

# Psychometric characteristics of two forms of the Slovak version of the Indecisiveness Scale

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## Abstract

The study investigates the psychometric characteristics of the Slovak version of the original and short form of the Indecisiveness Scale on three samples of university students and one general population sample. An exploratory as well as confirmatory factor analysis confirmed the one factor structure of the scale with a satisfactory internal consistency and time stability of scores. The criterion validity was examined through relationships with thinking styles, decision-making styles, the Big Five factors, decision outcomes, well-being and perceived stress, as well as through a comparison of the general population sample with a sample with an obsessive-compulsive disorder diagnosis. Subjects who self-reported as undecided in their future intentions regarding migration tendencies had higher scores in indecisiveness. Both examined forms of the Slovak version of the Indecisiveness Scale were demonstrated to be reliable and valid instruments for the measurement of indecisiveness with the short form being favored as more appropriately tapping into the core aspect of indecisiveness.

Keywords: indecisiveness, validity, reliability, decision-making styles, decision outcomes

## 1 Introduction

Although many books and articles offer advice as to how to make optimal decisions (e.g., Heath & Heath, 2013), some people experience problems making any final decision. Indecisiveness as a stable personal characteristic is defined as the inability to make decisions in a timely manner across situations and domains (Frost & Shows, 1993) and has been distinguished from the situation specific state – indecision (Germeijs & De Boeck, 2002; for a more detailed overview of indecisiveness and indecision definitions see Potworowski, 2010). The general view on indecisiveness is mainly negative, as people with a higher score have difficulties in decisions in a range of situations such as choosing college majors (Germeijs & De Boeck, 2002; Gayton et al., 1994), careers (Gati, Krausz & Osipow, 1996; Santos, Ferreira & Gonçalves, 2014) and a variety of other daily decisions (Germeijs & De Boeck, 2002). Indecisiveness is manifest in the decision-making process as needing more time to choose among alternatives (Frost & Shows, 1993), mainly in the presence of risk (Patalano & Wengrovitz, 2006), and requiring greater cognitive effort to make decisions (Ferrari & Dovidio, 2001). As indecisive individuals are more threatened

by ambiguous situations (Rassin & Muris, 2005a) and report more anxiety related to the decision process (Germeijs, Verschueren & Soenens, 2006), it may also result in the tendency to postpone decisions (Rassin & Muris, 2005b). Moreover, indecisiveness is also related to obsessive-compulsive complaints (Rassin & Muris, 2005a; Sarig, Dar & Liberman, 2012) and lower reported quality of life (Rassin & Muris, 2005a).

Based on the well-documented manifestations of indecisiveness in various aspects of daily life, the need to have a valid and reliable measure of this trait has also emerged in Slovakia. The aim of the present article is to assess the psychometric properties of the Slovak version of the most widely-used measure, the Indecisiveness Scale, from various angles. It includes inspecting its factor structure, reliability (internal consistency, time stability) and validity by examining the relationships with the constructs found to be associated with indecisiveness in previous studies. These constructs include thinking and decision-making styles, the Big Five personality factors, perceived stress and well-being, real decision outcomes, occurrence of obsessive-compulsive symptoms and self-reported indecision in concrete decisions. Moreover, as some items in this scale seem questionable, a short form is also assessed and its characteristic are compared with the original scale.

### 1.1 The Indecisiveness Scale

The role of indecisiveness in various decision outcomes indicates that attention should be paid to its measurement. In addition to the behavioural manifestations of indecisiveness such as the number of “I do not know” (Rassin &

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Muris, 2005a) or “can’t decide” answers (Jackson, Furnham & Lawty-Jones, 1999) or decision latency (Frost & Shows, 1993), several self-reported measures have been introduced (e.g., Elaydi, 2006; Germeijs & DeBoeck, 2002). The Indecisiveness Scale (Frost & Show, 1993, henceforth: IS) has been the most dominant. In the initial study, this scale was validated through correlations with obsessionality, compulsive checking, perfectionism and general psychopathology. The subjects (only women) with higher scores in indecisiveness reported problems in making decisions in a variety of life domains and needed more time to complete the required choices (Frost & Show, 2003). Rassin et al. (2007) reported satisfactory test-retest reliability of the scale, correlations of indecisiveness with ways of making decisions and various psychopathological symptoms (obsessive-compulsive symptoms, worry, trait anxiety, depression) as indicators of construct validity, and correlations with the amount of information gathered before reaching a decision as an indicator of predictive validity.

