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BURNOUT AS A MEDIATOR OF THE INTERRELATIONS BETWEEN EMOTIONAL INTELLIGENCE AND STRESS COPING STRATEGIES IN NURSES

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SUMMARY

Background:

The research focuses on the questions of if nurses working in various health care facilities present different abilities for emotional adaptation to the work environment, if they differ in feeling job related burnout, and what stress coping strategies they tend to employ.

Material/ Methods:

The Questionnaire of Emotional Intelligence (INTE), Link Burnout Questionnaire (LBQ), and the Coping Inventory for Stressful Situations (CISS) were administered. The study comprised 104 nurses from various health care facilities located within 7 voivodships (Polish provincial administrative divisions). This included three groups of different types of work: general care, specialized medical care, and units providing care for patients at a high risk of dying. A statistical analysis was performed with IBM SPSS Statistic 24.

Results:

A regression analysis of the interface between emotional intelligence and stress-coping strategies showed that a high degree of emotional intelligence fostered a strategy of task-avoidance coping, and diminished the tendency to concentrate on emotions during stressful situations, it also minimized the propensity of the individual to reduce stress by distracting themselves with other activities. However, the mediation analysis revealed that the impact of emotional intelligence decreased after the role of occupational burnout was taken into consideration. This finding suggests that it is rather the occupational burnout that limits the possibility to apply effective stress coping strategies and that stress management does not reduce the risk of burnout.

Conclusions:

The study indicated the significant role of emotional intelligence: as a higher level of this form of intelligence corresponded with a lower feeling of burnout in all its dimensions. The mediation analysis revealed that it is the occurrence of burnout that plays the most significant role in adjustment to the work environment. This finding suggests that the prevention of burnout is the most effective factor enabling productive work, and the maintenance of psychological wellbeing despite the many job stressors which may occur in the workplace. It creates the need to clarify its links with depression in order to concentrate on a really effective treatment.

Key words: burnout syndrome, depression, emotional intelligence, stress coping, mediation analysis, nurses

INTRODUCTION

Work stress has become a common problem for many employees. Stress sensitivity and stress coping are determined by environmental and situational factors as well as by individual predispositions (e.g., personality features, McCrae & Costa, 1990; Lazarus & Folkman, 1984). The most frequent causes of experiencing stress at work are overwork and tiredness (deCroon et al., 2004), time pressure (Sonnetag & Bayer, 2005), a high level of demand in combination with a lack of support and the inability to control one's own work (Karasek & Theorell, 1990), a high level of responsibility and task difficulty (Makara-Studzińska et al., 2018), the desire to advance without any real prospects of promotion (Załuska, Ślęzyk-Sobol & Kwiatkowska-Ciotucha, 2018), and poor working conditions (Selden & Downey, 2012).

The above mentioned factors often lead to the appearance of burnout syndrome. Even though it is not a strictly medical condition it has already been included in the International Statistical Classification of Diseases and Related Health Problems (ICD-10, 2016), and it is coded at Z73 in the chapter: "Factors influencing health status or contact with health services" and is defined as "state of vital exhaustion". The online version of ICD-11 (2018) has extended its definition to: "Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed," and coded it as QD85. This definition still remains vague, and some authors suggest that burnout overlaps with depression, and should not be treated as a separate illness (Bianchi, Schonfeld & Laurent, 2015a, b). Others, especially in Europe, argue that burnout is distinct from depressions (for a review see da Costa & Pinto, 2017; Koutsimani, Montgomery & Georganta, 2019). Yet despite the lack of its inclusion in DSM 5, burnout is considered to be a very serious problem in the US, especially in health professionals, since there are reports that it reaches levels above 50% in physicians and 33% in nurses (Dyrbye, Burke, Hardeman et al., 2018; Reith 2018; Schrijver, 2016). As Reith puts it: "Burnout has emerged as a major problem plaguing 21st century American medicine. If not addressed, the burnout epidemic may continue to worsen, to the detriment of patients and physicians alike" (Reith, 2018, p. 6).

