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THE ROLE OF LONELINESS IN THE RELATIONSHIP BETWEEN SOCIAL ANXIETY AND SUBJECTIVE WELL-BEING: USING THE SOCIAL PHOBIA INVENTORY (SPIN) AS A MEASURE

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The purpose of this study was to test the mediating role of loneliness in the relationship between social anxiety and subjective well-being while taking into account the multidimensionality of social anxiety. Reaching this aim was preceded by examining the psychometric properties of the Croatian translation of the SPIN on a sample of 202 students. The results show support for the one-dimensional structure of the SPIN. However, it has also been shown that several items of the inventory may be redundant and that a 2-factor structure (12 items) fits the data better. The first factor was described as "observation situations and negative evaluation", while the second represented "social avoidance and fear". The total SPIN score showed convergent and divergent construct validity as well as high levels of internal consistency and test-retest reliability. Loneliness fully mediated the relationship between social anxiety and subjective well-being. The symptoms of social anxiety that contribute to its relation with subjective well-being through loneliness are those related to the concerns of being negatively evaluated or merely observed by others when experiencing or doing something.

Keywords: social anxiety, SPIN, loneliness, subjective well-being



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INTRODUCTION

Social anxiety

Humans as social beings have a strong need to be liked and approved by others. Due to the importance and the functional nature of social relationships they naturally fear and worry about social situations and possible rejection.

Social anxiety (SA) is a common human experience characterized by an intense fear of evaluation from others in social situations (Morrison & Heimberg, 2013). It manifests itself on a continuum encompassing everything from shyness to a severely disabling clinical diagnosis of social anxiety disorder (SAD) or social phobia (SP) (e.g., Miskovic & Schmidt, 2012). While some individuals with SA may endure social interactions with certain discomfort and distress, for others, the fear may be overwhelming and induce behavioral avoidance of social situations. Because of its severe impact on everyday life and occupational functioning, avoidance behaviour is the greatest source of impairment in SA. Usually feared and avoided social situations include being in the center of attention or watched while doing something, public speaking, talking to authorities, attending parties (Holt, Heimberg, & Hope, 1992; Toit & Stein, 2003). Blushing, twitching and stammering are typical somatic symptoms of SA, along with general symptoms of anxiety, such as palpitations, tremors, sweating, gastrointestinal discomfort, muscle tension (Toit & Stein, 2003). Undoubtedly, SA individuals recognize that their fear is unreasonable and excessive, still they experience difficulties when coping with it.

SAD is one of the most common psychiatric disorders, with high comorbidity with other anxiety, mood or substance abuse disorders (e.g., Lampe, Slade, Issakidis, & Andrews, 2003). Its life-time prevalence ranges from 7 to 12% (Kessler et al., 2005). Despite the fact that effective therapeutic approaches for SA are increasing, a large number of affected individuals avoid seeking treatment (Wang et al., 2005). Sex differences observed in many other anxiety disorders are less pronounced in social anxiety (McNeil, 2010), or even not significant (Craske, 2003).

Given the importance of social connections to subjective well-being, further research on SA and social relationships is needed. Also, for the purpose of better understanding SA effects in everyday functioning, it is important to test how different dimensions or symptoms of social anxiety are inter-related with subjective well-being and social relations.

Measuring social anxiety

General agreement exists about the SA definition, but the nature and number of dimensions that sufficiently represent this concept is still uncertain. The idea that SA varies along a

severity continuum enjoys significant support, but the literature on its subtypes is also considerable (McNeil, 2010). For instance, the subtypes can be distinguished on the basis of the number of situations feared by person: generalized SA (fear of most social/performance situations) and nongeneralized SA (fear of few social/performance situations) (Toit & Stein, 2003). Additionally, distinct clusters of feared situations can be distinguished like performance related and social interaction related concerns (e.g., Hughes et al., 2006), or fear of observation situations, such as being watched while working (Cox, Clara, Sareen, & Stein, 2008). Finally, clinically differentiated SA components are: fear, avoidance, and physiological symptoms (APA, 2013).

Along with the growing awareness and high prevalence of SAD, a number of self-rated and interview-based measurements were developed. Connor et al. (2000) summarize shortcomings of these instruments as being lengthy and usually focused on only one SA aspect. Taking into account the limitations of existing measures, these authors developed Social Phobia Inventory (SPIN). This inventory covers the full spectrum of clinically important symptoms in a variety of situations: subjective fear, avoidance behavior and physiological discomfort. Due to its brevity, sensitivity, and easy scoring format, the SPIN is becoming a popular SA measure (Letamendi, Chavira, & Stein, 2009) in clinical and research settings, and has been translated into many languages.