When considering the factor structure of the IS, its authors proposed the existence of just one factor (Frost & Shows, 1993). However, Rassin et al. (2007) excluded four items according to the factor analysis and item content as belonging to domain specific indecision rather than indecisiveness. Subsequently, Spunt, Rassin and Epstein (2009) divided the remaining 11 items into two factors – the aversive (5 items) and the avoidant (6 items) indecisiveness. Patalano and Wengrowitz (2006) reported a two-factor structure of the IS in undergraduates in the United States (general indecisiveness – 11 items — and planning indecisiveness – 3 items) and three-factor structure in China (excluding 5 items from the general indecisiveness scale and naming the new factor general indecisiveness-confidence). Despite these studies, the IS has mostly been used as a one factor measure even in recent years (e.g., Taillefer et al., 2016). While many attempts to find factors of indecisiveness (and IS) have been conducted and the scales and definitions of indecisiveness differ, most of them include more than the core characteristics of indecisiveness describing the inability to make decisions in a timely manner. Emotional states during or after the decision-making process (worry, anxiety), effects of indecisiveness (confidence about the decision) or post-decisional behaviour are just some examples of these “contaminating” items (Potworowski, 2010), which could be responsible for the shared variance with some of the found correlates such as negative affect or neuroticism.

## 1.2 Indecisiveness and thinking/decision-making styles

Indecisiveness was found to be positively related to three maladaptive decision-making styles (hyper-vigilance, procrastination, buck-passing) with correlations between .55 and .59, but with no association with the only one adaptive

style – vigilance (Di Schiena et al., 2013). Moreover, indecisiveness was positively related to the abstract-analytic mode of rumination (focusing on higher-level causes and meanings of the experience) and negatively related to the concrete-experiential mode of rumination (focusing on lower-level, specific details). In addition, experimental manipulation of rumination styles affected the behavioural manifestation of indecisiveness – choice latency, perceived difficulty and concerning discomfort in selection tasks (Di Schiena et al., 2013). These results suggest that the maladaptive decision-making process can stand behind indecisiveness and that the manipulation of rumination styles can affect indecision in real situations.

While examining the other decision-making styles (General Decision-Making Styles inventory), Curşeu and Schruifer (2012) reported significant positive relationships between indecisiveness (measured as number of “I cannot decide” answers in ten rationality items) and the dependent and avoidant styles. They also noted a negative relationship with the rational decision-making style as well as with the rationality measure (score in decision-making tasks with the normatively correct answers) in managers. When considering the most general thinking styles – rational and intuitive (experiential), Shiloh and Shenhav-Sheffer (2004) found generally negative relationships of decision difficulties (including indecisiveness) in mate selection with the rational style and weak, mostly not significant relationships, with the intuitive style.

## 1.3 Indecisiveness and personality

Neuroticism seems to be the personality factor most strongly related to indecisiveness (Diab, Gillespie & Highhouse, 2008) with Germeijs and Verschueren (2011) also reporting a strong positive relationship of indecisiveness with neuroticism and weak, but significant negative, relationships with extraversion and conscientiousness. Similarly, Shafer (2000) reported indecisiveness to be related positively to neuroticism and negatively to conscientiousness. Fabio et al. (2013) found significant relationships with all Big Five factors – the strongest were with extraversion (negative) and with neuroticism (positive). The correlations with the other three Big Five factors were negative and below .20.

## 1.4 Indecisiveness and decision outcomes

Indecisiveness was found to be related to the decision-making process as well as to its outcomes. Indecisive individuals need more time to choose among alternatives (Frost & Shows, 1993) and require greater cognitive effort to make decisions (Ferrari & Dovidio, 2001). Moreover, they are more threatened by ambiguous situations (Rassin & Muris, 2005a) and that may result in their tendency to postpone decisions (Rassin & Muris, 2005b). Rassin (2007) has

summarised eight behavioural manifestations of indecisiveness classified into three categories: delay (procrastination, avoidance, information search), tunnelling (narrowed search, tunnel vision), and post-decision (worrying, checking, decision instability) and these process characteristics are probably responsible for poorer decision outcomes. People with higher scores in indecisiveness have difficulties in making decisions in a variety of situations (e.g., choosing college majors (Germeijs & De Boeck, 2002; Gayton et al., 1994) or careers (Gati, Krausz & Osipow, 1996; Santos, Ferreira & Gonçalves, 2014). Moreover, even after the decision is made, indecisiveness is related to worrying about one's decision strategy (Rassin & Murriss, 2005b) and to lower commitment towards the chosen option (Germeijs, Verschueren & Soenens, 2006). This may subsequently bring problems with its implementation (Blunstein, Ellis & Devenis, 1989).