The reason behind burnout symptoms is the mismatch between an individual and his/her post and professional environment (Maslach & Leiter, 2008; Santinello, 2007). However, occupational stress may be due not only to the improper organization of work but it may also result from the specificity of duties. Health care professionals are particularly exposed to stress (Makara-Studzińska et al., 2018; Toh, Ang & Devi, 2012; Załuska, Ślęzyk-Sobol & Kwiatkowska-Ciotucha, 2018). This applies all the more to women who pursue medical or paramedical professions. In addition to job tasks, they are obliged to perform household chores, which in turn leads to an overburden of work and may accelerate the process of burnout and exacerbate its effects. This phenomenon is linked to traditional attitudes towards male/female roles, since women are expected to take care of the home and children in addition to their occupational duties.

It is generally believed that emotional intelligence is a significant factor enabling people to deal with problems at work and also with difficult social situations (Goleman, 1996). The importance of perseverance and the ability to control not only one's own emotional states but also those of others should also be considered (Mayer & Salovey, 1997; Salovey & Mayer, 1990). Moreover, various studies have demonstrated the positive relationship between emotional intelligence and work satisfaction (Ezzatabadi et al., 2012; Kahraman & Hiçdurmaz, 2015), a significant commitment to work (Güteryüz et al., 2008; Zhu et al., 2015) and higher resistance to stress (Karimi et al., 2014; Szczygiel & Mikołajczak, 2018). Other studies have revealed the moderating impact of emotional intelligence upon the interrelations between stress and occupational burnout (Görgens-Ekermanso & Brand, 2012; Năstasă & Fărcahu, 2015; Szczygiel & Mikołajczak, 2018).

The negative effects of burnout on both personal wellbeing and work efficacy were delineated by Maslach and her collaborators (Maslach & Jackson, 1981; Maslach & Leiter 2008). Santinello (2007) highlighted the importance of a professional vocation with due emphasis placed upon the professions that require close interpersonal relationships. This includes nurses since the patient-care-giver relationship involves a close emotional involvement (Bakker, van Emmerik & Euwema, 2006; Hakanen, Bakker & Schaufeli, 2006). The main burden of nurses, however, appears to be overwork, long working hours and the lack of a sense of control, which may lead to burnout (Nonnis et al., 2018). As yet, the mediating role of burnout on the relationship between emotional intelligence and stress coping strategies has not been assessed. Hence, the main goal of the present study is to answer the question as to whether burnout will have a significant impact upon the correlations observed between emotional intelligence and the type of stress-coping strategy employed. An additional aim is to specify the relationships between burnout, emotional intelligence, and a particular stress coping style.

MATERIAL AND METHODS

Participants

The study comprised 104 female nurses from 7 voivodships. Most of them had higher education qualifications (69.2%). The nature and environments of their work was diverse and included general medical care (e.g., general, environmental, and school outdoor clinics), specialized health care (e.g., cardiological, psychiatric, urological) and units for patients at a high risk of dying (such as intensive therapy, emergency departments or operating rooms).

The interrelations of such variables as the age, education level, and service length with the workplace were measured with the χ^2 test. The examined group proved to be homogeneous in terms of age [$\chi^2=41.962$, $df=32$, $p=.112$]. The group differed, however, in their education level and the duration of their service [$\chi^2_{\text{education level}}=73.288$, $\chi^2_{\text{service length}}=9.827$; $df=2$, $p<.01$]. Most nurses working in the

Table 1. Distribution of the education level and service duration in the examined group (N=104)

		Type of the ward		
		High risk of dying (N=38)	General medical care (N=30)	Specialized health care (N=36)
Education	$\chi^2(df)/p$	12.737(1)/ 0.000	2.133(1)/ 0.144	20.167(2)/ 0.000
Service duration		6.526(2)/ 0.038	.200(2)/ 0.905	8.000(2)/ 0.018

units for patients at a high risk of dying (78.9%) and specialized health care (63.9%) had higher education levels than those of the average nurse. In the units for patients at a high risk of dying, the percentage of nurses with a duration of service shorter than 10 years was 52.6%. While the duration of service for nurses from specialized health units was the same (44.4%) for both 10 and 20 years. At the same time, the service duration in general medical care wards did not reach a statistical significance since the differences were very small (see Table 1).

