ZgSp2353-7426/15.09.2019/20.12.2019/30.12.2019/01

Doc. PhDr. Eva Ništová, CSc.
ORCID 0000-0001-7399-6863
Pan-European University, Bratislava, Slovakia
Faculty of Psychology
Slovakia Institute of Clinical Psychology
PhDr. Mária Dědová, PhD.
ORCID 0000-0002-8960-6142
Trnava University, Trnava, Slovakia
Philosophical Faculty
Department of Psychology
Mgr. Lucia Nešťáková
ORCID 0000-0002-8532-1027
Psychologist
Nové Mesto nad Váhom, Slovakia

THE ANALYSIS OF PSYCHOMETRIC PROPERTIES OF THE SLOVAK VERSION OF MINI-MAC HELPLESS-HOPELESS SUBSCALE IN A SAMPLE OF 420 CANCER PATIENTS

Abstract

The aim of the study is to analyze the psychometric properties of the Helpless-Hopeless subscale from the Mini-MAC questionnaire. The authors based the study on a sample of 420 patients (men = 85; women = 335) aged 19 to 87 years, who were diagnosed with various types of

cancer. The internal subscale consistency (α = 0.870) was very good, consistent with the results of most foreign studies. Gender-related differences showed significantly higher intensity of subjective helplessness and physical and mental discomfort in oncological patients undergoing treatment.

Keywords: Mini-MAC • Helpless – Hopeless • cancer • psychometric properties.

ANALIZA WŁAŚCIWOŚCI PSYCHOMETRYCZNYCH SŁOWACKIEJ WERSJI PODSKALI HELPLESS-HOPELESS KWESTIONARIUSZA MINI-MAC NA PRÓBIE 420 PACJENTÓW ONKOLOGICZNYCH

Streszczenie

Celem badania jest analiza właściwości psychometrycznych podskali Helpless–Hopeless z kwestionariusza Mini-MAC. Autorki przeprowadziły badania na próbie 420 pacjentów (mężczyźni = 85; kobiety = 335) w wieku od 19 do 87 lat, u których zdiagnozowano różne choroby onkologiczne. Wewnętrzna spójność podskali (α = 0,870) była bardzo dobra, zgodna z wynikami większości badań zagranicznych. Różnice między płciami wykazywały istotnie większą intensywność subiektywnej bezradności–beznadziejności oraz dyskomfortu fizycznego i psychicznego u pacjentów onkologicznych, będących w trakcie leczenia.

Słowa kluczowe: kwestionariusz Mini-MAC • bezradność–beznadziejność • rak • właściwości psychometryczne.

Background

In psycho-oncology, there are many psychological measures mapping the quality of life, social support, actual state of patient's psychological experience and emotional state, level of their distress, clinical symptoms of depression, anxiety, fear, adaptive and maladaptive coping strategies, indicators of posttraumatic growth, existential phenomena etc. These measures also include Mini-Mental Adjustment to Cancer (Mini-MAC) scale which is a 29-item questionnaire for mapping the four strategies of coping with cancer (anxious preoccupation, fighting spirit, helplessness-hopelessness and positive re-evaluation). It represents a shortened version

of the original 40-item Mental Adjustment to Cancer (MAC) Scale (Watson et al., 1988), aimed to analyse cancer patients' ability of mental adjustment to this demanding and often life-endangering situation. The MAC Scale identified five strategies typical for patients' coping, or mindset in relation to cancer: Fighting Spirit, Helplessness-Hopelessness, Anxious Preoccupation, Fatalism and Cognitive Avoidance. The scale distinguishes two essential coping styles related to cancer: (a) constructive style, including determination to fight the disease and positively re-evaluate the situation of getting ill; and (b) destructive style represented by anxiety, hopelessness, helplessness and preoccupation. Fighting spirit (power of the mind to resist) encourages patients to accept the disease as a personal challenge (cf. Frankl, 2010). Positive re-evaluation is a cognitive redefinition of the disease in reference to the entire life history of a person, including their satisfaction with the years they have lived so far. Anxiety is related to perception of danger and fear of cancer which a patient is unable to control. Helplessness and hopelessness are related to experiencing the loss of hope and passive submission to the disease (Humeniuk et al., 2016).