### 1.5 Indecisiveness and well-being

Negative correlations between indecisiveness and quality of life indicators (perceived stress, well-being) or emotional states (anxiety, depression) belong to the well-documented findings in indecisiveness research. Indecisiveness has been found to be related to general psychopathology (Frost & Shows, 1993) and chronic indecisiveness seems to be associated with difficulties in managing anxiety (Savickas, 2004). Moreover, indecisiveness has been reported to be positively related to excessive worrying, trait anxiety and depression (Rassin et al., 2007) and to state as well as to trait anxiety (Öztemel, 2013). When considering quality of life, indecisiveness correlated negatively with life satisfaction (Rassin & Murriss, 2005a; Diab, Gillespie & Highhouse, 2008) and predicted quality of life in a non-clinical sample over scales of obsessive-compulsive disorder, anxiety and depression (Taillefer et al., 2016). However, as some indecisiveness measures contain items detecting worry and anxiety, these results have to be treated with caution.

### 1.6 Indecisiveness and obsessive-compulsive disorder

Obsessive-compulsive disorder (henceforth: OCD) is characterized by the occurrence of problematic decision-making behaviour (e.g., Cavedini, Gorini & Bellodi, 2006; Pushkarskaya et al., 2015). According to some researchers, such behavior is even one of its main features (e.g., Frost & Shows, 1993; Sachdev & Malhi, 2005) and the subscale indecisiveness is even included in the OCD measure (e.g., the Vancouver Obsessional-Compulsive Inventory, Thordarson et al., 2014). The relationship between indecisiveness and OCD was identified early (e.g., Reed, 1976), often measured as the higher tendency to have more information (Milner, Beech & Walker, 1971; Chamberlain et al., 2007) and was later confirmed in clinical as well as in non-clinical samples.

Indecisiveness was reported to be associated with obsessive-compulsive complaints in university students when assessed by a questionnaire (Rassin & Muris, 2005a) as well as when measured by the amount of time and the extent of search among alternatives (Sarig, Dar & Liberman, 2012).

### 1.7 The current study

The study aims to assess the psychometric characteristics of the IS. While the scale has been extensively used in various countries, the need for the Slovak version seems reasonable because of the known associations not only with numerous personality characteristics, but also with problematic psychological outcomes (stress, well-being), mental disorders (obsessive-compulsive disorder) and manifested indecision. On the other hand, as the current version assesses more than the core characteristic of indecisiveness (inability to make decisions in a timely manner), but also emotions that appear during or after decision-making and the effects of indecisiveness, these additional items can be responsible for some of the relationships reported in previous research (e.g., items examining worry and anxiety related to decision-making may be responsible for the correlations with worry, anxiety, perceived stress, and well-being). Because of this possibility, the psychometric characteristics of the two forms are inspected. The first form is the original version of the IS, while the second one is the short version excluding the six items belonging to the aforementioned categories (henceforth: IS-9).<sup>1</sup> The assessment of these two versions includes identifying their factor structure, internal consistency, time stability and relationships with the constructs found to be associated with indecisiveness in previous studies (thinking and decision-making styles, Big Five factors, stress, well-being, and decision outcomes). The validity of both results of these forms is also tested through their associations with the presence of OCD symptoms (comparison of OCD sample and general population) and reported indecision (comparison of decided, not yet decided and not yet thinking about a decision in the question about migration plans of students).

## 2 Method

### 2.1 Sample

The data were collected from four samples – three samples of university students and one general population sample. The students from samples 1 and 2 completed the questionnaires during courses or online after personal agreement. Sample 3 is the result of an online survey where students from 18 universities in Slovakia were asked in their university information systems to complete a battery of tests as part of the

<sup>1</sup>I thank Jonathan Baron for calling attention to the heterogeneity of items and suggesting the exploration of the short form of the IS.

TABLE 1: Sample characteristics, Cronbach's alphas of the Indecisiveness Scale (CA) and measured variables.

