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**POTENTIAL PREDICTORS OF PERCEIVED STRESS IN
HELPING PROFESSION**

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Abstract

The aim of this study is to explore perceived stress of an individual working in the helping profession, potential predictors and mediators of this stress. The study examines the effect of past traumatic experience, perceived mental pain, adult attachment behavior and their contribution toward present perceived stress in psychologists and social workers. A potentially preventive role of secure adult attachment and self-regulation of self-care in resulting stress perception are being explored. The methods included the use of the adult attachment behavior - Experience in Close Relationships revised ECR-R (Fraley, 2000) instrument, Global Measure of Perceived stress (Cohen, Kamarck, Mermelstein, 1983), and Self-regulation of self-care (Hricová, Lovaš, in press). Other instruments used included Mental pain – Single item measure and Past traumatic experience – Single item used to measure frequency of strong negative incidents experienced before the individual started working in the helping profession. Hypotheses were tested on psychologists and social workers (n=160) using mediation models. Results suggest that a past traumatic experience predicts current mental pain perception. Professional helpers' anxious dimension of adult attachment style partially mediates relationship between perceived mental pain and perceived stress. Avoidance dimension of adult attachment style is related to perceived stress indirectly, through self-regulation of self-care. Results of the study suggest indirect relationship between past traumatic experience and currently perceived stress.

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Keywords: Attachment, trauma, stress, self-regulation of self-care, mediation model.



1. Introduction

The increased prevalence of stress and secondary stress, depression and anxiety in helping professions has been documented in several studies (Pope, & Tabachnik, 1994; Figley, 2002). Various potential underlying factors explaining negative outcomes of helping others are being explored. Interestingly, some studies reveal that the incidence of past traumatic events and childhood adversity are common in helping professionals and are associated with psychological distress and impairment (Mauder et al., 2010). Research suggests that secure attachment and self-care activities (Skovholt, 2001; Malinowski, 2014) could be among protective factors of negative outcomes in helping professions.

This study explores connection between past experiences of traumatic event, attachment style, currently perceived pain and stress, as well as potential preventive role of self-regulation of self-care.

1.1. Adult attachment

Attachment theory (Bowlby, 1973, 1980, 1982) postulates that human beings are born with a psychobiological system that is activated when individual perceives pain, fatigue or fright (Bowlby, 1982). In cases of threat, this attachment system motivates human being to seek proximity with a caregiver in order to increase chances of survival. A child with available, responsive and supportive caregiver will develop secure attachment in close relationships (Ainsworth, Blehar, Waters, & Wall, 1978).

If a child, however, does not feel secure and does not consider caregiver as supportive, then insecure attachment develops. Ainsworth described types of attachment style behavior using strange situation test in young children (Ainsworth, Blehar, Waters, & Wall, 1978). Her theory was further developed by Bartholomew and Horowitz (Bartholomew, 1990; Bartholomew, Horowitz, 1991), who were among first to suggest two-dimensional model of attachment. Attachment anxiety (self) dimension is connected to relationship dependency and excessive fear of losing close relationship; attachment avoidance (other) dimension is associated with relative deactivation of seeking proximity and intimacy, corresponding to distrust in others (Brennan, Clark, Shaver, 1998).

Depending on expectations from self (anxiety dimension) and others (avoidance dimension), there are defined three categories of insecure adult attachment that are associated also with infant attachment styles. Preoccupied attachment develops, when individual is seeking care from others, but is not soothed by the reaction of significant others (Klohn & Bera, 1998). This individual is high on dimension of anxiety, but not high on dimension of avoidance. Individuals with dismissive attachment style (high on avoidance dimension, but low on anxiety dimension) distrust others and do not seek social support from others in distress, but are independent and self-sufficient, that can result in crisis in cases of strong distress (Bartholomew, Horowitz, 1991). Fearful attachment (individuals high on both avoidance and anxiety dimension) is connected to feelings of distrust and suspiciousness of others, as well as self-doubt (Klohn & Bera, 1998). Even though individuals can be classified in four mentioned categories of attachment style (secure, preoccupied, dismissive and fearful), studies suggest that dimensional approach could have greater validity than categorical approach (Brennan, Clark, Shaver, 1998; Bartholomew, Horowitz, 1991; Fraley, Waller, 1998).

Although infant and adult attachment style is related (Waters, 2000), adult attachment style can be shaped during life (Fraley, 2002) via other adult relationships or in therapy (Wake, 2010; Marmarosh, Tasca, 2013; Levy, Meehan, Temes, & Yeomans, 2012).

