oncology wards in hospitals located in Olsztyn district. The own-designed questionnaire, the Scale of Perceived Stress-PSS-10 and the Multidimensional Inventory for Measuring Coping with Stress-Mini-COPE were used to carry out the study.

Results. In 65.7% of investigated women with gynecologic cancer the intensity of the experienced stress was defined as high, in 23.5% as average, and in one in ten women showed low scores (10.8%), indicating the low severity of the stress experienced. The largest share of predictors (16%) of stress intensity in women patients is provided by a cessation strategy that is related to helplessness and abandonment of effort.

Conclusions. Women with gynecological cancers were experiencing high levels of stress. Most of them feel helpless and abandoned in their illness. They have a potential to apply emotional strategies, including problem-focused strategies to deal with this condition. This study strongly supports a need for psychological counselling and care in gynecologic cancer patients.

Key words

stress, cancer, coping strategies

INTRODUCTION

Researchers often refer in their studies to the transactional approach to stress formulated by R. Lazarus and S. Folkman. In this definition, stress is defined as the relationship between a person and the environment, assessed as overwhelming or overriding a person's resources, as well as threatening their well-being [1–4]. A growing number of studies on human activities have been undertaken which deal with stressful events, referred to as the concept of coping with stress [1]. Many authors indicate that the experience of cancer is an intense stress for the individual, and claim that symptoms of post-traumatic stress may occur [5–6]. Gynaecologic cancers are associated with various ailments which affect the cognitive, emotional and behavioural outcomes for the ill woman. Patients differ in their ways of struggling with illness. It is believed that the major cause of these individual differences are the strategies used to cope with stress caused by the disease [7]. According the definition by Lazarus and Folkman, stress management strategies are constantly changing the cognitive and behavioural efforts aimed at

mastering certain external and internal demands that a person perceives, as being overwhelming or over-performing [8–9]. In the case of cancer, patients struggling with stress progress through the stages of diagnosis and treatment of the disease. Most patients undergo certain stages of emotional reactions described by E. Kübler-Ross [7, 10]. It has been indicated, that the feeling of threat occurs in patients already at the stage of observation of the first symptoms of illness. In the initial phase of the disease, in many cases, shock reaction and lack of acceptance of the disease occur. With realization of the diagnosis, in the next phase, there are reactions of anger, haggling, self-pity and pretensions. Subsequently, there appear symptoms of depression and despair. A frequent reaction is the reluctance to talk about the illness and the isolation. Patients experience strong emotions of fear, sadness and helplessness. After this initial period, most patients adapt and accept their new cancer-related situation [7].

Allen et al. have proved that after completion of the cancer treatment, and the patients feel relief, a constant fear of recurrence often persist. At this stage, the ill person has a strong need to control their health, treat it as a new task, attend regular doctor's appointments, and assume responsibility for their health behaviours [11]. Disease contributes to reducing the ability to deal with daily requirements [4]. This ability has two functions: an instrumental function, related to the use of problem-oriented strategy, and a regulatory function,

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Received: 14 January 2018; accepted: 22 February 2018

linked to coping strategies focused on emotions. The first is directed to mastering the stressor in order to reduce or remove its stressful properties, while the latter helps control the emotional response associated with the stressor [1, 4, 12].

Many researchers point out that the diagnosis and treatment of ovarian cancer is particularly stressful for women and poses a major adaptation challenge [13–14]. These are primarily issues related to self-image, self-perception, sexual function, infertility, and prematurely induced menopause [15]. Some reports indicate that younger women with ovarian cancer experience greater distress than older women [14, 16–17]. Studies on women treated for uterine cancer, lymphoma or trophoblastic disease show that a high intensity of thinking about reproduction ability is associated with poorer physical and psychological functioning, higher cancer-related distress, and less social support [18]. The ways in which stress management is applied become the determinants of present and future mental adaptation to cancer. Studies conducted by Czapinski show that stress management strategies differentiate mental well-being, regardless of the intensity of stress. It turns out that individuals using active tasks oriented strategies gain better welfare rates than those who use passive emotional strategies, or are confronted with problems, regardless of the intensity of their stress [19–20].