Sample	N	Age range	Mean age	SD age	Female %	CA (IS-9)	Other variables
1	128	18-26	21.45	1.58	54.7	.89 (.84)	
2	120	18-26	22.12	2.05	52.5	.88 (.83)	thinking styles, decision-making styles
3 1 <sup>st</sup> round	489	18-37	22.81	2.97	76.5	.88 (.84)	well-being, Big Five factors
3 2 <sup>nd</sup> round	116	20-37	24.01	2.85	74.1	.88 (.82)	well-being
4 total	130	24-61	40.86	8.72	47.7	.96 (.94)	well-being, stress, decision outcomes
4 OCD	64	25-61	39.72	9.21	46.9	.88 (.83)	
4 general	66	24-57	41.97	8.14	48.5	.91 (.86)	

longitudinal SLiCE study (Student Life Cohort in Europe, <http://www.slice-study.eu>, Ssewanyana et al., 2015). Data from the first and second wave of the study (with slight differences between the two waves in the used measures, but not in the IS) were used with 23.72% of the first wave participants completing the second wave. The time between participating in both waves ranged from 259 to 519 days ( $\bar{x}$  = 444.90,  $SD$  = 48.05). Sample 4 is a non-student sample with about half the people with a diagnosis of OCD and the other half without an OCD diagnosis. These participants (named as the control group) did not self-identify as having a psychiatric illness but were not formally assessed using clinical measures and therefore represent the general population. Data in this sample were collected individually with the OCD patients asked to participate during their annual meeting. Data in all samples were anonymous. While indecisiveness was measured in each sample, other included variables differed. In order to summarise the basic characteristics of the samples, Table 1 provides the gender and age characteristics of every sample as well as Cronbach's alphas of the IS and overview of the other measured constructs.

## 2.2 Measures

Indecisiveness was examined by the IS (Frost & Show, 1993) with 15 items rated from strongly disagree (1) to strongly agree (5). A higher score gained as the sum of items (six items reverse coded) means a higher level of indecisiveness. The original English version was translated to Slovak and back-translated to ensure the equivalence of the scale. A content analysis of the items indicated that some of them do not assess the core characteristics of indecisiveness – the inability to make decisions in a timely manner, but rather the emotions appearing during and after the decision-making process (worry, anxiety) or the effect of indecisiveness (avoiding being in a position to make decisions). Based on this, the short form of the IS – IS-9 – was created excluding six items (5, 6, 9, 10, 11, 12). All subsequent analyses were conducted with both forms and both results are presented to allow compari-

son. The nine items of the IS-9 were not provided separately for any sample. Cronbach's alpha as an indicator of internal consistency for all four samples together was .91 for the IS and .87 for the IS-9.

Decision-making styles were measured by The General Decision Making Style measure (Scott & Bruce, 1995, Bavořar & Orosová, 2015) with 25 items – 5 items for each style: rational, intuitive, dependent, avoidant, and spontaneous. The Cronbach's alphas for these subscales were .65, .68, .76, .87, and .72, respectively.

Participants' preference for a rational or experiential way of thinking was measured by The Rational-Experiential Inventory (REI-40 – Pacini & Epstein, 1999; Ballová Mikuřková, Hanák & Čavořová, 2015) with 40 items divided into 20 items measuring the rational (Cronbach's alpha = .89) and 20 items measuring the experiential cognitive style (Cronbach's alpha = .88).

The World Health Organization Well-being index (1998, Bavořar & Orosová, 2015) was used to identify psychological well-being. Participants answered five questions regarding positive mood, vitality and general interests on a 6-point Likert scale from not present (0, at no time) to constantly present (5, all of the time). A higher sum score indicates a better quality of life. The Cronbach's alpha in sample 3 was .84 in the first wave, .81 in the second wave, and .96 in sample 4.

Stress was assessed by the short version of the Perceived Stress Scale (Cohen et al., 1983, Bavořar & Orosová, 2015). Four questions detected perceived stress during the last month with answers ranging from never (0) to very often (4). The cumulative index is the sum of the items (two of them are rescaled) with a higher score meaning higher perceived stress. The Cronbach's alpha in the current sample was .86.

The Decision Outcome Inventory (Bruine de Bruin, Parker & Fischhoff, 2007) was used to assess the extent to which participants had managed to avoid negative decision outcomes. The measure consists of 41 items that ask whether or not the participant has experienced a particular negative

decision outcome (e.g., quit a job after a week). For 35 of these outcomes, participants were first asked if they had made a certain decision (e.g., Had any kind of job) and only those replying yes were asked if they had experienced a negative outcome of this decision. In calculating the overall score, the responses to decision outcomes were weighted by the proportion of participants who did not experience them. The final score as the average of these weighted proportions is subtracted from zero where higher scores are an indicator of better outcomes. The range is from  $-1$  to  $0$  and the Cronbach's alpha in the current sample was  $.73$ .