SPIN authors have found a 5-factor structure using exploratory factor analysis (EFA). They described the factors as: fear and avoidance of talking to strangers and in social gatherings (1st factor), criticism and embarrassment (2nd factor) and people in authority (4th factor); physiological changes (3rd factor) and avoiding being the center of attention and of public speaking (5th factor). In contrast to expectations, a theoretically and clinically proposed 3-factor solution did not emerge. To our knowledge, only Radomsky et al. (2006) confirmed this structure, although psychometric properties of subscales were not as strong as those of the total SPIN score. Other researchers found support for one-dimensional (e.g., Garcia-Lopez, Bermejo, & Hidalgo, 2010), as well as three (e.g., Caballo, Salazar, Irurtia, Arias, & Nobre, 2013; Carleton et al., 2010; Gori et al., 2013) and five factor solutions (e.g., Nagata, Nakajima, Teo, Yamada, & Yoshimura, 2013). Although some solutions from different studies had the same number of factors, those factors varied in their component items and the assessed SA dimensions. In general, a somewhat different factor structure fits clinical samples better than nonclinical ones (e.g., Carleton et al., 2010; Nagata et al., 2013). Subsequently,

SPIN authors developed Mini-SPIN, a 3-item version of the inventory, demonstrating sound psychometric properties (Connor, Kobak, Churchill, Katzelnick, & Davidson, 2001), which indicates that some original items may be redundant. Overall, findings of the factor structure diversity indicate that clinically differentiated SA components are not crucial in measuring SA, and that distinct feared situations clusters seem more important. This factor diversity can also be attributed to study sample characteristics and applied statistical analysis.

Nevertheless, it is important to note that in numerous studies the original total SPIN score has had excellent internal consistency, test-retest reliability, convergent and discriminant validity as well as sensitivity to the changes in SAD severity following both psychological and pharmacotherapy treatment (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006; Radomsky et al., 2006).

Social anxiety, loneliness and subjective well-being

When social fear becomes maladaptive, it can severely affect everyday life, such as social relationships and subjective well-being. Subjective well-being (SWB) refers to how people experience and evaluate the quality of their lives (Diener & Ryan, 2009). These evaluations include judgments and feelings regarding satisfaction with life, work, relationships, health, meaning, purpose, and other life domains. Previous research suggested that SWB has an important role in health and longevity, as well as work and income (Diener & Biswas-Diener, 2008; Diener, Nickerson, Lucas, & Sandvik, 2002; Diener & Ryan, 2009). Furthermore, SWB contributes to society as a whole, because people with high SWB engage more frequently in altruistic and prosocial activities (Tov & Diener, 2008).

The number of social relationships correlates positively with SWB (e.g., Diener & Biswas-Diener, 2008; Kahneman & Krueger, 2006). Numerous clinical and non-clinical studies have revealed that SA is strongly associated with a smaller social network (Falk Dahl & Dahl, 2010). Moreover, SA individuals reported reduced social support (e.g., Ruscio et al., 2008), fewer friends, greater rates of living alone, and a significantly lower prevalence of club/association membership and activity (Falk Dahl & Dahl, 2010). In addition to smaller social networks, SA is associated with fewer close relationships, such as intimate friendships or romantic partnerships (e.g., Chou, Liang, & Sareen, 2011), and lower rates of marriage or marriage-like relationships (Falk Dahl & Dahl, 2010). In accordance with the relationship findings above, individuals with SA reported greater loneliness (Falk Dahl & Dahl, 2010; for review see Teo, Lerrigo, & Rogers, 2013). Loneliness can be defined as the perception that one's social needs are

not being met by the quantity or especially the quality of one's social relationships (Alden, Regambal, & Plasencia, 2014). It seems that the best part in people's days are when they are around others and involved in social interaction, so it is not surprising that individuals with SA perceive a lower level of SWB (e.g., Eng, Coles, Heimberg, & Safren, 2005). When asked specifically, SA individuals were particularly dissatisfied with the quality of their social functioning and achievement (Eng et al., 2005).

THE PRESENT STUDY

The first aim was to assess the psychometric properties of the Croatian translation of the SPIN. Construct validity was evaluated by comparing the one-dimensional structure based on the evidence of the total SPIN score as reliable, valid and sensitive (e.g., Antony et al., 2006), the 3-factor structure theoretically and clinically relevant (APA, 2000), the original 5-factor structure (Connor et al., 2000) and the factor structure identified in the present study. Convergent and divergent validity were assessed as well as reliability measures.