According to N. Oginska-Bulik, the results of recent studies indicate that traumatic experience with cancer can involve, in addition to many negative effects, also positive changes. The positive changes are revealed in the form of posttraumatic growth/development, including changes in self-perception, interpersonal relationships, and life philosophy [21–22]. The researcher explains, however, that the appearance of positive changes does not mean the lack of distress, suffering or negative emotions. Post-traumatic growth is seen as a distant effect of the painful process of dealing with trauma. Among the determinants of negative and positive consequences of trauma, cognitive activity including rumination, is particularly important [21–22]. There are international studies addressing the problem of post-traumatic development among cancer survivors that have shown a positive influence of reflexing rumination of a constructive nature [22–26]. This relationship has also been shown in Polish studies among parents struggling with cancer of a child [27].

OBJECTIVE

The aim of the study was to determine to determine the extent of the level of stress in women diagnosed with gynecologic malignancies, and how it differs according to selected socio-demographic and medical factors, and to investigate a link between stress intensity and coping strategies in these women.

MATERIALS AND METHOD

The study was conducted from January 2015 – April 2016 in a group of 102 women hospitalized in gynecologic oncology wards in hospitals located in Olsztyn district, north-east Poland. The research was carried out individually and in accordance with ethical guidelines. All respondents were informed about the purpose of the study and their right to confidentiality of data. A diagnostic survey was used as

a research method, and a questionnaire containing socio-demographic and medical questions was used to collect data. Stress Scale-PSS-10 by S. Cohen, T. Kamarck, R. Mermelstein), in the Polish adaptation by Z. Juczynski and N. Oginska-Bulik, was used to assess the intensity of stress related to each patient's situation. The tool aimed to assess the intensity of stress associated with the life situation of the patients over the last month. The scale contains 10 questions about the different subjective perceptions of personal problems and events, behaviours and coping strategies. Respondents assessed every question on a 5-point scale by assigning answers ranging from 0 – 4 points according to the following scores: 0 – never, 1 – almost never, 2 – sometimes, 3 – quite often, 4 – very often. The overall score was the sum of all points, with a distribution from 0 – 40. The higher the score, the greater the intensity of the stress experienced. The PSS-10 has satisfactory psychometric properties. Scale reliability was assessed by estimating its internal compliance and absolute stability, yielding Cronbach alpha indicator 0.86 [1]. A shortened version of the Multidimensional Inventory for Measuring Coping with Stress-COPE by C. S. Carver, M. F. Scheier and J. K. Weintraub was used to measure the coping strategies. In the Polish adaptation by Juczynski and Oginska-Bulik it was called the Mini-COPE. The questionnaire contains 28 statements that form part of 14 strategies for coping with stress. According to the recommendations of the authors of the questionnaire, a modified version of the scale has been applied to the oncological patients, including 13 strategies: Active Coping, Planning, Positive Revalidation, Acceptance, Sense of Humor, Turn to Religion, Seeking Emotional Support from Partner, Seeking Emotional Support from Friends, Taking Care of Something Else, Denial, Use of Psychoactive Substances, and Cessation of Activities.

Every study participant had to select one of 4 possible answers for each statement, indicating the degree of severity of the analyzed parameters: 0 – I almost never do that, 1 – I rarely do that, 2 – I often do, 3 – I almost always do that. Each strategy was evaluated separately, adding points to the answers for the 2 statements that made up its composition, and dividing the sum by 2. The spread of each strategy's results ranged 0 – 3. The psychometric properties of the Polish version of the Mini-COPE inventory are similar to the original version [1].

