Cognitive Risk Factors Predicting Social Anxiety Among Indonesian Adolescents

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Social anxiety is the third largest mental problem over the world, but no study has investigated cognitive risk factors predicting social anxiety among Indonesian adolescents. This study aimed to investigate the role of fear of negative evaluation, anxiety sensitivity and intolerance of uncertainty in predicting their social anxiety. There were 162 senior high school students completed the paper and pencil questionnaire. Regression analyses was utilised in order to examine the relative contributions, being followed by moderation analyses in order to investigate any possible interaction among the risk factors examined. The result reveals that the contribution of fear of negative evaluation and anxiety sensitivity were significant, but the former was dominant. In addition, there was interaction between them where decreasing the effect of each other. Interestingly, intolerance of uncertainty did not contribute significantly to the model.

Keywords: cognitive risk factors, social anxiety, Indonesian adolescents

Kecemasan sosial adalah gangguan mental ketiga terbesar di dunia, namun belum ada penelitian yang menyelidiki faktor-faktor kognitif yang memprediksi kecemasan sosial pada remaja di Indonesia. Penelitian ini bertujuan menginvestigasiperan ketakutan terhadap penilaian negatif, kepekaan terhadap kecemasan, intoleransi terhadap ketidakpastian dalam memprediksi kecemasan sosial mereka. Terdapat 162 siswa Sekolah Menengah Umum yang mengisi kuesioner secara *paper and pencil*. Analisis regresi dilakukan untuk menguji kontribusi, diikuti dengan analisis moderasi untuk menguji kemungkinan interaksi diantara faktor resiko yang diuji. Hasil penelitian menunjukkan bahwa kontribusi dari ketakutan terhadap penilaian negatif dan kepekaan terhadap kecemasan adalah signifikan, sekalipun kontribusi dari ketakutan terhadap penilaian negatif lebih dominan. Selain itu, terdapat interaksi dari keduanya yang saling melemahkan. Menariknya, intoleransi terhadap ketidakpastian tidak berkontribusi secara signifikan terhadap model.

Kata kunci: faktor risiko kognitif, kecemasan sosial, remaja Indonesia

Social anxiety is the third largest mental problem, after substance use and depression. It is predicted that the prevalence of social anxiety among general population worldwide is approximately 3% to 13% (e.g., American Psychiatric Association, 2003; Xu et al., 2012), however the data mostly came from western countries. Regarding the data of the prevalence of social anxiety in Indonesia among adolescents, there is no official data yet.

The mean age of onset for social anxiety has been reported around 15 or 16 years old and its prevalence is higher than the older people (Walsh, 2002). Recent study estimated approximately 12% of adolescents meet criteria for social anxiety (Merikangas et al., 2011) and thus, it is considered as a common mental disorder among adolescents (Ryan & Warner, 2012). It makes sense as at the adolescence stage the need of social acceptance, particularly from peer, is more pronounced. How others evaluate them, mostly over their appearance and behaviour, is really a concern for adolescent which particularly for female adolescents (Stein et al., 2001). In addition, social anxiety onset has been indicated lead to later detrimental problems, such as substance use (Marmorstein, White, Loeber & Stouthamer-Loeber, 2010; Ohannessian, 2014) and depression (Dalrymple & Zimmerman, 2011; Guyer & Caouette, 2014).

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Previous studies proposed several cognitive risk factors predicting social anxiety. The most well-known is fear of negative evaluation (FNE) or an excessive belief that other will negatively judge (Levinson et al., 2013). It is originally proposed to explain social anxiety (Watson & Friend, 1970) and a large number of studies provided evidence to support it (e.g., Carleton, Collimore, & Asmundson, 2010; Weeks et al., 2005). Consequently, it has been mentioned as the primary cognitive risk factor of social anxiety by the Cognitive Model of Social Phobia (Clarck & Wells, 1995) and the Cognitive Behavioural Model of Social Phobia (Heimberg, Brozovich, & Rapee, 2010; Rapee & Heimberg, 1997). For instance, the Cognitive Model of Social Phobia explains that when individuals encounter a social situation or simply anticipate it, they will make assumptions about the situation, including an assumption about social danger either after getting negative evaluation or even an assumption about a possibility of getting negative evaluation. If they perceive this social danger, they will shift their attention from the external environment (social situation) to a detailed monitoring of their internal condition. This excessive self-focus may lead to the construction of a negative self-impression and increase fear of negative evaluation. Eventually, social anxiety is triggered. The other cognitive risk factor proposed to predict social anxiety is anxiety sensitivity (AS), although it is originally proposed as the specific vulnerability factor of panic disorder (Alkozei, Cooper, & Creswell, 2014; Essau, Sasagawa, & Ollendick, 2010; Naragon-Gainey, Rutter, & Brown, 2014). AS is an irrational fear that an arousal body sensation such as sweating, trembling or pounding heart which are the physical symptoms of anxiety would lead to a harmful condition and thus, intensify the anxiety, including social anxiety. Therefore, it is often AS is labelled as the amplifier of anxiety.