Infant-caregiver relationship serves as a basic template for behavior in adult relationships (Bowlby, 1982; Hazan & Shaver, 1987). Learnt cognitive schemes, or internal working models are based on both procedural and declarative memories. These are basic schemes of expectations of social behavior in reaction to threat (Maunder, Hunter & Hunter, 2001).

Secure attachment style is necessary for optimal social and cognitive development (Strathean et al. 2009). The role of adult attachment system is to regulate mentalized constructs associated with physical closeness and intimacy like dependency, trust and expressing affect (Maunder, Lancee, Nolan, Hunter, & Tannenbaum, 2006). The activation of attachment system in threat was experimentally confirmed in Minkulincer's experiments using priming (Minkulincer, Gillath, Shaver, 2002; Mikulincer, Shaver 2007). Attachment style is related to coping, perception of pain, stress response, grief, psychological well-being, or morbidity (Wei, Heppner, & Mallinckrodt, 2003; Kho, Kane, Priddis, & Hudson, 2015; Maunder, Hunter, 2001; Minkulincer, Shaver, 2003). Attachment mediates relationship between trauma and its negative consequences (Kong, 2017). Additionally, modern applications of attachment theory propose its importance also in development of coherent self (Fonagy, 1999), physiological self-regulation (Maunder, Hunter, 2001) and affect-regulation (Casidy, 2008).

1.2. Trauma

The negative consequences of experiencing traumatic event vary greatly. Natural, as well as man-made disasters and accidents disrupt person's stability. Studies have focused on the effect of early life trauma onto stress reaction, posttraumatic stress reaction, perception of pain, somatization and dissociation (Waldinger et al. 2006; Maunder et al. 2016; Mikulincer et al. 1999; Luecken, 1998; Kong et al., 2017). In some cases mental health and well-being is restored shortly after experiencing traumatic event, in others, however, negative consequences develop. Mikulincer and Shaver (2012) expect both attachment anxiety and attachment avoidance to be connected to decreased capacity of trauma management. Recently published study by Kong et al. (2017) support their assumptions by revealing a mediating effect of attachment style in the relationship between trauma and dissociation.

1.3. Pain

Pain is referred to as '...an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage' (Merskey, and Bogduk, 1994, p. 210). In healthy individuals experiencing pain serves as a necessary evolutionary mechanism enabling human beings to survive. It alerts organism about possibility of threat, increases distress and forces it to react to the potential danger (Meredith 2016). From this point of view, attachment has evolutionary similar role to pain, both serving as potentially cooperating mechanisms that increase probability of human survival.

In past decade there has been progress in research of empirical evidence connecting various types of pain and attachment. Experimental pain studies showed relationship between attachment style and

adjustment to pain (Andrews et al. 2011; Meredith et al. 2006b). Cole-Detke and Kobak describe strategies of coping with pain as secure and defensive types in relation to attachment style of the individual (Cole-Detke and Kobak 1996; Dozier and Kobak 1992). However, not all studies have reported significant relationship between pain and attachment (Williamson et al 2002; Porter et al. 2007).

1.4. Stress

Coan (2008) describes social baseline theory, in which he assumes humans have evolved to be primarily social beings. He reasons that our emotions and physiological reactions to distress are co-regulated by the attachment relationships. Research seems to confirm connection between stress and attachment style (Mikulincer 1998; Mikulincer M, Florian V, Weller 1993; Maunder & Hunter, 2001). Bowlby himself (1973) postulated, that function of attachment could be, among others, also development of adaptive strategies to protect organism from hyperactivation of physiological system. This assumption was supported by Maunder et al. (Maunder, Lancee, Nolan, Hunter, & Tannenbaum, 2006) using validated measure of both attachment style and physiological stress. In their study of healthy individuals' reaction to stress authors found significant positive relationship between attachment anxiety and self-reported distress. Attachment avoidance was, however, not associated with self-reported distress, but it was related to high-frequency heart rate variability, which is used as a marker of autonomic function during acute stress reaction. In line with these findings, Ditzen et al. (2008) also described relationship between secure attachment and stress. Combination of secure attachment and social support was related to lower perceived stress, however, it did not affect the levels of hormone cortisol.

1.5. Self-regulation of self-care

Self-regulation is a term describing both conscious and automatic processes by which people pursue goals (Mann & Ridder, 2013). It consists of goal setting and goal striving (Carver, Scheier, 1982) that are needed for successful self-regulation. Goals orientation can be in form of activating behavior, in term of approaching the goal, or in form of inhibiting certain behavior in order to avoid unwanted outcome (Carver, Scheier, 1982).

Lovaš (2014, Lovaš, Hricová, 2015) defined self-care even broader than the goal of good health and well-being or removing obstacles towards these goals. He proposed that self-care activities are manifestations of self-regulation processes.