This measure has been used successfully in research, clinical practice as well as in more precise diagnosing of internal experience and mindset of a cancer patient. Designing of this scale have also opened the academic discussion about the theoretical constructs of 'coping', 'coping strategy' and 'cognitive representations'. The question was whether the MAC scale examined cancer patients' coping strategies or mapped their cognitive representations related to their adjustment to cancer. In this context, Hulbert-Williams (2012) emphasizes the importance of clear definition of the construct and comparative psychometric analyses of the scale, referring to the definition proposed by Lazarus and Folkman (1987), who described cognitions as "…subjective evaluations and appraisal of the impact of events and coping as the cognitive and behavioural efforts engaged with to minimise the impact of those events". One of the reasons was the psychometric properties of the MAC scale. Despite the fact the scale showed acceptable psychometric properties, its factor structure was unstable and the number of factors was changing depending on the type of a research

sample (cf. Schwartz et al., 1992; Schnoll et al., 1998). Although MAC scale convergent validation confirmed strong associations with the tools for measuring anxiety, depression and quality of life, the statistical analysis showed unbalanced internal consistency of individual factors of the scale (Cronbach's Alpha).

In the 1990s, a shorter version, Mini-MAC, or Mini-Mental Adjustment to Cancer Scale (Watson et al., 1994) was created which was more time-saving in administration for clinical purposes. Mini-MAC retained its five original subscales and has been translated to more languages. Research related to scale psychometric properties was carried out in more countries, confirming the original findings of factor structure flexibility and lower internal consistency of the subscales of Fatalism and Fighting Spirit (Hulbert-Williams, 2012).

The aim of the pilot project was to analyse the basic psychometric properties of the Slovak version of Mini-MAC Helpless-Hopeless subscale. This partial analysis was a part of a more-broadly designed research project with an extensive questionnaire battery. Studies carried out in many countries have dealt with a similar issue by verifying the factor structure of the entire scale as well as by analysing its psychometric properties. The comparison of the results points to high internal consistency of the Helpless-Hopeless subscale (Table 1).

Table 1. Internal consistency of Helpless–Hopeless subscale (Mini-MAC) compared to the foreign versions

Version	Cronbach Alpha	N	Factor Analysis Mini-MAC	Authors
English	**,87**		5 factors	Watson et al. (1994) – original version
Italian	**,87**	430	5 factors	Grassi et al. (2005)
Norvey	**,83**	402	4 factors	Bredal (2010)
Korean	**,86**	208	4 factors	Kang et al. (2008)
Greeke	**-**	225	2 factors	Agnastopolus et al. (2006)
Chinese	**,91**	115	3 factors	Ho et al. (2003)

Version	Cronbach Alpha	N	Factor Analysis Mini-MAC	Authors
Polish	-	252	no	Krajewski (2018)
	-	30	no	Rogala et al. (2016)
Australia	**,87**	758	no	Price et al. (2016)
Slovak	**,87**	347	no	Naništová, Nešťáková (2018)

Questions

Q1: What are the basic psychometric properties of Helpless-Hopeless subscale?

Q2: Are there any differences in Helpless-Hopeless style of mental adjustment to cancer depending on gender and selected clinical markers of cancer?

Sample

The research sample consisted of 420 cancer patients (male = 85; female = 335), 19 to 87 years old. It included patients with various types of cancer, with the predominance of females with breast and reproductive cancer (57,2%) and patients with GI tumours (12,4%). In terms of clinical markers, the sample was distributed as follows: at the time of the research, 161 patients were undergoing treatment and 259 were in remission; relapse was present in half of the participants (50,5%); period since the disease was diagnosed in cancer patients fell within the range from 2 months to 31 years, with the average period since a tumour was diagnosed being 4½ years (SD = 5,49). As many as 73.6% participants had a history of cancer in their families.[1]

Methods

A questionnaire battery was used within the combined research design; only partial findings and methods relevant to the determined goal of the study are provided in the present pilot study.

[1] The collection of some data was done with the help of students Laura Balážová, Kristína Kollárová. Part of the data collection will be used in the bachelor thesis.

Clinical markers: Treatment Status (treatment - remission), Duration of the Disease (in years), Family History of Cancer, Occurrence of Relapse were taken into account for the purposes of the study.

Discomfort: original 9-point Likert scale measuring the intensity of subjectively experienced psychological and physical discomfort in Currently Experienced Pain, Social Isolation, Anxiety/Fear, Sadness/Depression, Loss of Sense, Physical Discomfort. The scale shows high internal consistency (Cronbach Alpha coefficient = 0.870).