The second aim was to test the mediating role of loneliness in the relation of social anxiety and SWB while taking into account the multidimensionality of social anxiety.

Proposed hypotheses:

H1: It is expected that the SPIN is multidimensional, but due to different findings and theoretical considerations, the hypothesis regarding the exact number of dimensions was not formed. The total SPIN score is expected to be reliable and valid.

H2: It is expected that the effect of SA on SWB is mediated by loneliness. Specifically, increased SA is associated with increased feelings of loneliness which is in turn associated with decreased SWB. Moreover, SA symptoms that mainly affect the quality of social relationships are expected to contribute to the relation of SA with SWB through loneliness.

METHOD

Participants

The study sample consisted of 226 students from the University of Zagreb (Centre for Croatian Studies, Faculty of Education and Rehabilitation Sciences, Faculty of Humanities and Social Sciences). Since the percentage of male students in the aforementioned study groups is very low, only 24 male subjects participated. Therefore, only female participants ($N = 202$)

were included in further analysis, aged between 18 and 31 ($M = 21.76$, $SD = 2.24$).

Procedure

With the author's permission, the original SPIN was translated to Croatian using back-translation. Original and back-translated SPIN were compared by the author of the inventory and a satisfactory equivalent in meaning was estimated.

University teachers recruited their students as participants via E-mail. All participants gave informed consent and completed the online survey lasting around 15 minutes voluntarily. In return, participants received course credit. Test-retest reliability coefficient was obtained over a 6-month interval on 55 participants. Out of those who registered, 84% completed the study battery.

Measures

The Social Phobia Inventory (SPIN; Connor et al., 2000) is a self-report instrument comprising 17 items evaluated on a five-point Likert scale, ranging from 0 ("not at all") to 4 ("extremely"). Items were designed to assess three SA components: subjective fear, avoidance behavior and physiological discomfort. Participants rated how much the described problems had bothered them over the past week. The full range of total score is 0-68, with higher scores reflecting higher levels of social anxiety.

Brief Fear of Negative Evaluation Scale (Brief-FNE; Leary, 1983) is a self-report instrument that assesses the concern over negative evaluation by others, which is one of the theoretically assumed social anxiety features. The Brief-FNE consists of 12 items rated on a five-point Likert scale, ranging from 0 ("not at all") to 4 ("extremely characteristic of me") while four items are reverse-scored (3, 4, 7, 10). The full range of total score is 0-48, with higher scores reflecting higher levels of fear of negative evaluation. As well as the original, the Croatian version has demonstrated test-retest reliability, internal consistency and one-dimensional structure (Bezinović, 1988). For the current sample, internal consistency was high ($\alpha = 0.92$).

Beck Depression Inventory-Second Edition (BDI-II; Beck, Steer, & Brown, 2011) is a 21-item, self-report measure of depression severity in adults and adolescents. Answer options include four increasing levels of severity from 0 to 3. The full range of total score is 0-63, with higher scores indicating greater severity of depressive symptoms in the last two weeks. The Croatian version is reliable, valid and diagnostically accurate (Jakšić, Ivezić, Jokić-Begić, Surányi, & Stojanović-Špehar, 2013). Internal consistency for the current sample was high ($\alpha = 0.90$).

Subjective well-being (SWB) was measured by seven indicators of Personal Well-Being Index (PWI) and one that measures life satisfaction in general. The PWI is a subscale of the International Well-Being Index (Cummins, Eckersley, Pallant, Van Vugt, & Misajon, 2003) that measures the subjective dimension of quality of life. Using the scale from 1 ("completely unsatisfied") to 10 ("completely satisfied") participants rated their satisfaction within seven aspects of life: standard of living, personal health, achievements in life, personal relationships, community-connectedness, personal safety, and future security. Using the same scale, Global life satisfaction (GLS) was assessed by the single item: "How satisfied are you with your life as a whole?" (International Wellbeing Group, 2013). The internal consistency of the PWI scale was good ($\alpha = 0.87$), and Cronbach's α for all eight items was 0.89. The full range of total score is 8-80, with higher scores indicating greater SWB.

The short version of *University of California Los Angeles Loneliness Scale (UCLA; Allen & Oshagan, 1995)* is a 7-item one-dimensional scale that measures the general state of loneliness. Items are rated on a five-point Likert scale, ranging from 1 ("not at all") to 5 ("extremely characteristic of me"). The full range of total score is 7-35, with higher scores indicating greater loneliness. The Croatian version is one-dimensional and internally consistent (Lacković-Grgin, Penezić, & Nekić, 2002). For the current sample, internal consistency was good ($\alpha = 0.85$).

