

RELATIONSHIP BETWEEN ADULT ATTACHMENT AND DECISION MAKING IN HOSPITAL NURSES IS MEDIATED BY SELF-REGULATION ABILITY

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Abstract: The study explores the relationships between decision-making styles in hospital nurses and their attachment styles in adulthood as well as the possible mediation of these associations by self-regulation. It is based on the assumption that attachment styles, defined as mental working models of self and others, affect the decision-making process in nurses, whose profession includes frequent interaction with other people. The research sample included 161 nurses from the Children's University Hospital in Bratislava, Slovakia. Attachment styles were measured by the Relationship Questionnaire, self-regulation by the Self-regulation Scale, and decision-making styles by the Melbourne Decision Making Questionnaire. Correlation analysis showed that two insecure attachment styles (anxious-preoccupied and fearful-avoidant) correlated positively with the preference of maladaptive decision-making styles (hypervigilance, buck-passing and procrastination). Mediation analysis revealed that these relationships are mediated by self-regulation, which means that the effect of attachment styles on decision-making styles might be carried by self-regulation ability. The results point to the role that attachment might play in the specific context of nursing.

Key words: decision making, self-regulation, adult attachment, nursing

Introduction

The quality of health-care related decision making plays an important role in the overall quality of healthcare. Health professionals are involved in a permanent process of decision making, which includes decisions on diagnostics procedures, interventions or treatment costs (Halama, 2013). Decision making in the area of healthcare

may have serious consequences including human and economic harm (Gurňáková, 2011). It is considered a complex, or even complicated process, because of many possible diagnoses or therapeutic procedures, as well as the need to involve patients' preferences or economic aspects (Hunink et al., 2001). Chapman and Sonnenberg (2000) also emphasize that healthcare is a very specific area for investigating decision making, because it includes such aspects as uncertainty of results, or multiple alternatives for a problem solution.

In this study, we focused on a specific health profession: nurses. The nurse profes-

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sion in hospitals can be defined primarily as providing basic medical and physiological care for hospitalized patients, usually under the control of physicians. Although limited in their autonomy, nurses make various decisions connected with the care for patients on a daily basis. These decisions are related to specific ways of providing care for patients, monitoring their functioning, calling for physicians, and more.

The nurses provide care not only at a physiological level, but also at a psychological and social level (Chen et al., 2005). Social aspects of their work and decision making are very important because they continuously interact with people of various social positions (physicians, patients, colleagues, relatives, etc.). The assumption that social context of the care substantially affects decision making of nurses was confirmed by qualitative research studies in different medical areas, such as end-of-life care (Galagher et al., 2015) or intensive care (Tingsvik et al., 2015). These studies suggest that the decisions that nurses make are not made independently of social environment; in their decisions, nurses are affected by social influences and relationships.

One of the factors affecting decision making is personality of the decision maker. Previous research showed that decision making is related to personality characteristics in different situations and in different persons (e.g., Di Fabio & Palazzeschi, 2012; Lauriola & Levin, 2001) including health professionals (Pílárik & Sarmány-Schuller, 2011; Kamhalová et al., 2013). It was also shown that decision making in social context is related to socially relevant personality variables such as extraversion (Halama & Gurňáková, 2014) or agreeableness (Halama, 2013).

One of the dominant social variables applied in current personality research is attachment. The theory of attachment was originally developed by Bowlby (1969/1997) as a clinical theory used to explain the developmental aspects of mental disorders in children. It was based on the assumption that the nature of the relationship between child and his or her primary caregiver significantly affects the feelings and behavior of the child. Later, this theory was applied as a research framework for different adult behaviors, especially in close relationships (e.g., Feeney & Noller, 1996; Simpson & Rholes, 1998; Mikulincer & Shaver, 2007). This was based on the fact that certain similarities exist between child attachment behavior and behavior of the adult person in close relationships. Like a child, an adult person also seeks proximity of a close person, especially in times of discomfort, and derives feelings of safety from his or her presence (Feeny, 1999). Adult attachment system was described as a cognitive system involved in a continuous monitoring of internal and external events in regard to possible threats and activating security based strategies of behavior (Mikulincer & Shaver, 2007).