The Helpless-Hopeless subscale of MINI-MAC (Mini-Mental Adjustment to Cancer Scale, Watson et al., 1994). The subscale of Mini-MAC scale contains 9 items. A patient answers using a 4-point Likert scale (1 – strongly disagree to 4 – strongly agree). The scale maps patient's maladaptive coping strategies to cancer, and also measures the impact of change within the process of treatment, rehabilitation and remission. The higher the score, the more intense the behaviour pattern typical for a given coping strategy (Cronbach Alpha coefficient = 0,87).

Results

Psychometric characteristics and analysis of reliability of Helpless-Hopeless subscale

In relation to Discomfort scale, the descriptive statistic results showed higher scores in Anxiety/Fear (M = 4,59) and Sadness/Depression (M = 4,15) subscales compared to the subscales of Lost Meaning of Life (M = 2,65) and Social Isolation (M = 3,04). Experiencing helplessness and hopelessness was measured using 9 indicators of the Helpless-Hopeless subscale. The most participants suffering from cancer stated they experiencing significant or strong feelings of hopelessness (31,7%), were without great expectations for the future (30,7%) and were not coping with their disease (27,7%). On the other hand, most cancer patients do not view their current condition as if it were the end of the world and do not feel like giving up (71,2%).

The mean values of the subscale (M = 15,91; SD = 6,03) were much higher in comparison with the values measured in a sample of Polish patients (M = 13,3; SD = 4,59) (Krajewski, 2018). Data

distribution in a histogram is one-peak, steep and positively-skewed, with higher concentration of low values. The coefficient of kurtosis is close to zero, i.e. the shape of a variable is close to normal distribution (Chart 1). There were two participants in the sample whose score in the Helpless-Hopeless subscale was higher than 1,5 interquartile range (Chart 2).

Chart 1. Descriptive statistics and histogram of Helpless-Hopeless subscale

Helpess - Hopeless	
Mean	15,91
Median	14,0
Std. Deviation	6,023
Skewness	,874
Kurtosis	,040
Minimum	9
Maximum	34
Percentiles 25	11
Percentiles 50	14
Percentiles 75	19,75
N	420