RESULTS

Psychometric properties of SPIN

Construct validity

First we performed confirmatory factor analysis (CFA) to calculate fit indices for one-dimensional, 3-factor, and 5-factor models based on the literature (CFA and SEM were performed in Mplus 6; Muthén & Muthén, 2010). We used the recommended absolute, comparative and parsimonious indices (Brown, 2006; Hu & Bentler, 1999). A common measure of model fitness, χ^2 , is fairly sensitive to sample size, thus we used alternative index: χ^2/df ratio. For the model to have an acceptable fit, it is necessary that the χ^2/df ratio is < 3 , indices SRMR (Standardized root mean square residual) and RMSEA (Root mean square error of approximation) < 0.08 and CFI (Comparative fit index) and TLI (Tucker-Lewis Index) > 0.90 .

None of the initial models resulted in acceptable fit (Table 1). Only for the one-dimensional model did the modification indices suggest correlating error terms that produced improvement of fitness to an acceptable level. Suggested modifica-

TABLE 1
Indices of model
fitness for SPIN models

Model		Indices of model fitness							
		χ^2	(p)	df	Absolute χ^2/df	SRMR	Comparative CFI	Parsimonic TLI	RMSEA
Models based on literature	1-factor	419.49 (<0.001)		119	3.53	0.08	0.74	0.70	0.11
	1-factor ^a	204.96 (<0.001)		113	1.81	0.06	0.92	0.90	0.06
	3-factor	357.01 (<0.001)		116	3.08	0.08	0.79	0.75	0.10
	5-factor	324.11 (<0.001)		95	3.41	0.14	0.77	0.71	0.11
Model based on EFA results	2-factor	161.37 (<0.001)		53	3.04	0.07	0.85	0.81	0.10
	2-factor ^b	75.22 (<0.012)		50	1.50	0.04	0.96	0.95	0.05

Note. ^a Error terms correlated for items 10 and 4, 8 and 3, 5 and 12, 11 and 9, 7 and 2, and 17 and 13; ^b Error terms correlated for items 10 and 4, 8 and 3 and 5 and 12.

tions are justified given the items' face value. Some of the item pairs have the same object (e.g., being criticized) but the difference is whether their content is about fear or avoidance. The remaining pairs describe distress when experiencing physiological symptoms in front of others. For other models, modification indices suggested unjustified re-specifications that would considerably change the initial model: correlating error terms for items loading on different factors and loading items on the factors not specified by the initial model.

Since none of the tested models based on literature, resulted in good fit we performed EFA to determine primary factors and eliminate unstable items. EFA was performed using principal factor analysis with promax rotation ($KMO = 0.874$; Bartlett's Test of Sphericity: $\chi^2(136) = 1507.03$; $p < 0.001$). The number of factors was determined using parallel analysis, the Guttman-Kaiser criterion, and Cattell's scree test. Item retention was based on strict criteria for robust and stable factor structure (Osborne, 2008). Using an iterative process, items with communalities < 0.40 , factor loadings < 0.50 , and cross-loadings > 0.30 were removed.

This analysis resulted in a 2-factor 12-item solution (Revised-SPIN; Table 2). Item 1 and 2 were removed because of low initial communalities, and items 6, 11 and 16 because of high cross-loadings. All the remaining items had high factor loadings on corresponding factors forming the first factor "observation situations and negative evaluation" (40% of the variance) and the second factor "social avoidance and fear" (13% of the variance).

CFA was performed to evaluate the fitness of the structure derived by the EFA. The initial fit indices did not support the model, but correlating suggested error terms resulted in a very good fit (Table 1). The modification indices supported correlating error terms for items 10 and 4, 8 and 3, and 5 and

TABLE 2
Factor structure of the
Revised-SPIN

12. These modifications were made in the one-factor structure and were justified, as aforementioned, due to the similarities in item content.