The Big Five personality factors were measured by the shortened version of the Trapnell and Wiggins' method Revised Interpersonal Adjective Scales (IASR-B5, Trapnell & Wiggins, 1990; Janovská, 2012). The measure consists of 25 adjectives and respondents rate the self-descriptive accuracy of each adjective on a scale from  $1$  (extremely inaccurate) to  $8$  (extremely accurate). The Cronbach's alphas for extraversion, agreeableness, conscientiousness, neuroticism and openness to experience were  $.85$ ,  $.81$ ,  $.85$ ,  $.87$ , and  $.52$ , respectively.

The criterion validity of the IS and IS-9 was also assessed by the relationship with the self-reported indecision in the question about migration tendencies in sample 3: Do you plan to leave Slovakia after you finish university? The participants were divided into three groups according to their answers – a) decided (to leave Slovakia for a certain time or to stay,  $n = 286$ ), b) not yet thinking about it ( $n = 25$ ), and c) not decided ( $n = 178$ ).

### 3 Results

An exploratory factor analysis of all responses (not including sample 2, 2<sup>nd</sup> round) was used to assess the inner structure. According to the scree plot and eigenvalues, a one factor model was obtained for the IS with the principal axis factoring explaining 45.6% of variance (eigenvalues for the first three factors: 6.84, 1.39, 0.95). Similar results were obtained for the IS-9 with the first factor explaining 50.1% of the variance (eigenvalues for the first three factors were 4.51, 1.24, 0.72). All factor loadings in absolute values were higher than  $.40$  (Table 2) as recommended (Stevens, 2002). The confirmatory factor analysis with all items loaded on one factor showed an unsatisfactory model fit ( $\chi^2 = 1190.85$ ,  $df = 90$ ,  $p < .001$ ,  $NFI = .81$ ,  $GFI = .82$ ,  $CFI = .82$ ,  $RMSEA = .119$ ), but after adding the relationships between indicated pairs of items according to the modification indexes (2–3, 3–8, 7–15, 10–11, 11–12, 13–14), satisfactory values of fit indices were found ( $\chi^2 = 496.32$ ,  $df = 84$ ,  $p < .001$ ,  $NFI = .92$ ,  $GFI = .92$ ,  $CFI = .93$ ,  $RMSEA = .075$ ). The confirmatory factor analysis for the IS-9 also firstly resulted in an unsatisfactory model fit ( $\chi^2 = 766.87$ ,  $df = 27$ ,  $p < .001$ ,  $NFI = .78$ ,  $GFI = .81$ ,  $CFI = .79$ ,  $RMSEA = .178$ ), but after

adding the relationships between the indicated pairs of items (1–7, 1–15, 2–3, 2–8, 3–8, 13–14), fit indices were in recommended intervals ( $\chi^2 = 130.77$ ,  $df = 21$ ,  $p < .001$ ,  $NFI = .96$ ,  $GFI = .97$ ,  $CFI = .97$ ,  $RMSEA = .078$ ).

Based on the results of the exploratory and confirmatory factor analysis, one factor structure of the IS and IS-9 was used in the subsequent analysis. The reliability of both forms was assessed by their internal consistency and time stability. Cronbach's alphas in all samples were from  $.88$  to  $.96$  for the IS and from  $.83$  to  $.94$  for the IS-9. The correlation of scores from the first and the second wave of the SLiCE study as an indicator of the test-retest reliability was  $.75$  ( $p < .001$ ) for the IS and  $.76$  ( $p < .001$ ) for the IS-9. Scores of the IS and IS-9 highly correlated ( $r = .96$ ,  $p < .001$ ; for the 2<sup>nd</sup> round, sample 3:  $r = .94$ ,  $p < .001$ ).

The construct validity of the IS was mainly assessed by the relationships with variables that were correlated with indecisiveness in past studies (Table 3). These correlations were in the expected directions, with indecisiveness negatively related to the rational thinking and decision-making styles and positively to the dependent and avoidant decision-making styles. While perceived stress correlated positively and well-being negatively with indecisiveness, the negative relationship with decision outcomes was low and significant only when the whole sample was considered (probably the effect of the sample size). Neuroticism confirmed its position as the strongest personality correlate of indecisiveness and three other Big Five factors – extraversion, conscientiousness and openness to experience – were significantly negatively associated with indecisiveness. There were only minor differences found in most cases between the correlations of the two versions of the IS pointing to the less affective nature of the IS-9 score when compared with the original IS (weaker relationships with neuroticism and stress, stronger with conscientiousness).