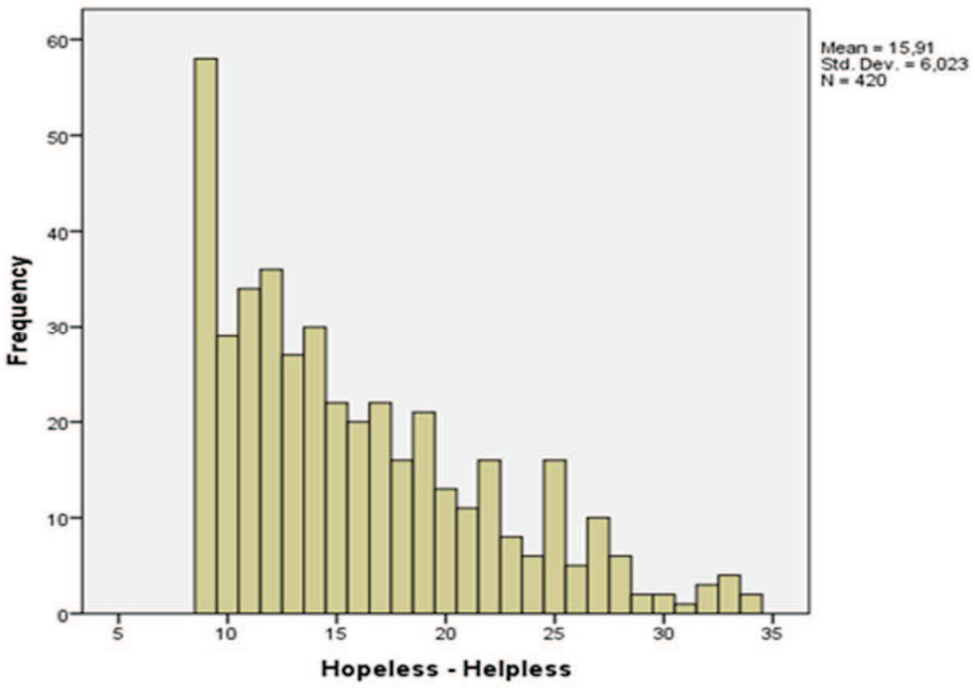
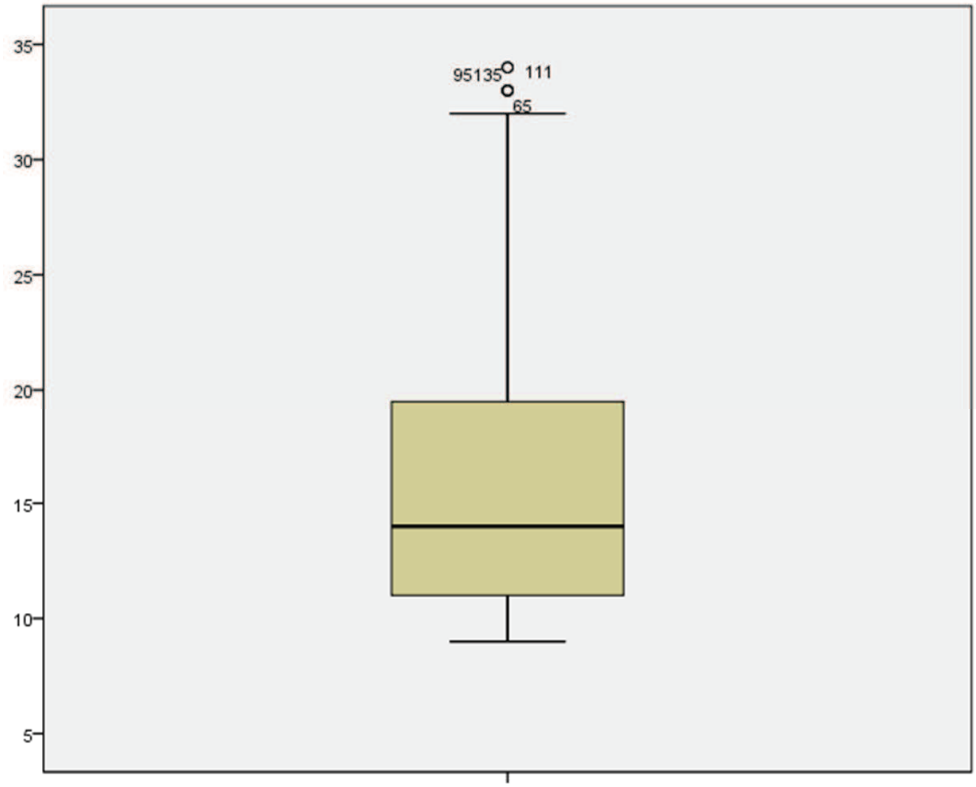


Chart 2. Boxplot of data distribution of Helpless-Hopeless subscale



Internal consistency of the Slovak version of Mini-MAC Helpless-Hopeless subscale is very good (α = 0,870). High values of Cronbach Alpha coefficient were also measured when comparing the groups based on gender (females and males), health condition (patients undergoing treatment or in remission), and the presence of a relapse in the course of the disease (Table 2). Strong reliability is also suggested by high internal consistency of individual items of the subscale. Even if the item *I am not very hopeful about the future* were excluded, the value of Cronbach's Alpha would only increase by 0,01 (Table 3). Cronbach Alpha coeffcients in the Slovak version of Helpless-Hopeless subscale were similar to the original study (Watson et al., 1994) as well as to the other foreign modifications of Mini-MAC (Grassi et al., 2005; Bredal, 2010; Kang et al., 2008; Agnastopolus et al. 2006; Ho et al., 2003; Price et al., 2016) in Table 1.

Table 2. Internal consistency of Helpless–Hopeless subscale (Mini-MAC)

	Gender		Health codition		Relapse	
	females	**males**	**treat-ment**	**remision**	**yes**	**no**
N	335	85	161	259	212	208
Mean	16,0	15,56	17,78	14,76	16,12	15,7
SD	6,176	5,397	6,350	5,514	5,902	6,152
Cronbachov koeficient	**,875**	**,848**	**,863**	**,861**	**,859**	**,881**

Table 3. Internal consistency of individual items of Helpless–Hopeless subscale (Mini-MAC)