Revised-SPIN item	COM	1st factor	2nd factor
1 I am afraid of people in authority	-	-	-
2 I am bothered by blushing in front of people	-	-	-
3 Parties and social events scare me	0.55	-0.02	0.75
4 I avoid talking to people I don't know	0.61	-0.01	0.78
5 Being criticized scares me a lot	0.55	0.75	-0.02
6 Fear of embarrassment causes me to avoid doing things or speaking to people	-	-	-
7 Sweating in front of people causes me distress	0.42	0.59	0.11
8 I avoid going to parties	0.53	-0.15	0.79
9 I avoid activities in which I am the center of attention	0.47	0.25	0.53
10 Talking to strangers scares me	0.58	0.07	0.73
11 I avoid having to give speeches	-	-	-
12 I would do anything to avoid being criticized	0.63	0.84	-0.12
13 Heart palpitations bother me when I am around people	0.49	0.67	0.02
14 I am afraid of doing things when people might be watching	0.59	0.70	0.12
15 Being embarrassed or looking stupid is among my worst fears	0.59	0.78	-0.02
16 I avoid speaking to anyone in authority	-	-	-
17 Trembling or shaking in front of others is distressing to me	0.50	0.73	-0.06
Explained variance		40.44	13.54
Eigenvalue		4.85	1.63

Note. COM: communality; 1st factor: observation situations and negative evaluation; 2nd factor: social avoidance and fear

Finally, in order to assess convergent and divergent construct validity we calculated Pearson correlation coefficient between the SPIN total score and other theoretically similar tests – Brief-FNE, and the relevant but theoretically different test – BDI-II. A significant and strong correlation of SPIN and Brief-FNE ($r = 0.60$; $p < 0.001$) showed support for convergent validity, and a significant but smaller correlation of SPIN and BDI-II ($r = 0.39$; $p < 0.001$) showed support for divergent validity.

Reliability

The average inter-item correlation was moderate ($r = 0.35$; $r_{\min} = 0.08$; $r_{\max} = 0.69$) and the average item-total correlation was strong ($r = 0.56$; $r_{\min} = 0.36$; $r_{\max} = 0.70$). Internal consistency measured by Cronbach's α coefficient was 0.90 (95% CI [0.88, 0.92]) for the one-dimensional structure and none of the items lowered the consistency of the entire scale. In the 2-factor solution, the subscale "observation situations and negative evaluation" showed good internal consistency ($\alpha_1 = 0.85$;

95% *CI* [0.82, 0.88]) while for the subscale "social avoidance and fear" internal consistency was good considering the small number of items ($\alpha_2 = 0.77$; 95% *CI* [0.71, 0.82]). None of the items lowered the consistency of the corresponding subscale.

The test-retest reliability ($r = 0.68, p < 0.001$), assessed by calculating the Pearson correlation coefficient between the results of the same subjects ($N = 55$) over 6 months, was high considering the time interval.

The mediating role of loneliness in the relation of social anxiety and subjective well-being

Descriptive statistics are presented in Table 3. SWB was negatively and significantly associated with all hypothesized predictors while its correlation with loneliness was the strongest. Loneliness was positively and significantly associated with SA operationalized as the total SPIN score, as well as two factors of the Revised-SPIN.

TABLE 3
Descriptive statistics
for the study variables

Variable	TR (full TR)	<i>M</i>	<i>SD</i>	1	2	3	4
1. Social anxiety	0-52 (0-68)	15.98	10.34	-			
2. Observation situations and negative evaluation	0-25 (0-28)	8.01	5.42	0.91	-		
3. Social avoidance and fear	0-15 (0-20)	3.07	2.97	0.77	0.51	-	
4. Loneliness	7-33 (7-35)	11.72	5.03	0.38	0.39	0.25	-
5. Subjective well-being	9-79 (8-80)	59.12	12.14	-0.29	-0.27	-0.21	-0.43

Note. For all correlations $p < 0.001$.