The construct validity of the IS and IS-9 was also assessed by the associations with the presence of OCD symptoms and with self-reported indecision. The comparison of adults with and without the OCD diagnosis from sample 4 in IS found higher values of indecisiveness in the first group ( $\bar{x} = 58.06$ ,  $SD = 9.11$ ) than in the latter group ( $\bar{x} = 32.06$ ,  $SD = 9.52$ ;  $t(128) = 15.91$ ,  $p < .001$ ) with the corresponding result for IS-9 (OCD:  $\bar{x} = 34.78$ ,  $SD = 5.96$ ; non-OCD:  $\bar{x} = 18.59$ ,  $SD = 6.11$ ;  $t(128) = 15.29$ ,  $p < .001$ ). In addition, the three groups from sample 3 classified according to their emigration tendencies differed significantly ( $F(2, 486) = 5.728$ ,  $p = .003$ ) with the indecisive group ( $\bar{x} = 40.67$ ,  $SD = 10.77$ ) scoring significantly higher than the decisive group ( $\bar{x} = 37.42$ ,  $SD = 9.78$ ), but not differing from students not yet thinking about emigration ( $\bar{x} = 39.72$ ,  $SD = 10.13$ ). Identical results were found for the IS-9 ( $F(2, 486) = 4.335$ ,  $p = .014$ , the indecisive group ( $\bar{x} = 22.87$ ,  $SD = 6.94$ ) scoring higher than the decisive group ( $\bar{x} = 21.04$ ,  $SD = 6.34$ ), not differing from students not yet thinking about emigration ( $\bar{x} = 22.12$ ,  $SD = 6.01$ )).

TABLE 2: Descriptive statistics and factor loadings of the Indecisiveness Scale items (R – reverse coded; Slovak version in italics).

Item	$\bar{x}$	SD	Md	Factor loadings	
				IS	IS-9
1. I try to put off making decisions. <i>Rozhodnutia sa pokúšam odkladať.</i>	2.57	1.18	2	.66	.69
2. I always know exactly what I want. (R) <i>Vždy presne viem, čo chcem.</i>	3.22	1.10	3	-.68	-.67
3. I find it easy to make decisions. (R) <i>Je pre mňa ľahké rozhodnúť sa.</i>	2.83	1.16	3	-.69	-.66
4. I have a hard time planning my free time. <i>Mám problém plánovať si voľný čas.</i>	2.45	1.20	2	.48	.49
5. I like to be in a position to make decisions. (R) <i>Rád som na pozícii, kde musím robiť rozhodnutia.</i>	2.81	1.11	3	-.55	–
6. Once I make a decision, I feel fairly confident that it is a good one. (R) <i>Keď urobím rozhodnutie, som si istý, že je dobré.</i>	3.27	1.00	3	-.64	–
7. When ordering from a menu, I usually find it difficult to decide what to get. <i>Zvyčajne je pre mňa ťažké rozhodnúť sa, čo z menu si objednáam.</i>	2.57	1.26	2	.60	.62
8. I usually make decisions quickly. (R) <i>Zvyčajne sa rozhodujem rýchlo.</i>	2.96	1.12	3	-.67	-.66
9. Once I make a decision, I stop worrying about it. (R) <i>Keď urobím nejaké rozhodnutie, prestanem sa ním zaoberať.</i>	2.77	1.11	3	-.45	–
10. I become anxious when making a decision. <i>Ak mám urobiť rozhodnutie, pociťujem úzkosť.</i>	2.71	1.15	3	.74	–
11. I often worry about making the wrong choice. <i>Často sa obávam, že si vyberiem nesprávne.</i>	3.13	1.19	3	.70	–
12. After I have chosen or decided something, I often believe I've made the wrong choice or decision. <i>Potom, ako si niečo vyberiem alebo sa pre niečo rozhodnem, si často myslím, že moje rozhodnutie nebolo správne.</i>	2.62	1.13	2	.73	–
13. I do not get assignments done on time because I cannot decide what to do first. <i>Zvyčajne neplním úlohy načas, pretože sa neviem rozhodnúť, čím začať.</i>	2.23	1.19	2	.65	.70
14. I have trouble completing assignments because I cannot prioritize what is most important. <i>Mám problémy dokončiť úlohy, pretože si neviem stanoviť, čo je najdôležitejšie.</i>	2.26	1.21	2	.64	.69
15. It seems that deciding on the most trivial thing takes me a long time. <i>Zdá sa, že mi dlho trvá rozhodnúť sa aj pre tie najtriviálnejšie veci.</i>	2.26	1.28	2	.74	.76

