ORIGINAL ARTICLE

Experience of acute stressful events and coping strategies of trauma patients with stress

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ABSTRACT

Aim To determine experience of acute stress event and strategy of facing stress in trauma patients, so that nurse/technician could help patients overcome the mentioned event in their further work and its intensity with the help of their diligence and experience.

Methods The Impact of Event Scale – Revised (IES-R) and socio-demographic questionnaire were used as instruments of measuring. The research was conducted on 100 examinees who were hospitalized at the Traumatology Ward in Osijek Univesity Hospital Center during the period between 14 June 2011 and 28 August 2011. Descriptive statistics was used, and the differences between categorical variables were tested with Kruskall Walis test.

Results The examinees used avoidance as their first defence line within first few days after the accident. The middle valuation of a subscale amounted 14.50. The value of the final result of IES-R was fluctuating between 0-88. The middle value was 33 (interquartile range 21-49 points). Acute stress reaction was noted in seven (7%) examinees, 26 (26%) had clinically considerable symptoms. Statistically significant difference in acute stress event was obtained between genders (p=.001), while the age, class of accident, matrimonial status, education and socio-demographic standard of living, were not considerable for perception of stress.

Conclusion Acute stress situation was present in almost all patients after experiencing trauma. The research has shown that females experienced more stressful events than males, and use more strategies to avoid it when confronted with stressful events.

Key words: IES-R, acute stress event, trauma patient.

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INTRODUCTION

The concept of stress is so often used in the literature that it has many different meanings. The word stress derives from the English language and originally referred to the effort or constraint (1). Stress is a subject of interest and research in different scientific disciplines, from biological, psychological, and sociological science and each discipline refers to different meaning of the term (1). Stress is an inevitable part of life and human functioning depends on ways people deal with it (2). Richard Lazarus defines stress as a condition in which an individual can not meet the excessive demands of the environment in which it sets (2). Psychological stress is therefore the relationship between people and the environment that the person assessed as very high or a relationship that goes beyond its capabilities and threaten her well-being (2).

When summarizing the main conclusions of theories of stress, the following can be concluded: very diverse surrounding factors (stressors) can cause stress, individuals in the same stressful stimulus react differently, intensity of stress is not always related to the intensity of stress reactions, but depends on the situation in which it appears, assessing the possibility of coping with stress, assessment of possible social support in stressful situations, and overall psychological state of individuals (3).

There is no event in which all people would react in the same way. Studies have shown that about 50% of people have insufficient power to quickly establish the mental balance even after the most tragic events (4). About 10% of affected individuals will need professional help, while for others assistance will be sufficient within the environment, usually his/her family (4). The probability that an accident will cause greater psychological difficulty is increased if there was emotional vulnerability before (5).

Most people respond to traumatic events with re-experiencing symptoms, emotional numbness, avoidance behaviour, and increased physiological arousal (6). Intrusive thoughts (intrusive thoughts, nightmares, intrusive feelings and images, such as re-experiencing), avoidance (numbing, avoidance of feelings, situations and ideas), increased arousal (anger, irritability, difficulty concentrating, fearfulness) are subjective responses of individuals to a single traumatic event (6). Coping operates on several levels and includes behaviour, cognition and perception (7).

Research shows that acutely unwell patients often feel vulnerable when admitted to hospital (8). Patients at the Department of Traumatology were affected by acute stress reactions after stressful events (traffic accidents, falls and major injuries). With this type of stress, serious body injury and its effects increase the stress reaction and impose substantial requirements for individual adaptive strategies to cope with acute stress (9). The effect of negative emotions on the disease, its course and outcome, length of hospital stay, success in treatment and patient satisfaction are the main reasons why it should pay particular attention to mental health patients during hospitalization (10). In the article about psychometric properties of the Impact of Event Scale - Revised (IES-R), it was concluded that the IES-R scale solid post-traumatic stress measures can be used for detection of acute stress reactions, and early detection of those who have an increased risk of developing a mental disorder (5). The sample of people who survived a serious motor vehicle accident is appropriate, because the traffic accidents in the U.S. are the leading cause of Posttraumatic Stress disorder (PTSD) (5).

The aim of this study was to determine the experience of acute stressful events and coping strategies for patients with trauma, so that nurses/technicians can help their patients overcome the above mentioned experience and reduce intensity of stressful events.