There is another risk factor that increasingly getting attention, which is intolerance of uncertainty (IU) or a tendency to perceive uncertain situation as a bad situation and thus should be avoided. It was originally conceived to explain worry, the main feature of general anxiety disorder (Carleton, Norton, & Asmundson, 2007). Recently several cross-sectional studies have investigated it's possible significant contribution to social anxiety and they found it (Boelen & Reijntjes, 2009; Boelen, Reijntjes, & Carleton, 2014; Boelen, Vrinssen, & Van Tulder, 2010; Brown & Naragon-Gainey, 2013; Carleton et al., 2010; McEvoy & Mahoney, 2011, 2012; Michel, Rowa, Young, & McCabe, 2016; Norr et al., 2013; Sapach, Carleton, Nicholas, Mulvogue, Weeks, & Heimberg, 2015;

Whiting et al., 2014; Yuniardi, 2017; Yuniardi, Roberts, Blowfields, Freeston, & Rodgers, 2018). Of these studies, only one study investigated the contribution of IU on social anxiety among adolescents (Boelen et al., 2010). Referring to their results, all these studies then suggested that individuals with significant levels of IU were more likely to interpret ambiguous situation as more threatening, and social situation is the best example of uncertainty. No one knows what the social situation will be end up. Therefore, individuals having high IU would be more likely to interpret social situation as a more threatening. Eventually it will trigger the social anxiety.

All in all, this study aimed to examine the contribution of FNE, AS and IU and subsequently, to additionally explore any possible interactions among them in predicting social anxiety among Indonesian adolescents. Previous studies from the UK data revealed the interaction between FNE and IU (Yuniardi, 2017; Yuniardi et al., 2018) as well as between IU and AS (Yuniardi, 2017), where they strengthen each other in predicting social anxiety. Interestingly, their nature of interactions supported the results of contributions analysis where FNE is the main factor of social anxiety, IU possibly is the sidekick, while AS is the amplifier. Therefore, the result of this study would give an essential information to the model predicting social anxiety particularly in Indonesia.

Method

Participants

There were 162 student participants who were recruited from two senior high schools in Malang, East Java Province, Indonesia. The age of participants was in the range of 15-17 year old (*Mean* = 16.02 year old; *SD* = .72) and 57% of participants were male. They all voluntarily completed a set of paper pencil questionnaires in their classes. This study was under supervision of The Research and Community Development Board of University of Malang.

The sensitivity power analyses using G*Power (Erdfelder, Faul, Buchner, & Lang, 2009) indicated that the number of subject within this study were sufficient to detect a small effect (f^2 = .07) size at power of .80 and α = .05.

Measures

The Intolerance of Uncertainty Scale-12 (IUS-12).

The IUS-12 consists of 12 items and has demonstrated an excellent internal consistency (Carleton et al., 2007). Examples of its items are *"It frustrates me not having all the information I need"* and *"When it's time to act, uncertainty paralyses me"*. The translations of both items were *"Saya merasa frustasi jika tidak memperoleh informasi yang saya butuhkan"* and *"Ketidakpastian melumpuhkan saya ketika waktunya untuk bertindak"*.

Brief Fear of Negative Evaluations scale, Straightforward items (BFNE-S). The BFNE-S consists of eight items and has been reported having an excellent internal consistency (Weeks et al., 2005). Examples of its items are *"I am frequently afraid of other people noticing my short-comings"* and *"I am afraid that other people will find fault with me"*. The translations of both items were *"Saya sering merasa takut orang lain memperhatikan kelemahan saya"* and *"Saya takut orang lain menemukan saya melakukan kesalahan"*.

Anxiety Sensitivity Index-3 (ASI-3). The ASI-3 (Taylor et al., 2007) comprises 18 self-report items and has demonstrated an excellent internal consistency (Osman et al., 2010; Taylor et al., 2007). Examples of its items are *"It scares me when I blush in front of people"* and "*When I notice my heart beating rapidly, I worry that I might be having a heart attack"*. The translations of both items were *"Saya merasa cemas jika muka saya memerah di depan banyak orang"* and *"Ketika dada saya berdegup lebih cepat, saya khawatir akan terkena serangan jantung"*.

The Social Phobia Inventory (SPIN). The SPIN (Connor, Kobak, Churchill, Katzelnick, & Davidson, 2001) consists of 17 items and has demonstrated evidence of good validity and reliability in several studies (Boelen & Reijntjes, 2009). Examples of its items are *"Being criticized scares me a lot"* and *"Heart palpitations bother me when I am around people"*. The translations of both items were *"Saya merasa sangat takut mendapat kritikan"* and *"Jantung yang berdegup kencang menggangu saya ketika saya berada di sekeliling orang lain"*.

All the questionnaires used, which were originally in English, have been translated by four independent translators into Bahasa Indonesia through rigorous steps. Those steps were a forward translation into Bahasa Indonesia by two independent translators who then synthesised the result of their translation into a single translation, back translation by another two independent translators, and finally expert committee review where all translators worked together reaching consensus and synthesising the final version.