2. Problem Statement

Helping professions often experience various stressors that are specific for the profession (Kluska, Laschinger and Kerr, 2004). Studies suggest that self-care could potentially reduce the effect of demands of helping professions and balance negative consequences of helping (Figley, 2002; Macchi, Johnson, & Durtschi, 2014). However, as much as individuals working in helping profession support their clients to take care, they themselves do not always do it sufficiently (Williams et al., 2010).

Maunder et al. (2010) in their study reveal connection between childhood adversity and perceived stress in healthcare workers. There are not many studies exploring both the effect of predictors of stress, as well as potentially balancing variables as attachment style and self-care self-regulation.

3. Research Questions

This study explores relationship between past trauma, currently perceived mental pain, attachment anxiety, attachment avoidance, self-regulation of self-care and perceived stress. Firstly, we expect direct connection between past traumatic experience and perceived mental pain, attachment anxiety and attachment avoidance. Our second hypothesis suggests that there will be indirect relationship between past trauma and perceiving stress. Third hypothesis proposes, that attachment anxiety, attachment avoidance and self-care self-regulation could be mediators between pain and perceived stress. Research shows (Maunder, 2006; Ditzen, 2008) that the effect of attachment anxiety and attachment avoidance on perceived stress could vary, therefore we propose two mediation models.

4. Purpose of the Study

The aim of the study is to examine the potential mediating effect of attachment style and self-regulation of self-care in the relationship between past traumatic experience and currently perceived stress in psychologists and social workers.

5. Research Methods

5.1. Sample

A total of 160 respondents – psychologists and social workers participated in the study, all with at least one year of work experience. Individuals have been recruited via personal and email communication with institutions and organizations offering psychological support and social welfare services. Initially 189 individuals participated, however, subjects, who did not complete all measures were eliminated from the analysis. All subjects participated voluntarily. Research was approved by University of P.J. Safarik in Kosice, Slovakia as a part of an ongoing larger study. Mean age of the participants was 33.2 years (SD =10.8). Sample was comprised of 124 women (77.5%) and 36 men (22.5%).

5.2. Measures

5.2.1. Adult Attachment

Adult attachment style was assessed with self-reported measure: Experience in Close Relationships - Revised (ECR –R; Fraley 2000) validated for Slovak adult population (Gugová, Heretik, Hajdúk, 2014). The questionnaire was derived using item response theory (Fraley, Waller, Brennan, 2002). It consists of 36 Likert type items, 18 questions assessing dimension of anxiety and 18 questions assessing avoidant attachment behavior in close adult relationships. Respondents describe how well each item describes their feelings and behavior on partly anchored Likert-type scale from 1 (strongly disagree)

to 7 (strongly agree). In our sample alpha reliability coefficient of avoidance subscale was $\alpha=.92$; alpha reliability of anxiety subscale was $\alpha=.90$.

5.2.2. Traumatic experience

One item was used to measure frequency of traumatic experience before the individual decided for attaining education for helping profession: “Throughout my life, before I aimed for helping profession, I had been through intensive traumatic experience that influenced me greatly”. Response categories rated on Likert scale ranged from 1 – never, 2 – rarely, 3 – sometimes, 4 – fairly often, 5 - very often. Single item measures have their significant disadvantages, is can be less reliable than a measure with multiple items considering one construct (Kline, 2011). However, a pilot study conducted previously to this study, helping professionals refused to reveal their past traumatic experiences even in anonymous form for various reasons, very frequent one was fear of losing a work position.

5.2.3. Perceived Mental pain

Single item was used to measure perceived mental pain: “I feel mental pain”. Response categories ranged from: 1 – never, 2 – rarely, 3 – sometimes, 4 – often, 5 - very often.

5.2.4. Global Measure of Perceived stress (Cohen, S., Kamarck, T., Mermelstein, R., 1983)

Scale consists of 10 items measuring individual’s subjective perception of uncontrollability, unpredictableness and difficulty of his everyday life activities. Response categories range from 1 – never, 2 – rarely, 3 – sometimes, 4 – fairly often, 5 - very often. Alpha reliability coefficient in this study was $\alpha=.82$

5.2.5. Self-regulation of self-care (SCSR, Hricová, Lovaš, in press)

The questionnaire consists of 36 questions and is used for assessing self-regulation in field of self-care. Response categories range from 1 - strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 - strongly agree. Alpha reliability was $\alpha=.82$. Initial study (Hricová, Lovaš, in press) revealed four factors – personal growth, healthy lifestyle, emotional control and physical control.