Statistical analysis. Descriptive statistics were used to interpret the data. Evaluation of the variance of the values of the tested features in the class of clustering variables was performed using the Kruskal-Wallis (H) test. For the use of multiple comparisons, the Post-hoc test was used. The overall intensity index of perceived stress was transformed into standardized units, which were interpreted according to the sten scale, a standardized psychological test scale. The scale contains 10 units and the step in the scale equals 1 sten. Stens 1 to 4 indicate low results, and the range of 7 to 10 is considered as high [1]. Correlations between stress intensity and stress management strategies were determined using Spearman's (R) rank correlation coefficients. Multiple regression analysis was applied to determine the predictors of intensity of perceived stress. The p level <0.05 was considered significant. Statistical calculations were performed using STATISTICA 12 package.

RESULTS

Characteristics of the study group. The study group comprised 102 women with histopathological diagnosis of genital cancer (endometrial – n=96; cervical cancer – n=6) aged 28 – 80, mean age – 56.10 (\pm SD 10.75) years, median – 56.5 years. They were mainly women living in the city (n=74; 72.6%), married (n=68; 66.7%), with a secondary education (n=43; 42.2%). In 62.8% (n=64), the BMI was above normal (\geq 30). The duration of coping with the disease in the study group varied. Over a quarter (29.4%; n=30) of the respondents reported that they had been ill for 2 – 3 years. In contrast, 67.6% of the respondents said that in addition to cancer, they were also treated for coexisting conditions, including: hypertension (47.1%; n=48), diabetes (19.6%, n=20), coronary heart disease (8.8%, n=9), gastric and duodenal ulcer (6.9%; n=7) and urinary stones (5.9%; n=6). All patients in the study had had a surgical procedure performed which in the most cases was a Piver type 1 extrafascial hysterectomy (n=32; 31.4%), i.e. removal of the uterus and adnexa, or a Piver type 2 or 3 (radical) hysterectomy, i.e. a removal of the uterine and neighbouring tissues of the upper vaginal cuff and surrounding lymph nodes (n=29; 28.4%). After surgery, 66.7% (n=68) patients were complementary treated with chemotherapy, and 34.3% (n=35) were treated with radiotherapy.

Analysis of the intensity of stress and strategies to cope with stress. Table 1 represents descriptive statistics for PSS-10 and Mini-Cope, showing that the overall stress intensity index in the study group over the last month was 21.0 ± 5.76 , with a median of 20. The highest mean values referring to strategies for coping with stress used by studied women was the Seeking Emotional Support from Partner (2.02 ± 0.84) and Active Coping (1.95 ± 0.60). The lowest mean scores were in the helplessness strategies – Cessation of Actions (1.01 ± 0.77) and Use of Psychoactive Substances (0.28 ± 0.57).

Table 1. Descriptive statistics for PSS-10 and Mini-Cope N=102

Variables	M \pm SD	Me	Min.– Max.	d ₁ , d ₉
Stress intensity (PSS-10)	21.0 \pm 5.76	20.0	6.0–37.0	13.0–28.0
Strategies for coping with stress (Mini-COPE)				
1. Active Coping	1.95 \pm 0.60	2.0	0.5–3.0	1.0–3.0
2. Planning	1.85 \pm 0.62	2.0	0.0–3.0	1.0–2.5
3. Positive Revalidation	1.52 \pm 0.89	1.5	0.0–3.0	0.0–3.0
4. Acceptance	1.71 \pm 0.76	1.8	0.0–3.0	1.0–3.0
5. Sense of Humor	0.76 \pm 0.71	0.5	0.0–3.0	0.0–2.0
6. Turn Towards Religion	1.76 \pm 0.94	2.0	0.0–3.0	0.5–3.0
7. Seeking Emotional Support from Partner	2.02 \pm 0.84	2.0	0.0–3.0	1.0–3.0
8. Seeking Emotional Support From Friends	1.87 \pm 0.64	2.0	0.5–3.0	1.0–2.5
9. Taking Care of Something Else	1.86 \pm 0.69	2.0	0.0–3.0	1.0–3.0
10. Denial	1.38 \pm 0.61	1.5	0.0–2.5	0.5–2.0
11. Discharge	1.59 \pm 0.54	1.5	0.5–3.0	1.0–2.5
12. Use of Psychoactive Substances	0.28 \pm 0.57	0.0	0.0–2.0	0.0–1.0
13. Cessation of Actions	1.01 \pm 0.77	1.0	0.0–3.0	0.0–2.0