EXAMINEES AND METHODS

This research was conducted on a total number of 100 randomly selected patients, (75 males and 25 females) hospitalized at the Department of Clinical Traumatology of the Osijek University Hospital Center in the period between 14 June 2011 and 28 August 2011. Adult age, serious injuries (fractures, cuts, gunshot wounds) and conservative treatment were inclusion criteria. For testing the impact of stressful event, we used a scale - Impact of Event Scale - Revised (IES-R) (6), Weiss and Marmar's (6), and socio-demographic questionnaire (6). The questionnaire contains 22 items, 7 of which were added to the

original IES scale designed by M. J. Horowitz (11), directed to specific subjective symptoms of coping with stressful situations in the past seven days of stressful events. The Impact of Event Scale - Revised is not a diagnostic test for Posttraumatic Stress Disorder, but an instrument for measuring subjective responses of individuals to a specific stressful event, especially responses such as thoughts (intrusive thoughts, nightmares, intrusive feelings and images, such as re-experiencing), avoidance (numbing, avoidance of feelings, situations and ideas), increased arousal (anger, irritability, difficulty concentrating, fearfulness). It contains three subscales: avoidance subscale (8 statements), intrusive subscale (8 statements), and hyper-arousal subscale (6 claims).

Examinees were asked to read a statement and circle a number evaluating stressful experience / problems related to accidents (traffic accidents, crashes, injuries) that had happened to them, and how much they were upset or bothered by these difficulties. Questions were scored on a scale ranging from 0 to 4 (0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = very often). The Impact of Event Scale - Revised (IES-R) final score was ranged from 0 – 88. The range of the IES-R score was divided into four groups: asymptomatic (score = 0 - 22), clinically insignificant symptoms (score = 23 - 44), clinically significant symptoms (score = 45 - 66), and acute stress reaction (score = 67 - 88).

The socio-demographic questionnaire included age, gender, type of accident, education, employment and marital status, number of persons in families and households as per personal judgment.

Before the beginning of testing, subjects were read information on goals of the research, which pointed out that participation in the research was anonymous and voluntarily, after which the participants gave their signed consent to participate in the research and began filling out questionnaires. It took ten to fifteen minutes to fill out the questionnaire, and testing was conducted individually. The research was approved by the Ethical Committee of the Osijek University Hospital Center.

Analysis of data was performed by the SPPS software system for Windows (version 13.0). Data are presented as absolute and relative frequencies, and differences between categorical variables were tested by Kruskall Wallis's test.

RESULTS

The sample included 100 examinees, 25 females and 75 males. The patients' age ranged from 18-81 years, mean age was 44.77 years. Most examinees had completed high school, 70 (70%). As for employment, most examinees had been employed, 73 (73%), employed 51 (51%) and 22 (22%) were retired. Most examinees are married, 59 (59%), and the largest number of examinees, 63 (63%) evaluated their households as are average.

Most of the examinees, 49 (49%) were hurt during the fall at home or at your leisure, 30 (30%) of examinees were injured in a traffic accident, 16 (16%) were injured at work, and 5 (5%) in other types of accidents including injuries with firearm or knife, injuries inflicted in fights, cuts, during explosions and inflicting injuries to others .

The subjects used avoidance as a first line of defense after the accident, usually in disbelief thinking about the accident, asking themselves why that had happened to them. The most critical statements it in our research were the fifth and the seventeenth, trying not to upset when thinking of the event and trying to forget . Also a large number of subjects in the eighth and eleventh claims, very often, often, sometimes, trying not to think and not think about a stressful event, which is not to be neglected. In addition to avoidance, intrusive thoughts also occur, and feelings about the event reoccur when something reminds them of the event and images of the stressful event appear in their mind. For those reasons they often feel irritable and angry; the fourth argument is the most critical in the hyperarousal subscale (Table 1).

Results of the IES-R subscales indicated that the subjects used avoidance as a first line of defense in the first few days after the accident, the central value of the subscales was 14.50. The value of the final results of the IES-R was fluctuating between 0-88, and the central value of the final results of the IES-R in this study was 33 points (interquartile range 21-49 points) (Table 2). Under acute stress reaction there was 7 (7%) respondents, while 26 (26%) subjects had clinically significant symptoms (Table 3). Stati-