Individual differences in attachment system are defined as *attachment styles*. For example, Hazan and Shaver (1990) described a three-category model of adult attachment styles: Secure attachment means that person feels comfortable in relationships and it is relatively easy for him or her to get close to other people. An anxious ambivalent person perceives other people as reluctant to be in the relationship with him or her and worries about other's love. An avoidant person feels discomfort when he or she is close to others, trying to avoid intimacy and closeness. Bartholomew and Horowitz (1991) described

a four-category model based on two dimensions: positive vs. negative model of self and positive vs. negative model of others. Positive model of the self and others is related to *secure* attachment style. Persons with *pre-occupied* attachment style have a positive model of others but a negative model of the self. *Fearful-avoidant* attachment style includes a negative model of others and a positive model of the self. Finally, the combination of negative model of the self and others is typical for *dismissive* attachment style.

As the dominant function of the attachment system is the reaction to threats, the attachment theory was related to decision making in both theoretical and research studies. In their theoretical study, Almakias and Weiss (2012) applied attachment theory to economic decision making. They found that in ultimate game behavior, both proposers' and responders' behavior may be explained by attachment styles of the players. Furthermore, attachment avoidance was found to be positively related to unethical decisions in the workplace (Chopik, 2015). Van Petegem et al. (2013) focused on decision making of adolescents in families. They found that attachment avoidance was unrelated to independent decision making. However, attachment avoidance was related to more pressuring motives for dependent decision making.

The concept of decision-making styles brought deeper insight into the problem of cross-situational consistency in the decision-making process. Scott and Bruce (1995) define decision style as a learned, habitual response pattern exhibited by an individual when confronted with a decision situation. These authors propose five basic decision styles: a) rational – characterized by a thorough search and logical evaluation of alternatives; b) intuitive – characterized by a reli-

ance on hunches and feelings; c) dependent – characterized by a search for advice and direction from others; d) avoidant – characterized by attempts to avoid decision making, and e) spontaneous – characterized by a sense of immediacy and a desire to get through the decision-making process as soon as possible.

Mann et al. (1997) based their concept of decision styles on the conflict theory of decision making. Their concept of decision-making styles proposes four styles: *Vigilance* includes clarification of objectives to be achieved by the decision, canvassing alternatives, searching for relevant information and its assimilation in an unbiased manner, and evaluating alternatives carefully before making a choice. According to the conflict theory, vigilance is the only coping pattern that allows proper and rational decision making. *Hypervigilance* includes frantic searching for a way out of dilemmas. Due to perceived time pressure, the decision maker impulsively seizes upon hastily contrived solutions in order to achieve immediate relief. The full range of consequences of choices is overlooked in the state of emotional excitement, perseveration, and limited attention. *Buck-passing* includes shifting responsibility for decisions to others. Finally, *procrastination* means replacing high-priority actions with tasks of lower priority, or doing something from which one derives enjoyment, thus putting off important tasks to a later time or making no decision at all. *Vigilance* is considered an adaptive decision-making style, while *hypervigilance*, *buck-passing* and *procrastination* are usually considered maladaptive (Mann et al., 1997). These decision-making styles were investigated in regard to attachment. Deniz (2011) found that secure attachment is positively

related to vigilant decision making as well as procrastination, and negatively to hypervigilance and buck-passing.

One of the candidates for the explanation of the relationship between attachment and decision making is self-regulation. Self-regulation is an important factor of decision making (Halama, 2014) in various contexts, such as consumer behavior (Golwitzer, Sheeran, 2009; Higgins, 2002), adolescent development (Byrnes et al., 1999), or professional decision making (Baumann et al., 2001). In a sample of paramedic students, Jurišová and Sarmány-Schuller (2013) found self-regulation to be positively associated with vigilant decision-making style, negatively associated with hypervigilance and procrastination, but unrelated to buck-passing. Several studies also confirmed that self-regulation abilities are significantly associated with attachment. Zeinali et al. (2011) found that among adolescents, insecure attachment was associated with a low level of self-regulation whereas secure attachment was associated with a high level of self-regulation. Fletcher et al. (2015) argued that insecure attachment increases addiction behavior through the disturbance of self-regulation ability. Also, Kohn et al. (2012) found dismissing attachment to be associated with limited self-regulatory sources. According to Kohn and her colleagues, persons with dismissing attachment style devote self-regulatory sources to suppressing negative memories in order to keep their attachment system deactivated.