6. Findings

Table 1 summarizes Pearson’s correlations, mean scores (M) and standard deviations (SD) of the variables used in the model. Our primary goal was to analyze direct and indirect relationships between the variables.

Table 01. Summary Statistics and Intercorrelations for observed variables

Variable	1	2	3	4	5	6
Trauma	-					
Mental pain	.40**	-				
Perceived stress	.24**	.52**	-			
Attachment anxiety	.14	.50**	.44**	-		
Attachment avoidance	.16*	.24**	.18*	.51**	-	
SCSR	-.20*	-.26**	-.31**	-.37**	-.31**	-
M	1.98	2.47	29.83	50.87	42.32	141.39
SD	1.05	1.13	6.02	19.46	19.09	18.37

Note: N= 160. SCSR = self-care self-regulation. *p < .05. **p < .01. ***p < .001 (two-tailed).

6.1. Mediation analysis

Presented two mediation models were tested in Process Macro for SPSS (Model 6; Hayes, 2013) using ordinary least squares path analysis. We used a bias – corrected bootstrapping based on 10.000 bootstrap samples as advised by Hayes (2009).

Considering the expected difference between route of effect of attachment anxiety and attachment avoidance on perceived stress, two models were conducted – one for attachment anxiety and one for attachment avoidance.

6.1.1. Path analysis: Trauma, mental pain, attachment anxiety, self-care self-regulation and stress

We hypothesized that past trauma (X) would affect currently perceived stress (Y) and this relationship could be mediated by perceiving mental pain (M1), attachment anxiety (M2) and self-care self-regulation (M3). This relationship does not test causality, and could be bidirectional, direction is based on literature review.

Results of this mediation model reveal, that between trauma and current feelings of mental pain is significant relationship (B=.42, SE=.08, p<.0001). Furthermore, mental pain is significantly associated with attachment anxiety (B=9.02, SE=1.22, p<.0001). Direct relationship between trauma and attachment anxiety was not significant (B=-1.23, SE=1.5, p=.41). Both mental pain (B=1.96; SE=.46, p< .0001) and attachment anxiety (B=.06, SE=.03, p=.021) are related to perceived stress. Self-care self-regulation is partially mediating relationship between attachment anxiety and perceived stress. Attachment anxiety predicts negatively self-care self-regulation (B=-.31, SE=.08 p=.0002) and SCSR predicts perceived stress negatively (B=-.04, SE=.03, p=.04)

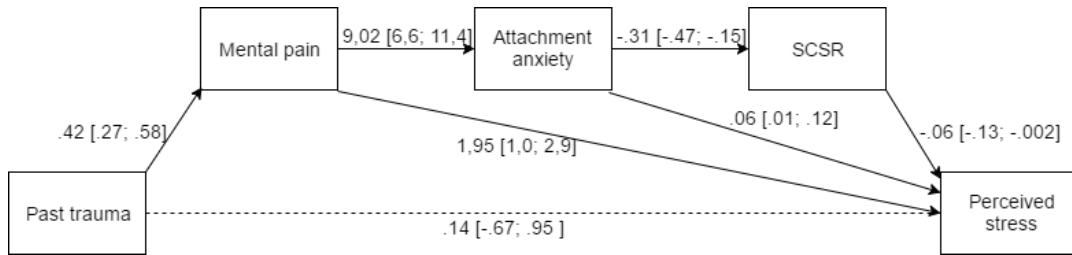


Figure 01. Model with non-standardized regression coefficients for the relationship between trauma, mental pain, attachment anxiety and perceived stress. CI=confidence interval, it is 95% significant, if there is no 0 in the interval.

Total effect of the model is significant, $R^2=.059$; $F(1,158)=10.1$; $p=.0018$. Direct effect of trauma onto perceived stress (table 2) was not significant ($B=.25$; $SE=.41$; $t=.62$; $p=.54$, $CI=-.55, 1.05$). Relationship is fully mediated. Table 3 summarizes indirect effect of past traumatic experience (X) that is significantly related to perceived stress (Y), ($B=1.13$; boot $SE=0.30$; $CI=.58; 1.77$).