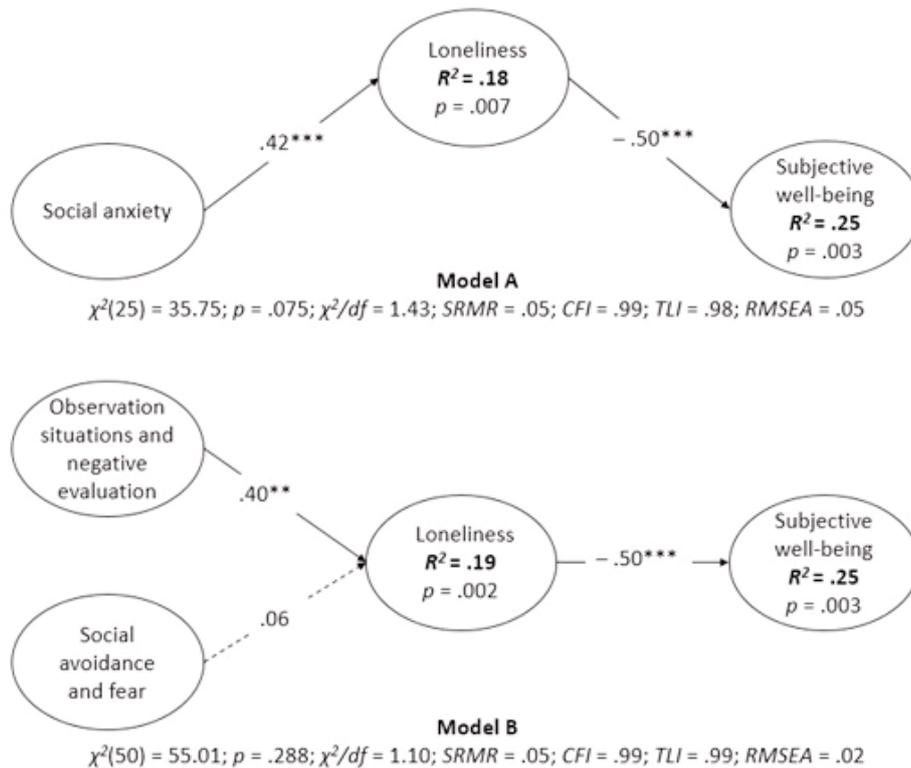
Responding to the second aim required testing models with a large number of manifest variables per latent variable in a moderately large sample. Following Little, Cunningham, Shahar, and Widaman's (2002) recommendations, instead of scale items we used three parcels per latent variable constructed by the item-to-construct balance technique.

To determine the mediation effect of loneliness we used structural equation modelling (SEM) with latent variables and the step-up strategy (Brown, 2006), which tests models from the most complex to the more constrained ones while checking for a significant drop in model fitness. First, we tested the model in which SA was represented as a one-dimensional construct (model A). Next, in order to test how different SA dimensions are related to SWB through loneliness, we tested the model in which it was represented with two factors of the Revised-SPIN (model B).

In the first step, we tested models where social anxiety (Model A) or its factors (Model B) were directly related to SWB as well as indirectly through loneliness. Both models

yielded a very good fit (Model A: $\chi^2(24) = 33.99$; $p = 0.085$; $\chi^2/df = 1.41$; $SRMR = 0.04$; $CFI = 0.99$; $TLI = 0.98$; $RMSEA = 0.05$; Model B: $\chi^2(48) = 53.68$; $p = 0.266$; $\chi^2/df = 1.12$; $SRMR = 0.04$; $CFI = 0.99$; $TLI = 0.99$; $RMSEA = 0.03$). Furthermore, the results demonstrated that, taking into account loneliness, the direct effects of social anxiety ($\beta = -0.13$; $p = 0.17$) and its components ($\beta_1 = -0.04$; $p = 0.72$; $\beta_2 = -0.08$; $p = 0.56$) on SWB were not significant. The next step involved testing the models' fitness without direct effects of social anxiety and its components on SWB. The testing resulted in a similarly good fit of both models which are, as the final ones, presented in Figure 1. In Model A, the relationship between SA and SWB was fully mediated by loneliness. In other words, social anxiety was related to lower SWB due to its relation to greater loneliness. Moreover, the results for Model B showed that the key aspect of social anxiety indirectly related to lower SWB through greater loneliness is the factor representing observation situations and negative evaluation, while social avoidance and fear was not related to loneliness nor to SWB.

FIGURE 1
Final structural models
of relationships
between social anxiety,
loneliness and
subjective well-being



Note. Standardized path coefficients are shown. *** $p < 0.001$; ** $p < 0.01$.

2010) and its strength determined according to Kenny's (2014) recommendations. In Model A, the indirect effect of SA on SWB through loneliness was -0.21 ($p < 0.001$) indicating medium effect. In Model B, the indirect effect of observation situations and negative evaluation on SWB through loneliness was -0.20 ($p = 0.011$), also indicating medium effect.

DISCUSSION

The effects of social anxiety in everyday functioning warrant research attention, therefore we tested how different SA dimensions are interrelated with loneliness and SWB. Reaching this aim was preceded by examining the psychometric properties of the Croatian translation of the SPIN.

Psychometric properties of the SPIN

Following recent research (e.g., Carleton et al., 2010), we used improved recommendation for conducting EFA (Osborne, 2008) and CFA, which should yield increasingly robust results in comparison to those used in earlier research (e.g., Connor et al., 2000). In accordance with the parsimony criterion, our results show reasonable support for the one-dimensional model. This is consistent with evidence of the total SPIN score having excellent internal consistency, test-retest reliability, convergent and discriminant validity as well as sensitivity to the SA severity changes following treatment (Antony et al., 2006; Radomsky et al., 2006). However, our results also show that several items may be redundant and that a 2-factor structure fits the current data better. Redundancy of certain items is somewhat expected based on the sound psychometric properties of Mini-SPIN (Connor et al., 2001) and recent findings (e.g., Carleton et al., 2010).