The aim of our study is to investigate the relationship between attachment styles and decision-making styles in hospital nurses. As we reported previously, attachment is widely considered a long-termed personality characteristic that influences many interpersonal and behavioral variables, including

those related to activities in the workplace. Nursing in hospitals is an example of a profession where interpersonal context plays an important role, and decision making is influenced by interpersonal characteristics. Based on previous research described above, we hypothesize that secure attachment should be related to adaptive decision-making styles, and insecure attachment to maladaptive decision-making styles. We also assume that self-regulation mediates the relationship between attachment and decision-making styles. This assumption comes from previous research, which indicates that disturbed self-regulation ability could be an outcome of insecure attachment style and a source of maladaptive decision making.

Method

Sample and Procedure

Data were collected in June 2014 among nurses from five clinics in the Children's University Hospital in Bratislava, Slovakia: Anesthesiology and Intensive care, Oncology and Hematology, Neurology, Pathological Neonatology, and Surgery. After approval of the survey by the local Ethics Committee and the Chief Nursing Officer of the hospital, the questionnaires in envelopes were distributed by nursing services directors of each department concerned. The questionnaires were completed on a voluntary and anonymous basis, and were returned on a specified date in sealed envelopes. The response rate was 86.6%. The most frequent reasons for non-response were refusal to participate in the study, and absence due to vacation or sickness. 161 nurses returned properly filled out questionnaires. 158 of them were females and 3 of them were

males. Their mean age was 38.5 years with a standard deviation of 8.6. Concerning family situation, 100 of them were married or in a romantic relationship, 44 were single, 18 of them divorced or widowed and two of them did not provide the data. Average length of the nurses' employment in healthcare was 17.2 years.

Measures

Relationship Questionnaire (Bartholomew, Horowitz, 1991) is a measure of attachment styles in adult relationships. This measure is formed of four paragraphs describing the prototype of the following attachment styles: Secure (SA), Anxious-preoccupied (AA), Fearful-avoidant (FA), and Dismissing avoidant (DA). Secure people can easily get emotionally close to others and they do not worry about being alone or not accepted by others. Anxious-preoccupied people want emotionally close relationships, but they find it difficult to trust others completely, or to depend on them. Fearful people want to be completely emotionally intimate with others, but they often find that others are reluctant to get as close as they would like. Dismissing people are characterized as avoiding intimacy, being highly self-reliant and independent. Preoccupied, fearful and dismissing attachment styles are usually referred to as insecure attachments. Participants were asked to rate themselves on a 7-point scale regarding the extent of their agreement on the four statements that described the four attachment styles.

Self-regulation Scale (SRS) (Schwarzer et al., 1999; Diehl et al., 2006) is a self-report questionnaire, which was developed to cover emotional and attention aspects of self-regulation. It assesses a person's ability to main-

tain his or her focus of attention when pursuing a goal and facing difficulties in achieving the goal. It was originally constructed in the German language. It contains 10 items, which are rated on a 4-point scale ranging from 1 (*not true at all*) to 4 (*completely true*). Responses are summed into a total score, with higher scores indicating greater ability to control and maintain one's attention. The psychometric analysis of Diehl et al. (2006) revealed that the scale showed good internal constituency and also satisfactory test-retest reliability over a 6-week period. Criterion validity of the scale was supported by positive correlations with content-related measures.

Melbourne Decision Making Questionnaire (MDMQ) is a measure of decision-making styles. It was based on the conflict theory of decision making and was created by Mann et al. (1997). It contains 22 items which are answered on a 3-point scale from *True for me* to *Not true for me*. The measure detects four decision-making styles as described in the Introduction section: *Vigilance* (VGL), *Hypervigilance* (HVG), *Buck-passing* (BP) and *Procrastination* (PRO). Vigilance is considered an adaptive decision-making style, while hypervigilance, buck-passing, and procrastination are usually considered maladaptive (Mann et al., 1997). Concerning psychometric properties, Mann et al. (ibid.) confirmed satisfactory reliability of each factor using Cronbach's alpha (from .74 for procrastination to .87 for hypervigilance and buck-passing).