Explanation: N-number, M – arithmetic mean, SD – standard deviation, Me – median, Min – minimum, Max – maximum, d₁ – decile 10%, d₉ – decile 90%

After transforming the overall intensity of perceived stress into standardized units on a sten scale, only one-tenth of the subjects had low scores (10.8%; n=11), indicating a low level of perceived stress. In contrast, in 65.7% (n=67) women with gynecologic cancer during the last month, the intensity of the stress experienced was high. Results in the range of 5 – 6 stens, considered as average, were found in 23.5% of patients (n=24) (Tab. 2).

Table 2. PSS-10: Stress intensity in the study group

Scores in sten scale (1–10 sten)	N=102	%
Low (1–4 sten)	11	10.8%
Average (5–6 sten)	24	23.5%
High (7–10 sten)	67	65.7%

Subsequently, the impact of selected socio-demographic and medical factors on the level of stress experienced by respondents was analyzed, such as: age, marital status, place of residence, education, socio-occupational status, duration of the disease, type of treatment, BMI, and the presence of coexisting illnesses. Only one medical variable, the presence of coexisting illnesses, statistically significantly differed in the level of stress perception experienced by women with gynecologic cancer (H=6.50; p<0.003). Multiple-comparison average ranks *post hoc test* showed a statistically significant difference (p<0.05) of inter-group comparisons. This unfortunate situation affected 29.4% (n=30) women who indicated that in addition to malignancy, their reproductive organs were also treated for at least 2 other chronic diseases (Tab. 3). The level of stress experienced by the ill women was not significantly different across the age group (H=4.02; p<0.25), marital status (H=6.40; p<0.09), place of residence, education (H=0.50; p<0.91), socio-economic status (H=3.16; p<0.36), duration of disease (H=0.63; p<0.95), type of surgery (H=6.33; p<0.09) or BMI (H=0.42; p<0.51).

Table 3. Medical variables differentiating the stress levels in the study group

Overall indicator of stress intensity-PSS-10							
Medical variable	N	M \pm SD	Me	Confidence interval -95% CI	Confidence interval +95% CI	Kruskal-Wallis Test (H)	p-value
Coexisting illnesses							
Do not occur	33	19.55 \pm 5.60	20.00	17.56	21.53	6.50	0.003***
One occurs	39	20.28 \pm 5.04	20.00	18.65	20.91		
Two or more occurs	30	23.63 \pm 6.11	22.50	21.35	25.91		

Legend: statistically significant: p<0.001***; p<0.01**; p<0.05*

Intensity of stress and coping strategies. Spearman's (R) correlation coefficient was used to examine the relationship between severity of stress caused by difficult life events, and the strategies used by women with gynecologic cancer. In the presentation of results, the interpretation of the relationship between variables, was based on Guilford's classification.

The obtained results showed among the respondents, there was a highly significant, negative correlation between the

Table 4. Spearman's (R) correlation coefficient between stress intensity and coping strategies

Strategies for coping with stress (Mini-Cope) Spearman's (R)	Overall indicator of stress intensity (PSS-10)		
	T(N-2)	p value	
1. Active Coping	-0.39	-4.29	0.004***
2. Planning	-0.32	-3.34	0.001***
3. Positive Revalidation	-0.57	-6.99	0.003***
4. Acceptance	-0.51	-5.89	0.001***
5. Sense of Humour	-0.50	-5.85	0.001***
6. Turn Towards Religion	-0.09	-0.90	0.37
7. Seeking Emotional Support from Partner	-0.27	-2.78	0.01**
8. Seeking Emotional Support from Friends	-0.34	-3.59	0.001***
9. Taking Care of Something Else	-0.39	-4.25	0.005***
10. Denial	-0.04	-0.38	0.71
11. Discharge	0.12	1.17	0.25
12. Use of Psychoactive Substances	0.10	1.00	0.32
13. Cessation of Actions	0.45	5.03	0.002***