Although assessing the degree of discomfort during interaction with figures of authority is present in a number of SA measures (Caballo et al., 2013), our results suggest removing items with this content (no. 1 and 16). It may be that long-term education and identity development in the postcommunist context and largely collectively oriented community such as Croatia can make the discomfort while dealing with authority a more universal experience than one uniquely related to SA.

Another item suggested for exclusion refers to being bothered by blushing in front of people (no. 2), which may again represent a universal experience and not only an SA symptom. People blush following violation of social norms, but can also blush due to happiness or gratitude (Leary & Toner, 2013). Moreover, in contrast to physiological symptoms like heart palpitations, blushing can be more easily noticed by others, and for that reason generally bother people and not only SA

individuals. Finally, different findings emphasize that SA individuals vary extensively on blushing propensity, intensity and blushing concerns (Voncken & Bögels, 2009).

Situations mentioned in item no. 6 and 11 (doing things, speaking to people and giving speeches) may not be unique for SA individuals. They seem to be an integral part of students' duties and unavoidable in their everyday life. Distress caused by these situations is experienced by most students since their academic achievement depends on dealing with them. Thus, participants from the general population may have a different understanding of these items.

As previously stated, the remaining items produced a reliable 2-factor Revised-SPIN containing 12 items that demonstrated fit indices superior to all of the other tested models. The first factor represents "observation situations and negative evaluation" and the second "social avoidance and fear". The first factor is comparable to the factor called "criticism and embarrassment" found in widely used SA measures and considered essential for the SA construct (Caballo et al., 2013). Likewise, factors resembling our second factor are consistently found in those instruments. Similar to other studies (e.g., Carleton et al., 2010), we have not found evidence that participants clearly discriminate avoidance and fear. Although theoretically distinct, these components can be easily confounded since avoidance is the main strategy in prevention and/or reduction of fear in SA individuals. Factors found in this study can be partially interpreted in line with Hughes and colleagues' (2006) distinction between performance-related (comparable to 1st factor) and social interaction-related concerns (comparable to 2nd factor). Items containing physiological symptoms did not emerge as a separate factor. This is expected since in some research the exclusion of these items was suggested (Carleton et al., 2010), or this factor also did not emerge (e.g., Gori et al., 2013). Also, of the three theoretically and clinically relevant subscales (fear, avoidance and physiology), physiology subscale showed the lowest levels of internal reliability and predictive power (Antony et al., 2006). Accordingly, it was suggested that the assessment of physiological symptoms does not contribute in discriminating individuals with and without SA. Although, caution is warranted since attention biases toward internal physiology occur often in SA individuals (e.g., Clark, 2005), making the measuring of adequate physiological symptoms a challenging field for future research. In conclusion, this study contributes to the notion that clinically differentiated SA components are not crucial in measuring SA, and that distinct feared situations clusters seem more important.

As expected, the correlation between SPIN total score and score on the theoretically assumed SA feature – fear of negative evaluation (Brief-FNE) – was significant and strong, showing support for convergent validity. A significant but smaller correlation with a relevant but theoretically different test measuring depression severity (BDI-II) was comparable to previous results (Sosić, Gieler, & Stangier, 2008) and showed support for divergent validity. This moderate association is expected since the tripartite model states that anxiety and depression have shared as well as unique features (Clark & Watson, 1991). Consistent with convergent and divergent total SPIN score validity, is the high level of internal consistency and test-retest reliability similar to those previously found (e.g., Garcia-Lopez et al., 2010).

Social anxiety and subjective well-being: the role of loneliness

The results from the present study show that the effect of social anxiety on SWB is fully mediated by loneliness: increased SA is associated with increased feelings of loneliness that is in turn associated with decreased SWB. These results correspond to the previous findings where lower SWB (e.g., Eng et al., 2005), as well as small social network (Falk Dahl & Dahl, 2010), was more common in people with high SA. Additionally, for Croatian adolescents the feelings of loneliness were also negatively correlated with well-being (Nekić, 1998).