Table 02. Direct effect of trauma onto perceived stress, Model 1, bootstrapping 10 000

Direct effect	Estimate	SE	95% CI
Trauma	.25	.41	[-.55; 1.05]

Table 03. Indirect effect of Trauma onto perceived stress, Model 1, bootstrapping 10 000

Indirect effect	Estimate	SE	95 %CI
Trauma	1.13	.30	 [.58; 1.77]

Below figure 2 summarizes regression coefficients, standard errors and model summary information for the presumed Perceived stress of Model 1.

antecedent	Mental Pain			Attachment anxiety			SCSR			Consequent Perceived stress (Y)		
	coeff	SE	p	coeff	SE	p	coeff	SE	p	coeff	SE	p
Trauma	0,42	0,08	<.0001	-1,23	1,5	.41	-2,34	1,34	0,08	.25	.41	.54
Mental Pain	-	-	-	9,02	1,22	<.0001	-.63	1,67	0,7	1,96	0,46	<.001
Atch.Anxiety	-	-	-	-	-	-	-.31	.08	<.0001	.06	.03	.021
SCSR	-	-	-	-	-	-	-	-	-	-.04	.03	.04
constant	1,63	.17	<.0001	31,36	3,73	<.0001	163,29	3,8	<.0001	27,27	3,7	<.001
		$R^2=.156$			$R^2=.25$			$R^2=.16$			$R^2=.33$	
		$F(1,158)=29,4$			$F(2,157)=28,04$			$F(3,156)=12,23$			$F(4,155)=21,61$	
		$p<.0001$			$p<.0001$			$p<.0001$			$p<.0001$	

Figure 02. Regression coefficients, standard errors and model summary information for the presumed Perceived stress Model 1

antecedent	Mental Pain			Attachment avoidance			SCSR			Consequent		
	coeff	SE	p	coeff	SE	p	coeff	SE	p	coeff	SE	p
Trauma	0,42	0,08	<.0001	1,33	1,60	.43	-1,57	0,89	0,08	.14	.41	.74
Mental Pain	-	-	-	3,62	1,35	.0083	-2,54	1,54	0,1	2,46	0,41	<.0001
Atch. avoidance	-	-	-	-	-	-	-24	.075	.002	.001	.03	.95
SCSR	-	-	-	-	-	-	-	-	-	-.06	.02	.006
constant	1,63	.17	<.0001	30,95	3,58	<.0001	161,10	3,84	<.0001	31,81	3,7	<.0001
		R ² =.156			R ² =.06			R ² =.14			R ² =.299	
		F(1,158)=29,4			F(2,157)=6,38			F(3,156)=8,61			F(4,155)=17,2	
		p<.0001			p<.002			p<.0001			p<.0001	

Figure 03. Regression coefficients, standard errors and model summary information for the presumed Perceived stress Model 2

6.1.2. Path analysis: Trauma, mental pain, attachment avoidance, self-care self-regulation and stress

We hypothesized that past trauma (X) would indirectly affect currently perceived stress (Y) and that the relationship would be mediated by perceived mental pain (M1), attachment avoidance (M2) and self-care self-regulation (M3).

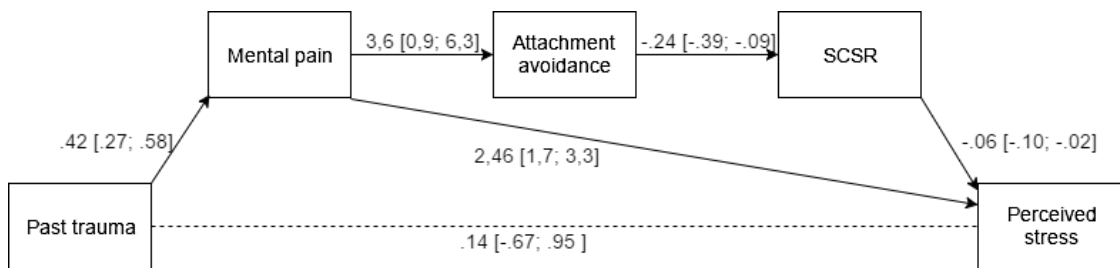


Figure 04. Non-standardized regression coefficients for the relationship between trauma, mental pain, attachment anxiety and perceived stress. [CI]

In this model the direct relationship between past trauma and perceived stress (table 4) is not significant (B=.14, SE=.41, p=.74). Indirect Effect of trauma (X) onto perceived stress (Y) is significant (table 5), B=1.24; boot SE=.27; CI=[.76; 1.84].

Table 04. Direct effect of trauma onto perceived stress, model 2, bootstrapping 10 000

Direct effect	Estimate	SE	95% CI
Trauma	.25	.41	[-.55; 1.05]

Table 05. Indirect effect of trauma onto perceived stress in model 2, bootstrapping 10 000

Indirect effect	Estimate	Boot SE	95% CI
Trauma	1.24	.27	[.76; 1.84]

Past trauma and current feelings of mental pain are significantly related ($B=.42$, $SE=.08$, $p<.0001$). Mental pain is associated with attachment avoidance ($B=3.62$, $SE=1.35$, $p=.0083$). In contrast to the first model, in the model 2, the direct relationship between attachment avoidance and perceived stress is not significant ($B=.0018$, $SE=.03$, $p=.95$) but is further mediated through self-care self-regulation (SCSR). Attachment avoidance is negatively related to Self-care self-regulation ($B=-.24$, $SE=.07$, $p=.0015$), and SCSR negatively predicts perceived stress ($B=-.06$, $SE=.02$, $p=.006$). Additionally, similarly to the previous model, mental pain is associated with perceived stress, and it is the strongest predictor of the perceived stress ($B=2.46$, $SE=.41$, $p<.0001$).