Given that gender differences have been reported before (Rassin and Muris (2005a) reported a higher level of indecisiveness in females), they were also examined in the present study. However, males ( $\bar{x} = 40.08$ ,  $SD = 11.45$ ) and females ( $\bar{x} = 41.40$ ,  $SD = 11.78$ ) were not found to differ significantly in the IS ( $t(865) = -1.584$ ,  $p = .114$ ) as well as in the IS-9 (males:  $\bar{x} = 23.27$ ,  $SD = 7.53$ ; females:  $\bar{x} = 23.38$ ,  $SD = 7.58$ ;  $t(865) = -.209$ ,  $p = .835$ ).

## 4 Discussion

The present study has aimed to investigate the psychometric characteristics of the Slovak version of the IS as well as its shortened form – the IS-9. The examination of the factor structure, internal consistency, test-retest reliability and construct validity has shown that both versions of the scale have characteristics very similar to the original version and can

TABLE 3: Correlations between indecisiveness and thinking styles, decision-making styles, Big Five factors and decision consequences (correlations for the IS-9 in brackets).

	Sample 2	Sample 3	Sample 4 OCD	Sample 4 general	Sample 4 total
Thinking styles					
Rational	-.57*** (-.50***)				
Experiential	-.14 (-.09)				
Decision-making styles					
rational	-.18* (-.18)				
intuitive	-.10 (-.05)				
dependent	.26** (.22)				
avoidant	.65*** (.66***)				
spontaneous	-.08 (-.04)				
Big Five factors					
Extraversion		-.21*** (-.20***)			
Agreeableness		-.07 (-.10*)			
Conscientiousness		-.34*** (-.42***)			
Neuroticism		.50*** (.42***)			
Openness		-.18*** (-.12**)			
Decision consequences					
Stress			.68*** (.55***)	.32** (.28*)	.80*** (.76***)
Well-being		-.18*** (-.17***)	-.62*** (-.61)	-.34** (-.32**)	-.80*** (-.79***)
(2 <sup>nd</sup> round)		-.35*** (-.38***)			
Decision-outcomes			-.14 (.07)	-.14 (-.13)	-.19* (-.20*)

\*p < .05, \*\*p < .01, \*\*\*p < .001.

be used for the measurement of indecisiveness in the Slovak population. Exploratory as well as confirmatory factor analysis led to the adoption of the original one-factor solution. In addition, the high values of the Cronbach’s alpha in all inspected samples have shown the very high level of items homogeneity. While some authors have proposed the uselessness of some items (Rassin et al., 2007) or have divided the items into subscales (e.g., Patalano & Wengrowitz, 2006; Spunt, Rassin & Epstein, 2009), we aimed to present an alternative view – only retaining items that tap into the core characteristic of indecisiveness and omitting items that identify accompanying emotions and the effects of indecisiveness.

The construct validity of the IS and IS-9 was inspected by its correlations with constructs that have been found to be related to indecisiveness in previous research. As associations of indecisiveness with the maladaptive decision-making styles according to Mann’s classification (Mann et al., 1997) or similar styles in the classification by Scott & Bruce (1995 – dependent and avoidant decision-making styles) have been previously reported (Curşeu & Schruijer,

2012; Di Schiena et al., 2013), the General Decision-Making Styles questionnaire was used to inspect the relationships between indecisiveness and decision-making styles. The results were as expected, with the avoidant and dependent styles as the strongest (positive) correlates. Moreover, the observed negative correlation with the rational decision-making style as well as the rational thinking style are in line with past studies (Curşeu & Schruijer, 2012; Shiloh & Shenhav-Sheffer, 2004). In addition, even the weak non-significant relationships with intuitive thinking as well as decision-making style have mirrored the findings reported by Shiloh and Shenhav-Sheffer (2004).

A high degree of agreement with past research was also found in the correlations with the Big Five factors. A variety of studies have reported neuroticism to be the strongest (and positive) personality correlate of indecisiveness (e.g., Diab, Gillespie & Highhouse, 2008; Fabio et al., 2013; Gati et al., 2011), that was also confirmed in our results, but only for the original form. The other Big Five factors related to indecisiveness in previous research have mainly included conscientiousness and extraversion (Gati et al., 2011; Ger-

meijs & Verschuere, 2011; Öztemel, 2013) and these two variables were found to be the second and third strongest correlates in the present results. A slightly different pattern was found for the IS-9 with the equally strong associations of indecisiveness with neuroticism and conscientiousness, thus indicating the possible effect of excluded items. These associations were followed by openness to experience (similar to Fabio et al., 2013; Martincin & Stead, 2015) although the relationship with agreeableness was not significant, in spite of expectations based on some of the aforementioned studies (Fabio et al., 2013; Gati et al., 2011).