	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correla-tion**	**Cronbach's Alpha if Item Deleted**
I feel that life is hopeless	13,94	28,409	,672	**,850**
I can't handle it	14,04	29,234	,572	**,859**
I feel there is nothing I can do to help myself	14,26	28,842	,664	**,851**
I feel like giving up	14,45	30,066	,597	**,857**
I can't cope	14,00	28,916	,495	**,869**
I think it is the end of the world	14,50	29,854	,672	**,852**
I am not very hopeful about the future	13,93	30,154	,452	**,871**
I feel completely at a loss about what to do	14,18	28,774	,695	**,848**
It is a devastating feeling	14,02	27,931	,700	**,847**

Analysis of differences in the Helpless – Hopeless subscale in relation to the selected criteria

Since normal data distribution was confirmed, Student t-test was used in discrepancy analysis; Hedges' g coefficient was applied to verify the practical significance of the differences due to

unequal number of participants in the compared samples. Female cancer patients scored significantly higher in the subjective experience of pain (t = 2,427; p = 0,016), physical discomfort (t = 2,561; p = 0,011), anxiety and fear (t = 2,595; p = 0,010), and also sadness and depression (t = 2,303; p = 0,022) than male cancer patients. No differences were found in the subjective experience of social isolation (t = 1,883; p = 0,060), lost meaning of life (t = 1,133; p = 0,258) and experiencing helplessness and hopelessness (t = 0,649; p = 0,518). However, practical significance of the differences indicates low size effect (Table 4).

Table 4. Comparison of the extent of experiencing hopelessness and discomfort between males and females

		Helpless-Hopeless	**Pain**	**Physical Discomfort**	**Social Isolation**	**Anxiety Fear**	**Sadness Depression**	**Lost of the meaning of Life**
	M	16	3,97	4,48	3,15	4,75	4,29	2,71
Females	SD	6,176	2,341	2,407	2,402	2,494	2,467	2,305
	n	335	335	335	335	335	335	335
	M	15,56	3,27	3,73	2,60	3,96	3,60	2,40
Males	SD	5,397	2,451	2,397	2,336	2,471	2,406	2,161
	n	85	85	85	85	85	85	85
Hedges´ g		**0,255**	0,029	0,031	0,023	0,031	0,028	**0,108**

M – Mean; SD – Standard Deviation; n – size of particiants; Hedges´g – Effect Size

The patients who were undergoing treatment at the time scored significantly higher in all scales measuring the subjective experience of physical and psychological discomfort, helplessness and hopelessness than the patients in remission (without any symptoms of the disease). These differences were statistically significant at least at 1 % level: Pain (t = 4,807; p = 0,001), Physical

Discomfort (t = 2,948; p = 0,003), Social Isolation (t = 3,374; p = 0,001), Anxiety/Fear (t = 3,237; p = 0,001), Sadness/Depression (t = 2,589; p = 0,010), Lost Meaning of Life (t = 2,742; p = 0,007), Helpless-Hopeless (t = 4,979; p = 0,001). Significant difference was also found in overall subjective experiencing of discomfort (t = 4,979; p = 0,001). However, only negligible effect was found when verifying the practical significance of the differences. The Helpless-Hopeless maladaptive strategy is strongly related to more intense experiencing of overall physical and psychological discomfort in cancer patients (r = 0,515; p = 0,001). Significant associations were proven on the level of all six indicators of experiencing discomfort. This correlation was the strongest in relation to experiencing Sadness and Depression (r = 0,506; p = 0,001) and Anxiety and Fear (r = 0,462; p = 0,001). Moderate correlation was found between the Helpless-Hopeless and the scales of Social Isolation (r = 0,369; p = 0,001); Pain (r = 0,328; p = 0,001) as well as with the Physical Discomfort subscale (r = 0,274; p = 0,001). See Table 5 for more details.

Table 5. Comparison of the extent of experiencing hopelessness and discomfort during treatment and in remission

		Helpless-Hopeless	**Pain**	**Physical Discomfort**	**Social Isolation**	**Anxiety Fear**	**Sadness Depression**	**Lost of the meaning of Life**
	M	17,78	4,52	4,76	3,55	5,09	4,54	3,03
Treatment	SD	6,350	2,67	2,306	2,65	2,448	2,302	2,383
	n	161	161	161	161	161	161	161
	M	14,76	3,40	4,05	2,71	4,28	3,90	2,41
Remision	SD	5,514	2,348	2,455	2,168	2,497	2,539	2,181
	n	259	259	259	259	259	259	259
Hedges´ g		0,069	0,060	0,029	0,049	0,033	0,026	0,027