Model 2 is significant, $R^2=.06$; $F(1.158)=10.1$; $p=.0018$. The relationship between trauma and perceived stress is fully mediated.

To conclude, our results suggest that perceived stress could be predicted directly by perceived mental pain, attachment anxiety and self-regulation of self-care, additionally there could be indirect effect of past traumatic experience and attachment avoidance on the amount of perceived stress of the individual. These results are cross-sectional, therefore we cannot assume causality.

7. Conclusion

The aim of this study was to explore chosen potential predictors of perceived stress in psychologists and social workers based on a literature review.

Traumatic experience is often connected to mental pain. Feelings of pain activate attachment behavior. Mental pain in healthy individuals serves as evolutionary protective mechanism, however, individuals with insecure attachment might have altered coping strategies for pain management, they can have affected system of understanding, regulation and management of pain (Meredith, 2016). This might cause further negative consequences in life of a social worker or psychologist, particularly on perception of stress.

Previous studies describe, that attachment anxiety is related directly to self-reported stress perception. However, attachment avoidance is not associated with self-reportedly perceived stress, rather with physiological stress reaction (Maunder, Hunter, 2006; Ditzen et al., 2008). Additionally, attachment avoidance was considered as a risk factor for health (Kotler, 1994). Results of our study seem to support these findings - dimension of anxious attachment behavior is positively related to perceived stress, as well as self-care self-regulation. Dimension of avoidant attachment is related to stress indirectly, avoidance was associated with self-regulatory mechanisms of self-care.

These results support two of Maunder and Hunter (2001) hypotheses: insecure attachment is positively related to a) stress perception (by anxious attachment dimension) as well as to b) the use of protective mechanisms, since self-regulation of self-care can be considered a health-protective behavior.

Pain activates instinctive reaction based on attachment style of the individual. The importance of self-regulation of self-care can be examined also as a capacity to overcome this instinctive reaction in cases of insecure attachment style. We suggest further examination of the potential role of self-regulation of self-care in context of attachment style and stress management.

This study is cross-sectional, therefore causation cannot be concluded. Measures used in this study were based on self-reported questionnaires, which may be susceptible to bias. Additionally, mental pain and trauma were measured by a single scales. Moreover, the study did not consider exactly at what developmental phase the traumatic experience happened, only that it had happened before the individual decided for his studies and professional direction of helping professional.

Our results suggest that past traumatic experience affects helping professionals. Moreover, stress perception is associated with attachment style and self-regulation of self-care. These results could be potentially used for developing intervention programs to reduce stress in helping professions.

Working in the helping profession is connected to seeing more traumatized people than working in any other profession. It is advised that these individuals engage in self-care activities, as well as use social support and request for help when it is necessary. It is possible that individuals who experienced trauma in the past and are working in helping professions can be even more vulnerable to stress and further on to secondary stress or vicarious trauma.

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References

- Ainsworth, M. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation*. Hillsdale, NJ: Erlbaum.
- Andrews NE, Meredith PJ, Strong J (2011) Adult attachment, fear-avoidance and pain intensity in experimentally-induced pain. *European Journal of Pain* 15, 523–530
- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, 7, 147–178.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment Styles among Young Adults: A Test of a Four-Category Model. *Childhood Attachment and Internal Models*, 61(2), 226–244. Retrieved from <http://members.psyc.sfu.ca/documents/doc/144>
- Bowlby, J. (1973). *Attachment and loss, Vol. 2: Separation*. New York: Basic Books.
- Bowlby, J. (1980). *Attachment and loss, Vol. 3: Loss, sadness and depression*. New York: Basic Books.
- Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry*, 52(4), 664–678. <https://doi.org/10.1111/j.1939-0025.1982.tb01456.x>
- Carver, C. S., & Scheier, M. F. (1982). Control theory: a useful conceptual framework for personality-social, clinical, and health psychology. *Psychological Bulletin*, 92(1), 111–35. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/7134324>
- Cassidy, J. (2008). Emotion Regulation: Influences of Attachment Relationships. *Monographs of the Society for Research in Child Development*, 59(2–3), 228–249. <https://doi.org/10.1111/j.1540-5834.1994.tb01287>.
- Coan JA. Toward a neuroscience of attachment. In: Cassidy J, Shaver PR, editors. (2008). *Handbook of attachment: theory, research, and clinical applications* (2nd ed.) New York: Guilford; 241–268.
- Cole-Detke, H., & Kobak, R. (1996). Attachment processes in eating disorder and depression. *Journal of Consulting and Clinical Psychology*, 64(2), 282–90. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/8871412>