Table 1. Replies to statements of the Impact of Event Scale - Revised

Statement*	Number of examinees by level					Mean
	Never	Rarely	Sometimes	Often	Very often	
	0	1	2	3	4	
1. Any reminder brought back feelings about it.	3	23	28	31	15	2.32
2. I had trouble staying asleep.	21	23	27	17	12	1.76
3. Other things made me keep thinking about it.	17	34	22	14	13	1.72
4. I felt irritable and angry.	17	27	33	11	12	1.74
5. I avoided getting upset when I thought about it or was reminded of it.	13	18	26	25	18	2.17
6. I thought about it when I didn't mean to.	27	29	18	17	9	1.52
7. I felt as if it hadn't happened or wasn't real.	39	17	29	6	9	1.29
8. I stayed away from reminders of it.	15	19	25	21	20	2.12
9. Pictures about it popped into my mind.	13	24	20	22	21	2.14
10. I was jumpy and easily startled.	33	28	26	5	8	1.27
11. I tried not to think about it.	15	23	23	22	17	2.03
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.	35	29	19	10	7	1.25
13. My feelings about it were kind of numb.	19	28	23	18	12	1.76
14. I found myself acting or feeling like I was back at that time.	47	22	23	5	3	0.95
15. I had trouble falling asleep.	24	26	18	20	12	1.70
16. I had waves of strong feelings about it.	30	26	20	13	11	1.49
17. I tried to remove it from my memory.	14	18	27	19	22	2.17
18. I had trouble concentrating.	31	33	20	7	9	1.30
19. Reminders of it made me have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart.	38	26	17	6	13	1.30
20. I had dreams about it.	56	26	8	4	6	0.78
21. I felt watchful and on-guard.	28	26	19	19	8	1.53
22. I tried not to talk about it.	24	20	31	16	8	1.62

*Intrusion subscale: 1, 2, 3, 6, 9, 14, 16, 20; Avoidance subscale: 5, 7, 8, 11, 12, 13, 17, 22; Hyperarousal subscale: 4, 10, 15, 18, 19, 21

stically significant differences in the perception of acute stressful experience as a strategy of stress among respondents were noted according to the gender of the respondents (Table 4), while in the

Table 2. Mean measures and scatter of subscales and total score on the Impact of Event Scale - Revised (IES-R)

Subscales IES-R	Points		
	Mean	Interquartile range	
		25%	75%
Intrusion	12	6	18
Avoidance	14.50	9	20
Hyperarousal	8	4	13
Total IES- R score	33	21	49

Table 3. The range of points on the Impact of Event Scale - Revised (IES-R)

The range of points IES-R	Score	Number of examenees
No symptoms	0 - 22	29
Clinically insignificant symptoms	23 - 44	38
Clinically significant symptoms	45 - 66	26
Acute stress reaction	67 - 88	7
Total		**100**

Table 4. Differences in the perception of acute stress and coping strategies in relation to gender

Subscales IES-R	Gender		p†
	Male	Female	
	Sv (SD)*	Sv (SD)	
Intrusive	11.1(6.7)	17.4(8.6)	.002
Avoid	13 (7.4)	18.5(6.5)	.003
Arousal	7.8(5.2)	12.1(6.6)	.003
Total	**31.9(17.1)**	**48(19.6)**	**.001**

*Mean (standard deviation), †Kruskal Wallis test

categories of age, type of accident, marital status, education and socio-economic standard of living, significant differences were not found in the perception of stress (Table 5).

Table 5. The significance of differences in the perception of stress - overall results with respect to age, gender, type of accident, education, marital status and material standard of living

Sociodemographic characteristics		P
Age	≤ 4o	
	41 – 60	.196
	> 60	
Gender	Male	.001
	Female	
Type of accident	Car accident	
	Fall at home or at your leisure	.318
	Injury at Work	
	Other	
Education	Completed primary education	
	Completed secondary education	.008
	Completed College	
	Completed Higher Education	
Marital status	Married	
	Non married	600
	Divorced	
	Other	
Standard of living	Significantly higher than average	
	Slightly higher than average	
	Average	.504
	Slightly lower than average	
	Significantly lower than average	
	Can not evaluate	

DISCUSSION

In literature the questionnaire relating to IES-R was used as an instrument for measuring subjective responses of individuals and the degree of stress on specific stressful event or trauma such as accidents, natural disasters (storms, floods, earthquakes), war, terrorist attacks (6). The Impact of Event Scale - Revised (IES-R) is not a diagnostic test for Posttraumatic Stress Disorder, but it is correlated with 14 of the 17 Diagnostic and Statistical Manual of Mental Disorders scale, Fourth edition (DSM-IV) symptoms of Posttraumatic Stress Disorder (12). It can be used for women giving birth for early detection of mothers with greater risk for development of postpartum mental disorder, including postpartum PTSD (13). Also, it can be used for an assessment of the impact of stressful events to employees in work organizations mentioned in the literature (14). The Impact of Event Scale - Revised (IES-R) can be applied in all age groups, from children (stress responses in various trauma or abuse) to old people (6), it is not only suitable for people with severe or moderate problems with memory, such as dementia and the like (6).