Measures

Three types of questionnaires were administered for the purpose of this study: the Self-Report Emotional Intelligence Scale – Polish INTE (Ciechanowicz, Jaworowska & Matczak, 2000; Schutte et al., 1998), Link Burnout Questionnaire (Jaworowska, 2014; Santinello, 2007) and Coping Inventory for Stressful Situations – CISS (Endler & Parker, 1990; Strelau, Jaworowska, Wrześniewski & Szczepaniak 2005). These tools are commonly used and a description of them may be found in the psychological literature so we shall only provide a summary.

The Emotional Intelligence Scale consists of four subscales: emotion perception, utilizing emotions, managing self-relevant emotions, and managing the emotions of others. The total sum of all the points provides the final result. The value of Cronbach's coefficient alpha reliability is 0.86 for women in the age range of 21 to 54.

The Link Burnout Questionnaire allows for the measurement of psychophysical exhaustion, relationship deterioration, the sense of professional inefficacy, and disillusionment. It has been normalized for teachers, therapists, nurses, physicians, and the uniformed services, its reliability was assessed for each group separately. The value of Cronbach's coefficient alpha is: 0.81 for the psychophysical exhaustion scale; 0.72 for relationship deterioration; 0.66 for the scale expressing the lack of a sense of professional efficacy; 0.85 for disillusionment.

The Coping Inventory for Stressful Situations (CISS) has been developed to assess behaviours linked to stressful situations. Three main factors corresponding to various coping styles have been identified: task-oriented coping (TOC), emotion oriented coping (EOC), and avoidance oriented coping (AOC). Within the avoidance-coping group two substyles were noted: (a) seeking distraction with alternative tasks (b) seeking distraction via social diversions. The normalization of the test was performed for the ages from 16 to 79. The values of Cronbach's coefficient alpha reliability vary from 0.60 to 0.88.

RESULTS

The data concerning emotional intelligence, occupational burnout, and stress-coping strategies were analysed with the Shapiro-Wilk test. Table 2 presents the distribution and descriptive statistics of the results of the emotional intelligence variable. The distribution of the scores was found to be normal in this case.

The score distribution in every dimension of occupational burnout differed significantly from the normal distribution. The indices of skewness (by an error of 0.237) for general burnout level ($SKE = 0.564$), psychophysical exhaustion ($SKE = 0.310$), relationship deterioration ($SKE = 0.463$), the lack of a sense of professional efficacy ($SKE = 0.697$) and disillusionment ($SKE = 0.500$) indicate a higher frequency of low scores than of high scores. These findings suggest that in the nurses examined the level of a feeling of burnout is below the average value than in the general population. At the same time, an analysis of the value of kurtosis by an error of 0.469 indicates the concentration of a distribution around its mean for a general level of burnout ($K = 0.202$), and for the lack of a sense of professional efficacy ($K = 0.934$). In the case of psychophysical exhaustion ($K = -0.715$), relationship deterioration ($K = -0.073$), and disillusionment ($K = -0.242$) the internal distribution of the scores within the group is more spread out, which means that the level of feeling burned out is significantly dispersed for the nurses examined.

Table 4 shows the distribution of the scores of stress coping strategies. In this case the distribution was normal for most dimensions with the exception of emotion oriented coping.

Table 2. Emotional intelligence – descriptive statistics and the results of an analysis of the value distribution (N=104)

	Emotional intelligence		
	<i>M</i>	<i>SD</i>	<i>W (p)</i>
Total	127.05	14.19	0.983 (0.192)

Table 3. Occupational burnout – descriptive statistics and the results of an analysis of the distribution of values (n=104)

	PE	RD	LSPE	D	GBL
<i>M</i>	19.90	17.67	13.24	16.47	67.29
<i>SD</i>	6.93	5.85	4.38	7.07	20.03
<i>W (p)</i>	0.973 (0.031)	0.973 (0.030)	0.960 (0.003)	0.959 (0.003)	0.975 (0.043)

PE - psychophysical exhaustion; RD- relationship deterioration LSPE - lack of sense of professional efficacy; CD - disillusionment; GBL - general burnout level.

Table 4. Stress-coping strategies – descriptive statistics and the results of an analysis of the distribution of values (N=104)

	TOC	EOC	AOC	AOC DOT	AOC DSD
<i>M</i>	60.29	43.71	46.35	20.27	17.38
<i>SD</i>	7.44	10.18	8.04	5.32	3.45
<i>W(p)</i>	0.995(0.965)	0.967 (0.011)	0.983 (0.209)	0.981 (0.135)	0.983 (0.212)

Legend: task-oriented coping (TOC), emotion-oriented coping (EOC), and avoidance-oriented coping (AOC). Within the avoidance-coping scale two substyles were noted: (a) seeking distraction with alternative tasks (b) seeking distraction via social diversion.