- Ditzen, B., Schmidt, S., Strauss, B., Nater, U. M., Ehlert, U., & Heinrichs, M. (2008). Adult attachment and social support interact to reduce psychological but not cortisol responses to stress. *Journal of Psychosomatic Research*, 64(5), 479–486. <https://doi.org/10.1016/j.jpsychores>.
- Dozier, M., & Kobak, R. R. (1992). Psychophysiology in attachment interviews: converging evidence for deactivating strategies. *Child Development*, 63(6), 1473–80. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/1446563>
- Figley, C. R. (2002). Compassion fatigue: Psychotherapists' chronic lack of self-care. *Journal of Clinical Psychology*, 58(11), 1433–1441. <https://doi.org/10.1002/jclp.10090>
- Fraley, R.C., & Waller, N.G. (1998). Adult attachment patterns: a test of the typological model. In: Simpson J.A., Rholes, W.S. (Eds.). *Attachment theory and close relationships*. New York: Guilford. 77–114.
- Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, 78(2), 350–365. <https://doi.org/10.1037/0022-3514.78.2.350>
- Fraley, R. C. (2002). Attachment Stability from Infancy to Adulthood: Meta-Analysis and Dynamic Modeling of Developmental Mechanisms. *Personality and Social Psychology Review*, 6(2), 123–151. https://doi.org/10.1207/S15327957PSPR0602_03
- Fuendeling, Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, 52(3), 511–524. <https://doi.org/10.1037/0022-3514.52.3.511>
- Gugová-Rozvadský, G., Heretik, A., Hajdúk, M. (2014) Psychometric properties of The Slovak Version of Experiences in Close Relationships – Revised (ECR-R) on General Adult Sample. In: *Studia Psychologica*, 56, 37-52.
- Hricová, M. & Lovaš, L. (in press). Self-care self-regulation. *Studia psychologica*.
- Hunter, J., & Maunder, R. (2016). Improving Patient Treatment with Attachment Theory. <https://doi.org/10.1007/978-3-319-23300-0>.
- Jurist, E., Fonagy, P., Target, M., & Gergely, G. (2014). *Affect regulation, mentalization, and the development of the self*. New York: Other Press.
- Kho, Y., Kane, R. T., Priddis, L., Hudson, J., McPherson, R., & Peralta, D. (2015). The Nature of Attachment Relationships and Grief Responses in Older Adults: An Attachment Path Model of Grief. *Plos One*, 10(10), e0133703. <https://doi.org/10.1371/journal.pone.0133703>
- Kline, R. (2011). *Principles and practice of structural equation modeling*. New York, NY: Guilford.
- Klohn, E. C., & Bera, S. (1998). Behavioral and experiential patterns of avoidantly and securely attached women across adulthood: a 31-year longitudinal perspective. *Journal of Personality and Social Psychology*, 74(1), 211–23. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/9457783>
- Kong, S. S., Kang, D. R., Oh, M. J., & Kim, N. H. (2017). Attachment insecurity as a mediator of the relationship between childhood trauma and adult dissociation. *Journal of Trauma and Dissociation*, 16, 1-18. <https://doi.org/10.1080/15299732.2017.1329772>
- Levy, K. N., Meehan, K. B., Temes, C. M., & Yeomans, F. E. (2012). Attachment Theory and Research : Implications for Psychodynamic Psychotherapy. In: R. A. Levy, J. S. Ablon, H. Kächele (Eds.), *Psychodynamic Psychotherapy Research*, 401–416. <https://doi.org/10.1007/978-1-60761-792-1>
- Lovaš, L. (2014) Starostlivosť o seba a jej psychologické kontexty. In: Lovaš, et al. *Psychologické kontexty starostlivosti o seba*. Košice: Univerzita Pavla Jozefa Šafárika; 9-26. ISBN 978-80-8152-196-6.
- Lovaš, L., Hricová, M. (2015). Self-regulation and Performed Activities in the Sphere of Self-care. *Individual and Society*. 18(1), 26-32.
- Luecken, L. J. (1998). Childhood attachment and loss experiences affect adult cardiovascular and cortisol function. *Psychosomatic Medicine*, 60(6), 765–72. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/9847038>
- Malinowski, A. J. (2014). *Self-care for the mental health practitioner : the theory, research, and practice of preventing and addressing the occupational hazards of the profession*. London: Jessica Kingsley