M – Mean; SD – Standard Deviation; Mdn – Median; Hedges´g – Efect Size

Discussion and Conclusion

Mental adjustment can be defined as individual's cognitive and behavioural responses, which not only include mental adaptation, but also cognitive evaluation of an endangering situation. Mental Adjustment to Cancer (MAC) scale was designed as a specific instrument to measure cancer patients' mental adaptation. Since there was a high variance in internal consistency of individual subscales and flexibility of the number of factors in foreign studies, a shorter version – Mini-MAC – was designed. The Helpless-Hopeless subscale of this measuring instrument has showed high internal consistency across its various language versions (Grassi et al., 2005; Bredal, 2010; Kang et al., 2008; Agnastopolus et al. 2006; Ho et al., 2003; Price et al., 2016).

Psychometric properties of the Slovak version of the subscale confirmed this trend, although the mean score of the subscale was significantly higher than in the Polish sample of cancer patients (Krajewski, 2018). This may have been caused by heterogeneity of the sample in the present study, with ca 50% of participants being females with breast and reproductive cancer, while the Polish sample was homogenous, consisting only of males with cancer.

Helplessness and hopelessness are a part of subjective characteristics of negative affective perception of external (the world around, other people) and internal environment (expectations, desires, meaning of life, satisfaction) of a person. They are also indicators of stress and burnout syndrome (Kretová, Budaiová, 2007). In cancer patients, helplessness and hopelessness may predicate symptoms of psychological distress, loss of the meaning of life and a higher subjective experience of discomfort. The results of the present research project pointed to a significant relationship between experiencing hopelessness, helplessness and subjective experiencing of psychological and physical discomfort. Similar conclusions were also drawn by Liao et al. (2017), whose research findings indicated negative impact of hopelessness on the rate of surviving in patients who survived cancer after 5 and 10-year-long remission. They thus concluded that hopelessness was probably related to decreased physical well-being. The level of hopelessness of females was found to be higher than that of males in the study.

In their study conducted with cancer patients, Bakan & Ozdemir (2017) similarly found that hopelessness, which they measured using the Beck Hopelessness Scale, was significantly higher in females with cancer.

Based on the findings, it is supposed that the internal consistency and discrimination ability of the Helpless-Hopeless subscale of Mini-MAC scale is sufficient to be used not only in research, but also in clinical practice. Its practical use would simplify the basic screening and measuring effects of treatment and evaluation of patients' psychological difficulties. It is especially the patients with limited cognitive comprehension caused by the disease that can benefit from the simplicity of this instrument.

Compliance with ethical standards

Ethical approval procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional research committee Trnava University – No. TU-1/2018.

Acknowledgements

This study has been funded by project VEGA *Cognitive-Existential Profile ans Specifics of Post-Traumatic Growth Cancer Survivors* (No. 1/0305/18).

References

1. ANAGNOSTOPOULOS F, KOLOKOTRONI P, SPANEA E & CHRYSSOCHOOU M. 2006. The Mini-Mental Adjustment to Cancer (Mini-MAC) scale: construct validation with a Greek sample of breast cancer patients. *Psycho-Oncology* 2006; 15:79-89.
2. BAKAN AB & OZDEMIR S. 2017. Effect of Knowing the Diagnosis or Not on Cancer Patients' Hopelessness Levels. *International Journal of Caring Sciences*, September-December 2017, Volume 10, Issue 3, 319-1328.
3. BREDAL IS. 2010. The Norwegian version of the Mini-Mental Adjustment to Cancer Scale: factor structure and psychometric properties. *Psycho-Oncology* 2010; 19: 216-221. DOI: 10.1002/ pon. 1564.
4. FRANKL VE. 2010. *Vôľa k zmyslu*. Bratislava: Lúč.