The poorer decisions of people with higher indecisiveness and the resulting lower quality of life belong to the well documented findings in research of indecisiveness and were largely confirmed in the present study. Indecisiveness is related to longer decision time (Frost & Shows, 1993), higher tendency to postpone decisions (Rassin & Muris, 2005b) and not to implement them (Blunstein, Ellis & Devenis, 1989). A weak, but significant relationship was also found between indecisiveness and decision outcomes in the present research. On the other hand, when the sample was divided according to the presence of OCD diagnosis, the correlations were slightly weaker and not significant (the non-significance is probably also caused by the smaller sample size when sample 4 was divided). It indicates that the link between indecisiveness and decision outcomes is not straightforward and the role of other variables should be considered. The associations with perceived stress (positive) and well-being (negative) were much stronger which were again in agreement with past research (Rassin & Muris, 2005a; Diab, Gillespie & Highhouse, 2008). The correlations of indecisiveness with well-being and stress in sample 4 were higher in the general population than in the OCD sample, possibly due to the higher variance in scores of these variables. Similarly, indecisiveness has been reported many times as related to OCD symptoms in the general population (e.g., Frost & Shows, 1993; Rassin & Muris, 2005a). This is in line with the present results showing the higher score of indecisiveness in OCD patients in comparison with the general population group. When comparing the correlations of the IS and IS-9, the IS-9 seems just a little less “affective” with the weaker relationships with neuroticism and stress and stronger association with conscientiousness.

Another test of the validity of the IS was its association with the option “undecided” in the question examining the migration plans of university students. Similarly to Rassin and Muris (2005a) who reported a higher tendency to check “I do not know” answers in attitudes scale and to Jackson, Furnham, and Lawty-Jones (1999) using the number of “can’t decide” options in personality tests as an indecisiveness indicator, we found higher indecisiveness scores in people not yet decided about their future after finishing university. In addition, the apparent lack of a difference between undecided and people not yet thinking about the future may

serve as confirmation of the previously reported tendency to postpone decisions in indecisive people (Rassin & Muris, 2005b).

Despite most results being in the expected direction, some of the study limitations should be mentioned. First, most variables are self-reported data and thus their validity may be questioned. On the other hand, as these measures provide information about perception of one’s own environment (perceived stress, well-being) or stable traits (Big Five factors, thinking and decision-making styles), self-reporting is a common and straightforward practice. Second, as three out of four samples consist of only university students and half of the fourth sample are people with OCD diagnosis, the general population is only weakly represented. Further studies are required to fill this gap. The occurrence and level of OCD symptoms in the general population subsample was not assessed and some of its members could belong to the OCD group.

In spite of some limitations, both the IS and IS-9 seem to be valid instruments for measuring indecisiveness in the general population. The scores of both forms have been found to be related to selected variables in the expected direction and their length (15, resp. 9 items completed in about 2 minutes) is consistent with their use as a rapid diagnostic tool in various environments. As the present results suggest an effect of items not included in the IS-9, the use of the short form seems to be a more precise way of identifying the major aspects of indecisiveness. The results of this study suggest that the IS-9 is a good substitute for the IS: it is shorter, approximately just as reliable, and allows clearer interpretation of its correlations with other measures. One possibility of scale use is education, where it can help to diagnose students with possible problems in career decisions at different education levels (see Santos, Ferreira & Gonçalves, 2014 for the link between indecisiveness and career indecision). Indecisiveness has been also recognized as a topic of consumer psychology (decisions for certain products, e.g., Liu et al., 2015), often as decision avoidance (Dhar, 1997). While the methods of experiment, observation and data mining are preferred in this context, self-reported measures can provide a useful perspective not only for marketing specialists, but also for people educating consumer literacy. Another possible scale application can be found in work psychology where personalists would probably prefer individuals who do not tend to delay or even avoid decisions, that can have serious consequences mainly in management (see Brooks, 2011). Moreover, previous research indicates that career indecision can be present not only in students but also in employed adults, with potential outcomes including work attitudes and future career explorations (Callanan & Greenhaus, 1992).

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