For the purpose of clearer understanding of the effects of social anxiety in everyday functioning, we further investigated how different SA symptoms contribute to its interrelations with loneliness and SWB. The key aspect of SA indirectly related to lower SWB through greater loneliness refers to observation situations and negative evaluation, while the dimension of social avoidance and fear is not related to loneliness nor to SWB. These findings may be explained by the fact that contrary to the former factor, the latter comprises avoidance and fear related to social activities that do not refer to intimate and close contacts, which is the most relevant aspect of loneliness. Baumeister and Leary (1995) argue that people feel lonely when their needs for regular social contact with those to whom one feels connected are not sufficiently met. Moreover, it appears that belongingness, rather than the number of social contacts, is the crucial aspect, which when not satisfied can cause pathological consequences beyond mere temporary distress and lower SWB (e.g., Kiecolt-Glaser et al., 1984). The dimension of observation situations and negative evaluation can refer to the range of social contacts, which can involve family members, friends, partners, as well as acquaintances, strangers and authority figures.

Considered together, it seems that SA does not pose a threat to SWB if it is not accompanied by the lack of meaningful social relationships. Moreover, SA symptoms that contribute to its relation with SWB through loneliness are those related to the concerns of being negatively evaluated or merely observed by others when experiencing or doing something, which can appear in formal as well as intimate interactions.

A general feeling of satisfaction with life varies according to symptom levels and disability in socially anxious populations (Eng et al., 2005). In addition to these findings, our study pointed out that different SA symptoms may contribute differently to SWB. Unsurprisingly, it seems that symptoms that affect closer relationships to a greater extent are associated to lower SWB. Knowing that, our results imply that focusing the therapy for SA more on developing close relationships may enhance positive treatment outcomes and higher SWB. Our findings are even more relevant since close relationships do not only influence SWB, but also have profound implications for health (e.g., Schoenbach, Kaplan, Fredman, & Kleinbaum, 1986). Specifically, individuals with more social relationships are found to have better health and longevity. Keeping in mind the association between social relationships and physical and emotional well-being, further research on SA subtypes or its group of symptoms in this context are necessary.

Limitations and direction for future research

Several limitations of the present research can be useful guidelines for future research. First, results may be limited due to the female student sample. Although some findings imply that sex differences observed in other anxiety disorders are less pronounced in SA (McNeil, 2010), or do not exist (Craske, 2003), potentially important sex differences were found on some of the SPIN items (Carleton et al., 2010). It is reasonable to assume that in male or mixed samples a somewhat different factor structure could emerge. Second, a student sample, not having very high SA levels, may be limiting as well. However, many researchers agree that most of the findings related to the clinical samples operate in a similar fashion for non-clinical ones (e.g., Miskovic & Schmidt, 2012). Third, a clinical comparison group could provide the opportunity to test the discriminant validity of the SPIN and establish cut-off scores in the Croatian population. Fourth, SPIN's instructions restrict the answers to situations from the past week, which may be limiting since some of the mentioned scenarios usually do not happen weekly (e.g., giving speeches). Finally, the presumed confounding of fear and avoidance warrant fur-

ther research. Qualitative methodology could be used to investigate participants' understanding of the items in question. Also, they could be evaluated if an explicit distinction described in SPIN's instructions or alterations in the wording of these items were to contribute to the distinction of fear and avoidance.

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Uloga osamljenosti u odnosu socijalne anksioznosti i subjektivne dobrobiti: upotreba Inventara socijalne fobije (SPIN) kao mjere

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Svrha ovog istraživanja bila je ispitati medijacijsku ulogu osamljenosti između socijalne anksioznosti i subjektivne dobrobiti, uzimajući pri tome u obzir multidimenzionalnost socijalne anksioznosti. Postizanju ovoga cilja prethodilo je ispitivanje psihometrijskih svojstava hrvatskoga prijevoda SPIN-skale na uzorku od 202 studentice. Rezultati pokazuju potporu jednodimenzionalnoj strukturi SPIN-a. Međutim, pokazalo se i to da nekoliko čestica može biti suvišno i da dvofaktorska struktura (12 čestica) bolje pristaje dobivenim podacima. Prvi je faktor opisan kao "situacije promatranja i negativne evaluacije", a drugi predstavlja "društveno izbjegavanje i strah". Ukupni SPIN-rezultat pokazao je konvergentnu i divergentnu konstruktivnu valjanost, kao i visoku razinu unutarnje konzistencije i test-retest pouzdanosti. Osamljenost potpuno posreduje u odnosu socijalne anksioznosti i subjektivne dobrobiti. Simptomi socijalne anksioznosti koji pridonose njezinu odnosu sa subjektivnom dobrobiti kroz osamljenost jesu oni koji se odnose na zabrinutost vezanu uz negativnu evaluaciju ili promatranje od strane drugih kada osoba nešto doživljava ili radi.

Ključne riječi: socijalna anksioznost, SPIN, osamljenost, subjektivna dobrobit