According to some research, the most common mental disorders experienced after the accident were anxiety, fear, psychosomatic symptoms, and alcohol preference, depression, Acute stress disorder (ASD) and Posttraumatic Stress Disorder (PTSD) with published rates ranging between 17.5 – 42% at 6 months and 2 – 36% at 12 months (15).

The value of the final results of the Impact of Event Scale - Revised (IES-R) was fluctuating between 0-88, as it could have been expected because all the people and accidents are different and deal with stress differently. Some research methods and categories of coping with stress have identified over 400 ways of coping with stress, lower levels and the number of possible combinations of coping with stress (7). The study of women giving birth was conducted two days after the delivery - the mean IES-R was significantly higher in women who had had an emergency caesarean section in a group of women delivering by caesarean section (13). It can be concluded that the high value of the final results of the IES-R in our research was an unexpected result of accidents (accident, fall, assault, explosions) and injury

and hospitalization, pain and contribute to the treatment of high value. High result in the intrusion subscale explains even a higher result in the avoidance subscale. Avoidance helps to regulate the injured and minimize the negative effects that are caused by intrusive memories of stressful events (5). Trauma patients mainly get hurt by unexpectedly, suddenly and from full health, and they end up hospitalized in Department of Traumatology with serious injuries.

Acute stress reactions occurred in 7% of respondents in our research, while 26% of subjects had clinically significant symptoms, which is not negligible. Statistically significant differences in the perception of acute stressful experience as a strategy of stress among respondents occurred in different genders. Some studies suggest that men and women differ in their biological and social development, hormones, upbringing, priorities, thus in different ways to deal with stress (16). Men face stress by focusing on the problem, while women respond emotionally. The difference between the sexes can be explained by differences in biological response to trauma between women and men (16).

It is therefore important for nurses to know and discover the acute stress response in patients and provide health care to include those competencies, which can reduce such experience and intensity of stressful events. The communication between the nurse and patient can be a very powerful therapeutic tool and a sister therapy can significantly affect patients (8). Most of all patients want to be seen and listened to by nurses who value them as human beings and make them feel special (8). Nursing is a vocation that is actively involved in caring for the health of the body and soul (17).

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Doživljaj akutnog stresnog događaja i strategije suočavanja sa stresom kod traumatoloških bolesnika

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SAŽETAK

Cilj Utvrditi doživljaj akutnog stresnog događaja i strategije suočavanja sa stresom kod traumatoloških bolesnika, kako bi medicinska sestra/tehničar, u daljnjem radu, svojim zalaganjem pomogla prevladati navedeni doživljaj i intenzitet stresnog događaja.

Metode Kao instrument je korištena *Skala utjecaja trenutnih stresnih događaja* (IES-R), te sociodemografski upitnik. Ispitivanje je provedeno na 100 ispitanika koji su bili hospitalizirani na Kliničkom odjelu traumatologije Kliničkog bolničkog centra Osijek, tijekom perioda od 14. 06. do 28. 08. 2011. godine. Koristili smo deskriptivnu statistiku, a razlike među kategoričkim varijablama testirali smo Kruskall Walisovim testom.

Rezultati Ispitanici su najviše koristili izbjegavanje kao prvu crtu obrane u prvih nekoliko dana iza nesreće. Središnja vrijednost podskale iznosila je 14,5. Vrijednost konačnog rezultata IES-R-a varirala je od 0–88. Središnja vrijednost je iznosila 33 (interkvartilni raspon od 21 do 49 bodova). Akutna stresna reakcija zabilježena je u sedam (7%) ispitanika, a 26 (26%) ispitanika imalo je klinički značajne simptome. Statističku značajnost u razlikama percepcije akutnog stresnog doživljaja dobili smo u području spola ispitanika (p=.001), dok se u kategorijama dobi, vrste nesreće, bračnog statusa, obrazovanja, te socioekonomskog standarda života, nije pokazala značajnost u razlikama percepcije stresa.

Zaključak Doživljaj akutnog stresa bio je prisutan kod gotovo svih bolesnika nakon doživljene traume. Istraživanje je pokazalo kako žene doživljavaju događaj više stresnim od muškaraca, te više koriste strategiju izbjegavanja, nametanja, kao i pojačane pobuđenosti u suočavanju sa stresnim događajem.

Ključne riječi: IES-R, akutni stresni događaj, traumatološki bolesnik.