In order to evaluate the mediating role of occupational burnout concerning the relationships between emotional intelligence and stress coping strategy, an analysis of mediation was performed. The analysis was conducted in three steps in accordance with the Baron and Kenny (1986) procedure: 1) evaluation of the relationship between emotional intelligence and the stress-coping strategy; 2) measurement of the relationship between emotional intelligence and burnout; and 3) the influence of a mediator (burnout) on the independent variable (emotional intelligence). The strength of the relationship between emotional intelligence and the stress coping strategy used was measured before the evaluation of the interrelations between these two variables.

The findings reveal the relationship between emotional intelligence and a task-oriented coping strategy, there is a moderate positive correlation (0.508, $p < 0.01$). This suggests that a high level of emotional intelligence fosters the strategy of task-oriented coping. In order to evaluate the possibility of predicting the style of coping with stress as based upon emotional intelligence, an analysis of regression was performed. The linear model proposed proved to be significant [$F(1,102) = 35.479$, $p < 0.001$], but explained only 30% of the variations ($R^2 = 0.258$) in relation to the task oriented style. This indicates that emotional intelligence is a moderate and positive predictor of the task-oriented stress-coping strategy ($\beta = 0.50$, $t = 5.956$, $p < 0.001$).

The correlation of emotional intelligence with an emotion oriented coping strategy was weak and negative (-0.204, $p < 0.05$). This means that the higher the emotional intelligence value the lower the concentration on emotions in stressful situations. Next, an analysis of regression was conducted in order to evaluate the probability of predicting an emotion oriented stress-coping strategy based upon emotional intelligence. The proposed linear model proved to be significant [$F(1,102) = 4.422$, $p < 0.05$] but explained only 4% of the variations ($R^2 = 0.042$) with regard to the emotion oriented style. Thus, emotional intelligence is a negative but weak predictor of the emotion oriented stress-coping strategy ($\beta = -0.20$, $t = -2.103$, $p < 0.05$).

The analysis also revealed the lack of a correlation between general avoidance stress coping strategies and emotional intelligence but it showed a weak negative correlation between emotional intelligence and the tendency to distract oneself with other tasks in stressful situations (-0.214, $p < 0.05$). This indicates that the higher the level of emotional intelligence the lower is the tendency to distract oneself with other tasks, which is one of the ways to avoid stressful situations.

In order to assess the probability of predicting the strategy to cope with stress via distracting oneself with other tasks depending on the level of emotional intelligence, an analysis of regression was performed. The proposed linear model proved to be significant [$F(1,102) = 4.897$, $p < 0.05$] but explained only 5% of the variations ($R^2 = 0.046$) in relation to the avoidance oriented stress-coping strategy. Hence, emotional intelligence is a negative and weak predictor of a person's tendency to distract oneself with other tasks ($\beta = -0.21$, $t = -2.213$, $p < 0.05$).

A weakly positive correlation between emotional intelligence and the tendency to distract oneself via social diversion was observed ($0.251, p < 0.01$). This allows one to conclude that a high level of emotional intelligence may foster the tendency of people to seek distraction via social diversion in order to cope with stress. An analysis of regression was again carried out to evaluate the possibility of predicting the occurrence seeking distraction via social diversion based upon the level of emotional intelligence. The linear model used proved to be significant [$F(1,102) = 6.873, p < 0.05$] but explained only 6% of variations ($R^2 = 0.063$) in relation to this strategy. Accordingly, emotional intelligence is a positive but weak predictor of the stress scoping strategy of distracting oneself via social interactions ($\beta = 0.25, t = 2.622, p < 0.01$).

In addition, the strength of the relationship between emotional intelligence and the mediator, i.e., general burnout and its particular dimensions were measured before assessing the interrelations between those variables. The relationship between emotional intelligence and burnout proved to be moderate and negative both in the general and individual dimensions ($p < 0.01$). This implies that the higher the emotional intelligence level the lesser the sensation of an occupational burnout in all its aspects.