These measures were chosen due to their good psychometric properties, and because they are generally considered well-established measures of the constructs concerned (Diehl et al. 2006; Isaksson et al., 2014; Frias et al., 2015).

Results

First, Cronbach's alphas of SRS, and of the four MDMQ sub-scales were calculated, as well as descriptive characteristics of all variables used in our study. Cronbach's alpha for the SRS scale was .78. The MDMQ sub-scales yielded Cronbach's alpha of .68 for vigilance, .67 for hypervigilance, .74 for buck-passing, and .75 for procrastination. In all variables, absolute value of the skewness coefficient was lower than 1, which allowed the use of parametric correlations. Therefore, in the next step, relationships between attachment types, decision making and self-regulation were analyzed using Person's product-moment correlation coefficient. The results of the analysis together with descriptive characteristics are presented in Table 1.

Secure attachment did not show any substantial correlation with decision-making styles, with the exception of a significant but small negative correlation with hyper-vigilance. On the other hand, two out of the three insecure attachment styles (FA and AA) were positively related to negative decision-making styles. Concerning self-regulation, this variable showed significant correlation with all other variables. It is positively related to secure attachment and vigilance, and negatively related to insecure attachments as well as to negative ways of decision making.

In the next step, we performed mediation analysis, which aimed to test the mediation role of self-regulation in the relationship between attachment and decision-making styles. Based on the results of correlation analyses, we tested mediation of self-regulation in the relationship between two insecure attachments and maladaptive ways of

Table 1 *List of study variables with their possible score ranges, mean scores, standard deviations, and Pearson's correlation matrix of the variables*

Variable	Mean	SD	Skewness	SA	FA	AA	DA	SRS	VGL	HVG	BCP
SA (1-7)	4.61	1.39	-.12								
FA (1-7)	3.86	1.58	-.18	-.41**							
AA (1-7)	3.69	1.42	-.03	.01	.29**						
DA (1-7)	3.71	1.60	-.03	-.17*	.24**	.06					
SRS (10-40)	32.06	3.99	-.03	.28**	-.29**	-.28**	-.15*				
VGL (0-12)	9.79	1.94	-.82	-.13	-.02	-.04	-.06	.20**			
HVG (0-10)	3.81	1.92	-.11	-.17*	.30**	.30**	.08	-.33**	.16*		
BCP (0-12)	4.14	2.33	.26	-.06	.29**	.24**	-.03	-.33**	-.02	.53**	
PRO (0-10)	2.36	2.06	.68	-.09	.32**	.30**	.07	-.36**	.01	.61**	.56**

Note. SA – Secure attachment, FA – Fearful-avoidant attachment, AA – Anxious-preoccupied attachment, DA – dismissive avoidant attachment, SRS – Self-regulation Scale, VGL – Vigilance, HVG – Hypervigilance, BCP – Buck-passing, PRO – Procrastination

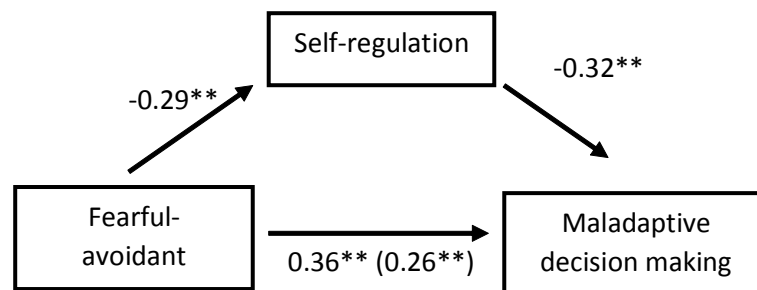
* $p \leq .05$ ** $p \leq .01$

decision making. We did not perform mediation analysis for secure and dismissive avoidant attachments, because the correlations with decision-making styles were too small and mostly non-significant.