5. GRASSI L, BUDA P, CAVANA L, ANNUNZIATA MA, TORTA R & VARETTO A. 2005. Styles of Coping with Cancer: The Italian Version of the Mini-Mental Adjustment to Cancer (Mini-MAC) Scale. *Psycho-Oncology*, 2005, 14: 115-124. DOI: 10.1002/pon. 826.
6. HO SM, FUNG WK, CHAN CL, WATSON M & TSUI YK. 2003. Psychometric properties of the Chinese version of the Mini-Mental Adjustment to Cancer (MINIMAC) scale. *Psycho-Oncology* 2003; 12: 547-556.
7. HULBERT-WILLIAMS NJ, HULBERT-WILLIAMS L, MORRISON V, NEAL RD & WILKINSON C. 2012. The Mini-Mental Adjustment to Cancer Scale: re-analysis of its psychometric properties in a sample of 160 mixed cancer patients. *Psycho-Oncology* 2012; 21: 792-797.
8. HUMENIUK E, WOLAŃSKA K & TARKOWSKI Z. 2016. Czynniki wpływające na przystosowanie psychiczne do choroby pacjentów po laryngektomii Factors affecting mental adaptation to the disease of post-laryngectomy patients. *Otorynolaryngologia* 2016; 15(3): 2-8.
9. KANG JI, CHUNG HC, KIM SJ et al. 2008. Standardization of the Korean version of Mini-Mental Adjustment to Cancer (K-Mini-MAC) scale: factor structure, reliability and validity. *Psycho-Oncology* 2008;17:592–597.
10. KRAJEWSKI W, MAZUR M, POTEREK A, PASTUSZAK A, HALSKA U, TUKIENDORF A, RYMASZEWSKA J & ZDROJOWY R 2018. Assessment of Pain Management, Acceptance of Illness, and Adjustment to Life with Cancer in Patients with Nonmuscle Invasive Bladder Cancer. *BioMed Research International* 2018; Article ID 7598632, 10 pages. DOI: https://doi.org/10.1155/2018/7598632.
11. KRETOVÁ, E., BUDAIOVÁ, V. (2007). Burnout Syndrome in Social Workers and Their Notions About Prevention and Intervention. *Studia Psychologica*, 49, 2007, 3, 233-249.
12. LAZARUS R & FOLKMAN S. 1987. Transactional theory and research on emotions and coping. *Eur J Pers* 1987; 1: 141-169.
13. LIAO K.Y-H, YEUNG NCY, CELIA C. Y. WONG1 CCY, WARMOTH K & LU Q. 2017. Fear of cancer recurrence and physical well-being among Chinese cancer survivors: the role of conscientiousness, positive reappraisal and hopelessness. *Support Care Cancer* 2017; 25:1141-1149. DOI 10.1007/s00520-016-3504-8.
14. NANIŠTOVÁ E & NEŠŤÁKOVÁ L. 2018. Coping i subjektywna percepcja dyskomfortu u pacjentów onkologicznych. *I. Kongres Naukowy: Człowiek w dobie współczesnych wyzwań i zagrożeń.* NWSP Białystok 2018 (w druku).
15. PRICE MA, BUTOW PN, BELL ML, DE FAZIO A, FRIEDLANDER M, FARDELL JE, PROTANI MM & WEBB PM. 2016. Helplessness/ho-

pelessness, minimization and optimism predict survival in women with invasive ovarian cancer: a role for targeted support during initial treatment decision-making? *Support Care Cancer* 2016; 24: 2627-2634. DOI 10.1007/ s00520-015-3070-5.

16. ROGALA D, MAZUR A, MAŚLIŃSKA M & KRAWCZAK M. 2016. Przystosowanie do choroby nowotworowej u pacjentek z rakiem szyjki macicy. Pielęgniarstwo Polskie 2016; NR 2(60), 170-174. DOI: http://dx.doi.org/10.20883/pielpol.2016.6.
17. SCHNOLL R, HARLOW L, BRANDT U, STOLBACH L. Using two factor structures of the Mental Adjustment to Cancer (MAC) scale for assessing adaptation to breast cancer. *Psycho-Oncology* 1998; 7(5): 424-435.
18. SCHWARTZ C, DALTROY L, BRANDT U, FRIEDMAN R & STOLBACH LA. 1992. Psychometric analysis of the Mental Adjustment to Cancer Scale. *Psychol Med* 1992; 22: 203-210.
19. WATSON M, GREER S, YOUNG Q, BURGESS C & ROBERTSON B. 1998. Development of a questionnaire measure of adjustment to cancer: the MAC scale. *Psychol Med* 1988; 18: 203-209.
20. WATSON M, LAW M, DOS SANTOS M, GREER S, BARUCH J & BLISS J. 1994. The Mini-MAC: Further development of the Mental Adjustment to Cancer Scale. *J Psychosoc Oncol* 1994; 12: 33-46.