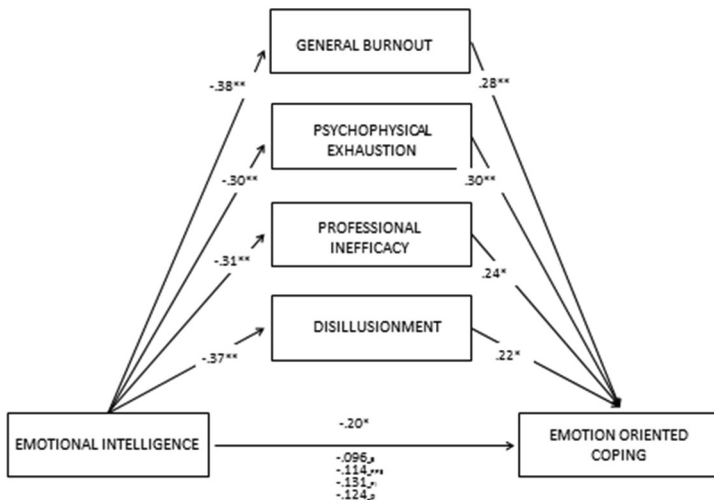
Also performed was an analysis of regression aimed at estimating the possibility of predicting burnout both in its general aspect and its three subtypes on the basis of the level of emotional intelligence. The results confirm the good fit of the adopted models [$F_{GB}(1,102) = 17.201, R^2 = 0.14; F_{PE}(1,102) = 10.161, R^2 = 0.09; F_{LIR}(1,102) = 7.882, R^2 = 0.07; F_{LSPS}(1,102) = 10.443, R^2 = 0.09; F_{CD}(1,102) = 16.279, R^2 = 0.14; p < 0.01$], but they explain only 9 to 14% of the variations. They indicate the significant negative value of emotional intelligence as a predictor of the likelihood of general burnout ($\beta_{GB} = -0.380, t = -4.147, p < 0.001$) as well as psychophysical exhaustion ($\beta_{PE} = -0.301, t = -3.188, p < 0.01$), relationship deterioration ($\beta_{LIR} = -0.268, t = -2.808, p < 0.01$), the lack of a sense of professional efficacy ($\beta_{LSPS} = -0.305, t = -3.232, p < 0.01$), and disillusionment ($\beta_{CD} = -0.371, t = -4.035, p < 0.001$).

The above-described patterns make it possible to perform mediation analysis since the regression analysis showed that burnout may be a mediator of the relationship between emotional intelligence and stress-coping strategies.

Including the burnout coefficient as a mediator of the interrelations between emotional intelligence and stress-coping strategy revealed that the impact of the emotional intelligence (value of an independent variable) decreased, while in the case of emotion oriented stress coping strategy ($\beta = -0.096; p > 0.05$) it turned out to be non-significant. At the same time, the value of the general burnout factor remained to be correlated to the emotion oriented stress coping strategy ($\beta = 0.28; p < 0.01$). The full mediating role of burnout was confirmed with the Sobel test ($Z = 2.30, p < 0.05$).

After that, the mediating role of all four sub-factors of burnout in the relationship between emotional intelligence (independent variable) and the dependent variable (stress coping styles) was measured. The following results were obtained:

1. Analysis of the impact of the psychophysical exhaustion mediator revealed that the value of the independent variable decreased, and proved to be non-significant in the case of predicting the emotion oriented stress-coping strategy ($\beta = -0.114$; $p > 0.05$). At the same time, the value of the mediator (dependent variable) remained significant for that type of stress-coping strategy ($\beta = 0.30$; $p < 0.01$). The full mediating effect of psychophysical exhaustion was confirmed with the Sobel test ($Z = 2.20$, $p < 0.05$).
2. Likewise, an analysis of the mediating role of the sense of professional inefficacy showed that the value of the independent variable weakened and turned out to be non-significant for predicting the emotion oriented stress-coping strategy ($\beta = -0.131$; $p > 0.05$), while the value of that mediator remained significant ($\beta = 0.24$; $p < 0.05$). The full mediating effect of physical exhaustion was confirmed by the Sobel test ($Z = 1.94$, $p < 0.05$).
3. Performing a mediation analysis of the impact of disillusionment revealed that the value of the independent variable also weakened, and appeared to be non-significant for predicting the emotion oriented stress-coping strategy ($\beta = -0.124$; $p > 0.05$). However, disillusionment remains to be correlated with that coping strategy ($\beta = 0.22$; $p < 0.05$). Since the mediating effect showed a statistical trend towards significance as measured by the Sobel test ($Z = 1.86$, $p = 0.06$), the Goodman test was also administered. The test results indicated the probability of the mediating role of disillusionment upon the relationship between the emotional intelligence level and an emotionally oriented stress-coping strategy ($Z = 1.91$, $p = 0.05$).