In order to reduce the number of models tested for mediation, we decided to integrate the three MDMQ subscales variables, representing maladaptive decision-making styles, into one variable. This was based on the high correlation between these subscales. We chose factor analysis as the method for integration. Three maladaptive ways of decision making were factored by maximum likelihood method and person's regression score was saved as a new variable. This way, we created a new variable which was named *maladaptive decision making*. We performed two mediation analyses. In both of them maladaptive decision making was a dependent variable and self-regulation was a mediation variable. Fearful-avoidant attachment was the independent variable in the first model and anxious-

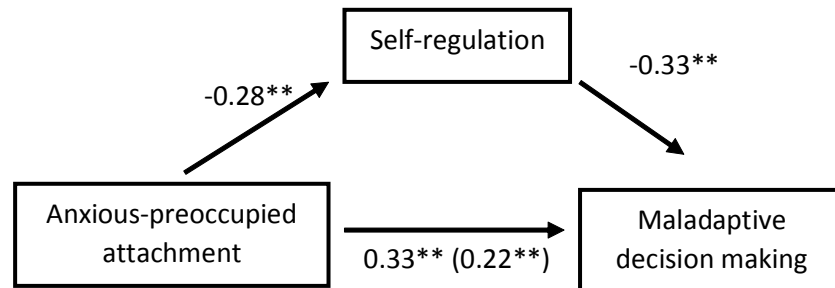
preoccupied attachment in the second model.

Multiple regression analysis was used to estimate the mediation effect (Baron & Kenny, 1986). The results of the first mediation analysis are presented in Figure 1. The standardized regression coefficient between fearful-avoidant attachment and self-regulation was statistically significant ($-.29$; $p < 0.01$), as was the standardized regression coefficient between self-regulation and maladaptive decision making ($-.32$; $p < 0.01$). The standardized Beta regression coefficient between fearful-avoidant attachment and maladaptive decision making ($.36$; $p < 0.01$) considerably diminished when the association was controlled for self-regulation ($.26$; $p < 0.01$). The standardized indirect effect was $.09$ (not presented in the figures). We tested the significance of this indirect effect using bootstrapping procedure as suggested by Hayes (2009, 2013). Standardized indirect effects were computed for each 10,000 bootstrapped samples and the 95% confi-



** $p \leq .01$

Figure 1 Mediation model of the relationship between fearful-avoidant attachment and maladaptive decision making with self-regulation as mediator, expressed in standardized Beta regression coefficients.



** $p \leq .01$

Figure 2 Mediation model of the relationship between insecure attachment and maladaptive decision making with self-regulation as mediator, expressed in standardized Beta regression coefficients

dence interval was computed. The bootstrapped confidence interval ranged from .04 to .17, meaning the effect was statistically significant. To estimate the effect size of the mediation, we computed Kappa-squared coefficient (Preacher & Kelly, 2011). Its value was .10 with 95% bootstrapped confidence interval from .04 to .17, which is considered a middle size effect (not presented in the figures).

Similar results were found in case of anxious-preoccupied attachment (Figure 2). Standardized indirect effect was 0.10 with 95% bootstrapped confidence interval from .04 to .18 and Kappa-squared coefficient showed also value 0.10 with 95% bootstrapped confidence interval from .04 to .18, which means middle size effect (not presented in the figures). This suggests a significant mediation effect of self-regulation in the relationship between insecure attach-

ment styles (both fearful-avoidant and anxious-preoccupied) and maladaptive decision-making styles.

Discussion

Our correlational analysis focusing on the relationship between attachment and decision-making styles revealed several important findings. First of all, vigilant decision making was not correlated with any of the attachment styles. According to the original authors of the MDMQ questionnaire (Mann et al., 1997), vigilant decision style is the only coping pattern which allows sound and rational decision making. In our sample of nurses, attachment does not seem to be related to this style. This finding partially corresponds with previous results of Deniz (2011) who performed research on a sample of university students, finding small but sig-

nificant correlations between attachment and vigilance (they did not exceed .10 value). On the other hand, other decision-making styles showed several significant correlations, especially with insecure attachments. Both fearful and anxious-preoccupied attachment styles correlated with hypervigilance, as well as buck-passing and procrastination. This suggests that nurses with insecure attachment tend to use maladaptive ways of decision making to a higher extent, compared to nurses with low level of insecure attachment. Deniz (2011) found similar associations in his university students' sample.