- Press. Retrieved from <http://search.library.utoronto.ca/details?9971552&uuid=506d8b98-382e-497d-a8b3-82740eb7224d>
- Mann, T., & Ridder, D. De. (2013). Self-Regulation of Health Behavior. Social Psychological Approaches to Goal Setting and Goal Striving. *Health Psychology*, 32(5), 487–498. <https://doi.org/10.1037/a0028533>
- Marmarosh, C. & Tasca, G. (2013) Adult attachment anxiety: Using group therapy to promote change. *Journal of Clinical Psychology*, 69(11), 1172-1182.
- Maunder, R. G., & Hunter, J. J. (2001). Attachment and Psychosomatic Medicine: Developmental Contributions to Stress. *Psychosomatic Medicine*, 63(4), 556–567.
- Maunder, R. G., Lancee, W. J., Nolan, R. P., Hunter, J. J., & Tannenbaum, D. W. (2006). The relationship of attachment insecurity to subjective stress and autonomic function during standardized acute stress in healthy adults. *Journal of Psychosomatic Research*, 60(3), 283–290. <https://doi.org/10.1016/j.jpsychores.2005.08.013>
- Maunder, R. G., Peladeau, N., Savage, D., & Lancee, W. J. (2010). The prevalence of childhood adversity among healthcare workers and its relationship to adult life events, distress and impairment. *Child Abuse & Neglect*, 34(2), 114–123. <https://doi.org/10.1016/j.chiabu.2009.04.008>
- Meredith, P.J. Attachment Theory and Pain. In: Hunter, J., & Maunder, R. (2016). Improving Patient Treatment with Attachment Theory. Switzerland: Springer International Publishing, <https://doi.org/10.1007/978-3-319-23300-0>.
- Merskey H, Bogduk N. (1994). Classification of chronic pain. 2nd ed. Seattle: IASP Press.
- Mikulincer M, Florian V. (1998). The relationship between adult attachment styles and emotional and cognitive reactions to stressful events. In: Simpson J.A., Rholes WS, editors. Attachment theory and close relationships. New York: Guilford press.
- Mikulincer, M., Gillath, O., & Shaver, P. R. (2002). Activation of the attachment system in adulthood: Threat-related primes increase the accessibility of mental representations of attachment figures. *Journal of Personality and Social Psychology*, 83(4), 881-895.
- Mikulincer, M., Shaver, P. R., & Solomon, Z. (2015). An Attachment Perspective on Traumatic and Posttraumatic Reactions. In: Safir, M.P., Wallach, H.S., Rizzo, A.S. (Eds.) Future Directions in Post-Traumatic Stress Disorder. Switzerland: Springer Press, 79-96. <https://doi.org/10.1007/978-1-4899-7522-5>
- Mikulincer, M., & Shaver, P. R. (2007). Boosting attachment security to promote mental health, prosocial values, and inter-group tolerance. *Psychological Inquiry*, 18(3), 139-156.
- Porter, L. S., Davis, D., & Keefe, F. J. (2007). Attachment and Pain: Recent Findings and Future Directions. *Pain*, 128(3), 195–198.
- Skovholt, T. M., Grier, T. L., & Hanson, M. R. (2001). Career Counseling for Longevity: Self-Care and Burnout Prevention Strategies for Counselor Resilience. *Journal of Career Development*, 27(3), 167–176. <https://doi.org/10.1023/A:1007830908587>
- Strathearn, L., Fonagy, P., Amico, J., & Montague, P. R. (2009). Adult Attachment Predicts Maternal Brain and Oxytocin Response to Infant Cues. *Neuropsychopharmacology*, 34(13), 2655–2666. <https://doi.org/10.1038/npp.2009.103>
- Wake, L. 2010. Role of brief therapy in attachment disorders. London: Karnak Books.
- Waldinger, R.J, Marc S Schulz, Arthur J Barsky, David K Ahern (2006). Mapping the Road from Childhood Trauma to Adult Somatization: The Role of Attachment. *Psychosom Med*, 68(1), 129–35.
- Waters, E.; Merrick, S.; Treboux, D.; Crowell, J.; Albersheim, L. (2000). Attachment security in infancy and early adulthood: A twenty-year longitudinal study. *Child Development*, 71(3), 684–689.
- Williamson GM, Walters AS, Shaffer DR. (2002). Caregiver models of self and others, coping, and depression: predictors of depression children with chronic pain. *Health Psychology*. 21(4), 405–410.