Sobel test

$Z_B=2.30$, $p<.05$; $Z_{PPE}=2.20$, $p<.05$; $Z_{IEF}=1.94$, $p<.05$; $Z_D=1.86$, $p=.06$

Legend: B – burnout; PPE – psychophysical exhaustion; PI – professional inefficacy; D – disillusionment.

Fig. 1. General burnout and its components as mediators of the relationship between emotional intelligence and emotion-related stress coping

An analysis of the impact of the relationship deterioration factor did not confirm any mediation effect, since the value of the independent variable and that of the mediator were non-significant for predicting an emotion oriented stress strategy. Therefore, relationship deterioration is not included in Fig. 1, which sums up the mediating effects discussed in this study.

DISCUSSION

A detailed analysis of the interface of emotional intelligence with strategies of coping with stress shows that a high level of emotional intelligence fosters a strategy of task-avoidance coping, which in turn curtails the tendency to concentrate on emotions in stressful situations, and to reduce stress levels through the act of distracting oneself with other activities. At the same time, the high level of emotional intelligence may prompt social diversion, another dimension of the avoidance coping style. On the other hand, a low level of emotional intelligence provokes the use of an emotion oriented coping strategy especially in the cases of strong feelings of burnout.

The relationship between emotional intelligence and stress-coping strategies was reported in a number of studies (Austin, Saklofske & Mastoras, 2010; Bailey, Murphy & Porock, 2011; Görgens-Ekermans & Brand, 2012; Pourrashidi & Vafaei, 2013;). A mediation analysis, however, revealed that the impact of a high level of emotional intelligence on effective stress coping strategies may be weakened by the factors linked to job burnout such as psychophysical exhaustion, the lack of a sense of professional efficacy, and disillusionment. This means that professional burnout results in less effective stress coping strategies even in nurses who chose this profession because they wanted to take care of people in need.

The study suggests that it is rather occupational burnout that limits the possibility of applying effective stress coping strategies and that stress management does not reduce the risk of burnout. In contrast to the findings of other studies (Bakker, van Emmerik & Euwema, 2006; Hakanen, Bakker & Schaufeli, 2006) the nurses examined reported a lower level of burnout than the national average. Moreover, analyses did not indicate the impact of the service duration or work patterns upon the level of burnout. Future research based on larger and more representative samples of the nursing population may help to explain the above contradictions. It creates the need to clarify its links with depression in order to concentrate on a really effective treatment (Pačalska, Kaczmarek & Kropotov 2014).

It may also be worthwhile investigating the role of psychophysical, neuropsychological and social factors that induce burnout.

CONCLUSIONS

A task oriented stress coping strategy prevailed within the examined group. It is worth noting that this strategy is believed to be the most effective way to manage stressful situations through the practitioner undertaking actions aimed at solving a problem in accordance with their cognitive resources and compe-

tencies. It is also a significant factor enabling the adjustment to variable situational settings. Moreover, the study revealed the significant role of emotional intelligence as a higher level of this form of intelligence and its correspondence with a lower feeling of burnout in all its dimensions (negative correlation). On the other hand, mediation analysis revealed that burnout limits the possibility of applying effective stress coping strategies and that the risk of burnout is not reduced by stress management. This finding suggests that the prevention of burnout may be the most effective factor enabling productive work, and the maintenance of psychological wellbeing despite the many job stressors which may occur in the workplace. Whether we shall treat burnout as a separate syndrome or a subtype of depression still requires a carefully planned treatment aimed at those afflicted with it. It is of utmost importance since the prolonged stress results in severe emotional disturbances, and may even lead to the development of post-traumatic stress disorder. A good news is that the development of new neuroimaging techniques enables effective treatment of such disorders (see Morga et al., 2019).

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