general stress index and coping strategies, such as Positive Revalidation ($R=-0.57$; $p<0.003$), Acceptance ($R=-0.51$; $p<0.001$) and Sense of Humour ($R=-0.50$; $p<0.001$). It may be concluded that the women surveyed had accepted their situation as being irreversible, and perceived significant values for their development in trying to alleviate unpleasant emotions. Further analysis revealed a negative correlation, at an average level, between the 4 mini-COPE strategies and the overall intensity index of the perceived stress. There was a correlation with the strategy of Active Coping ($R=-0.39$; $p<0.004$), Taking Care of Something Else ($R=-0.39$; $p<0.005$), Seeking Emotional Support from Friends ($R=-0.34$; $p<0.001$), and Planning ($R=-0.32$; $p<0.001$). There was also found a weak, but significant negative correlation between the overall stress score and the coping strategy, described as Seeking Emotional Support from Partner ($R=-0.27$; $p<0.01$). It may therefore be concluded that in the coping process, women engage in problem-solving strategies, as well as seeking support and concentrating on emotions.

Furthermore, a statistically significant positive correlation was observed between the general stress intensity index and the cessation strategy ($R=0.45$; $p<0.002$) included in evasive behaviour (Tab. 4). It is worth pointing out that each strategy of coping with stress had its own specificity, and its implementation may be related to the stage of disease. The last step of analysis was to determine the predictors of stress intensity in women after hysterectomy. For this purpose, multiple regression analysis was conducted which took into account the variable associated with comorbidities and selected coping strategies significantly correlated with the intensity of stress experienced.

As shown in Table 5, the predictors of the intensity of stress experienced by women after hysterectomy are 3 variables that explain a total of 27% of the variance of the dependent variable. Among them are 2 strategies of coping with stress and the occurrence of comorbidities. The largest proportion in prediction (16%) was contributed by the cessation strategy, which is related to helplessness and resignation ($\beta=0.37$; $R^2=16$). This means that as the frequency of applying this stress management strategy increased, the likelihood of

Table 5. Regression Summary – Predictors of stress intensity (PSS-10)

Predictors of stress intensity						
Variables	R ²	Beta	β	Error β	t	p-value
Cessation of actions	0.16	0.37	2.77	0.65	4.23	0.0001***
Occurrence of comorbidities	0.23	0.23	1.66	0.64	2.60	0.01**
Seeking emotional support from friends	0.27	-0.19	-1.74	0.80	-2.17	0.03*
Zero polynomial			19.86	1.99	10.00	0.00001

R – correlation coefficient, R² – multiple determination coefficient, Beta – Standardized regression coefficient, B – non-standardized regression coefficient, Error B – non-standardized regression coefficient error, t – t test value

stress intensity also increased. The other 2 variables, such as the occurrence of comorbidities and the coping strategies associated with seeking emotional support from friends, only slightly explain the variability of the dependent variable (7% vs. 4%).