A possible explanation for these results can be based on the nature of these attachment styles. Both of them are associated with a higher level of negative feelings related to interpersonal contact. These feelings come from the characteristics of the attachment system, which primarily detects possible threats (Mikulincer & Shaver, 2007). If this system is associated with insecure attachment, threats are detected more frequently in comparison with secure attachment. While anxious-preoccupied attachment is related to threats coming from feelings of personal insufficiency, fearful-avoidant attachment is sensitive to threats related to being hurt by others (Bartholomew & Horowitz, 1991). Presence of higher negative emotions associated with these attachment styles may increase the probability of mechanisms that enable an immediate relief (hypervigilance), or escape from the problem (buck-passing, procrastination). This assumption is supported by the study of Dewberry, Juanchich and Neredran (2013) who identified two decision style components, the first one dealing with cognitive processes, and the second one with regulatory processes. Higher anxiety is related

to preference of the latter (e.g., avoidance or maximization of decision).

We suspected that lack of self-regulation could be a link between attachment styles and negative decision making. We tested this assumption in two moderation analyses, using a summarized variable based on the factor analysis of negative decision-making styles. We chose this option in order to increase robustness of the mediation analysis. The analysis repeatedly confirmed that both anxious-preoccupied and fearful-avoidant attachments were related to the use of maladaptive decision-making strategies. We also confirmed that these two insecure attachments negatively predicted the self-regulation ability, and self-regulation was inversely associated with maladaptive decision-making styles. Although only medium in effect size, the indirect effect was found to be statistically significant and the mediation role of self-regulation was confirmed in both analyses.

These results of our mediation analyses provide some support for the assumption that self-regulation could be a link between attachment styles and maladaptive decision making. We suppose that negative emotions, which are present in persons with these two insecure attachments as consequences of sensitive threat detection (Mikulincer & Shaver, 2007), place higher demands on self-regulation capacities, because negative emotions narrow attention focus and direct attention towards possible threats (Baumann et al., 2001). A person with these insecure attachments, which are characterized by higher level of anxiety, has to spend much energy to manage these threats, and is therefore limited in his or her capacity to deal with demands of problem situations. Under demands of a problem situation, self-regulation,

weakened by previous work with threats, tends to fail. Consequently, the person starts to prefer hypervigilance, procrastination, or buck-passing, i.e. decision-making styles which do not facilitate problem solving by goal attainment (Mann et al., 1997).

The decision-making process in hospital nurses is specific due to the social nature of their job, and the social context in which decisions are made. Attachment styles are relevant especially in social interactions, which are unavoidable in their profession (e.g., Tingsvik et al., 2015; Galagher et al., 2015). Among nurses, decision making frequently includes some kind of social problem (care of others, interaction with others) and in order to be effective, it requires socially relevant self-regulation. Therefore, we assume that the effect of fearful and anxious attachments on self-regulation, and the subsequent effect of both insecure attachments and self-regulation on decision making can affect the work of hospital nurses, and the quality of their decision making.

A limitation of our study is the fact that it is based solely on self-report data. These can be biased by self-evaluation of the nurses. This fact suggests a careful interpretation of results. Also, some sample characteristics should be considered: the sample size was rather low ($N = 161$), with a vast majority of females. Another limitation is that attachment was measured by a measure which includes only a single item for each attachment style. Moreover, Cronbach's alphas of some of the MDMQ subscales were slightly under the level of 0.7.

Conclusion

Overall, the results of our study provide evidence that attachment styles are related

to decision making in hospital nurses. As attachment is primarily a social variable, we think that possible explanation of these results is related to the social nature of the nursing profession which includes helping and taking care of other people. Although our research does not provide direct evidence for this, we assume that attachment influences the process of decision making, especially through shaping the perception of others, and social situations as such (Mikulincer & Shaver, 2007). Failure of self-regulation could be then an important mechanism among people with insecure attachment, resulting in preference of maladaptive ways of decision making. Future research should focus on how different ways of self-regulation related to attachment operate in social situations, particularly in interactions with others, because it could help to understand the role attachment has in decision making.

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