DISCUSSION

Research on the problem of coping with stressful life events has gained attention in recent years, with a holistic perception of the situation of patients with cancer. In own studies, the overall rate of stress experienced by women with gynecologic cancer during the last month was 21.0 ± 5.76 (stress intensity index, PSS-10), and was very close to the 2 standardized clinical trial groups: ill men after a heart attack (21.48 ± 6.71) and women with menopause (20.80 ± 7.40). In normalization studies, a relatively low level of stress was noted in dialysed patients (16.87 ± 5.55), which was similar to the sample of healthy subjects (16.62 ± 7.50) [1]. On the other hand, in the study conducted by Orzechowska et al. using the Scale of Perceived Stress-PSS 10, the overall stress intensity index was 19.83 ± 6.09 in patients with rosacea, 21.20 ± 7.24 with hypersensitive bowel syndrome, 20.77 ± 7.12 with reflux disease and 19.87 ± 5.14 in patients with psoriasis [28]. Based on the presented results, it may be concluded, that at the onset of the oncological disease, the intensity of stress experienced by an individual increases, regardless of the type of disease, and this is related to an increase in the intensity of stress experienced. Uterine cancer requires hysterectomy. In the current study, 28.4% of patients had radical hysterectomy, but there was no significant effect of the type of surgery on the level of stress. Also, studies conducted by Kuppermann et al. and Hawighorst et al. have shown that the mode of hysterectomy does not affect the well-being of the ill women [29–30]. As other studies show, such operations are treated by women as a form of internal mutilation. In some women, a disorder of the image of their own body, lowering their self-esteem and changing their respect for themselves, was observed. Extensive gynaecological procedures cause anxiety about the loss of femininity, the ability of sexual intercourse and affection of relationships with partner [30–31]. The authors of many studies emphasize that hysterectomy along with surgically-induced menopause play a leading role in shaping a sense of satisfaction with life. Also, factors such as coexisting illnesses, emotional state, social status and support from family/relatives or partners are important in coping with difficulties and perceptions [32–35]. In other studies there has been shown that 'many women after hysterectomy recover fairly quickly, live life to the fullest, and have treated the

surgery as necessary in the process of taking care of their own health and maintaining it' [36–39]. In the presented study, analysis of perceived stress showed that 65.7% of patients with gynaecologic cancer were characterized by high levels of stress (7 – 10 stens). Occurrence of at least 2 other diseases (29.4%) played an important role in the perception of life situation. The above shows the importance of the problem of polimorbidity for the accompanying chronic stress. For this group of patients, the exacerbation of stress related to one's own situation is an overwhelming burden and is a clear signal of the need for psychological support. As Bloch and Aleamoni point out, the combination of high intensity of stress with its long duration usually leads to more severe effects of stress, including impact on health [40]. The results illustrating correlations between stress intensity and coping strategies in the presented study group showed the diversity of preferences in coping strategies. In a study conducted among 174 adults by Juczynski and Ogińska-Bulik, a negative correlation between stress intensity and problem focused strategies was observed (Active Coping: -0.36, Planning: -0.39), as well as a positive correlation with avoidance strategy (Cessation of Actions 0.42). In the same study, the overall stress score was negatively correlated (-0.22) with the subjective health rating [1]. Own research has revealed similar levels of dependence.

Nowadays, the role of behaviour as religious or spiritual cognition is also increasingly emphasized as a separate form of coping [41]. Religion may be a source of emotional support, may positively influence revalidation and development [1]. As Heshen points out, religious management of illness in the form of prayer for health is a frequently used strategy [41]. In the current study, there was no statistically significant relationship between the overall stress score and the coping strategy, referred to as the Turn to Religion. The situation of the disease and the following changes in life of the woman impel the patients seek special help and support during this period [4]. Among the most important types of social support in cancer patients, emotional support and valuation are of particular importance, allowing the patient to preserve their self-esteem, adding strength to independent and constructive coping with the disease [4]. According to other authors, in lone oncological patients without children or partners, depression is more common and the intensity of anxiety experienced is higher [42–43]. Matsushita et al. found that women in stressful situations prefer to mobilize their emotional rather than cognitive resources [44]. Summarizing, women with diagnosed gynecologic cancer experience a high level of stress. In difficult situations related to the disease, they use a variety of ways to cope with stress, both focused on the emotions and on the problem itself. Their choice is determined by the situation in which they find themselves.

CONCLUSIONS

1. Women with gynaecologic malignancies have a high level of stress and a differentiating factor is the presence of coexisting illnesses.
2. In the case of oncologic disease, women have a tendency to use emotional strategies, including strategies that focus on the problem.
3. In the process of coping with stress, the use of avoidance strategies is associated with an increased intensity of perceived stress.

4. Knowledge of coping strategies and factors that differentiate the severity of stress among oncologic patients may be important in planning appropriate psychological interventions in these patients.

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