Analyses

Preliminary analyses were conducted in prior to the main analyses. Firstly, identification of any missing data was conducted through data screening. Subsequently, analysis of the scale total score through the plots of the distributions as well as examination of skewness and kurtosis statistics were performed in order to identify any possible outliers as well as to examine the normality of data distribution. Any possible outliers would be handled either deletion or winsorizing, while skewed distributions may be transformed.

The main analyses, which was examination of the contribution of each cognitive risk factors measured, utilised regression analysis through SPSS version 21.0. Subsequently, interaction analysis using an approach from Hayes (2012) through Macro for SPPS was performed. Additionally, The nature of the would be depicted using the Johnson-Neyman Technique, that is more powerful than the pick-point approach (Hayes, 2013).

Results

The initial inspections revealed that there were no missing data and univariate outliers. The distribution all data were generally normal (- 1.00 > all skewness and kurtosis < 1.00) and all the measures demonstrated acceptable to excellent internal consistencies (α = .78 - .90) (see Table 1). There were no significant differences between male and female except on the score of AS where male reported higher score than the counterpart. Therefore, gender was not positioned as the covariate. The person correlation analyses (two-tailed) showed that each factor correlated to other factors, and there was no multicollinearity (see Table 2).

In Table 3, each predictor variables entered together demonstrated a significant relationship to social anxiety (ΔR^2 = .32, t = 24.48, p = < .001). However, only FNE and AS significantly contributed to the model (β = .37, t = 4.50, p = < .001 and β = .28, t = 3.48, p = .001, correspondingly), while IU did not (β = - .23, t = - .32, p = .747). Referring to Pratt (as cited in Nathans, Oswald & Nimon, 2012), contribution of predictor is calculated by multiplying its beta weight by its correlation to the dependent variable. As the result, the contribution of FNE = .37 x .52 = .19 or 19%, while the contribution of AS = .28 x .48 = .13 or 13%.

The interaction between FNE and AS added a significant contribution to the model (ΔR^2 = .04, ΔF

Table 1
Descriptive Statistic

	Skewness	Kurtosis	α	Range	M	SD
IU	- .27	.22	.78	15 - 54	38.47	7.01
FNE	.07	-.21	.82	0 - 32	14.33	6.40
AS	.42	.11	.90	0 - 70	25.34	13.68
Social Anxiety	.38	.16	.81	0 - 48	19.25	8.62

Note. FNE = fear of negative evaluation; AS = anxiety sensitivity; IU = intolerance of uncertainty

Table 2
Zero-order Inter Correlation

	IU	FNE	AS	Social Anxiety
IU	-	.36	.24	.18
FNE		-	.56	.52
AS			-	.48
Social Anxiety				-

Note. FNE = fear of negative evaluation; AS = anxiety sensitivity; IU = intolerance of uncertainty

Table 3
The Proposed Model Predicting Social Anxiety

	β	t	p	ΔR^2	ΔF	df	p
FNE	.37	.4.50	< .001	.32	24.48	3, 158	< .001
AS	.28	3.48	.001				
IU	-.02	-.32	.747				
FNE*AS	-.64	-3.05	.003	.04	9.29	1, 157	.003

Note. FNE = fear of negative evaluation; AS = anxiety sensitivity; IU = intolerance of uncertainty
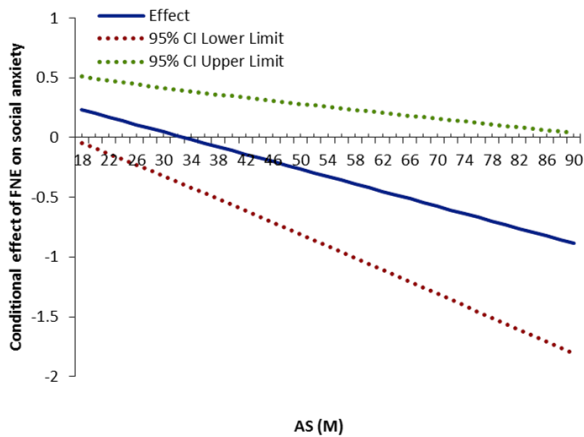

*Figure 1.*The effect of FNE moderated by AS on social anxiety
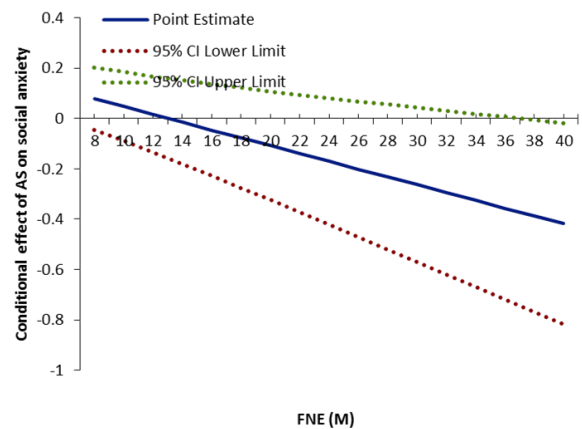*Note.* FNE = fear of negative evaluation; AS = anxiety sensitivity

Figure 2. The effect of AS moderated by FNE on social anxiety
Note. FNE = fear of negative evaluation; AS = anxiety sensitivity

= 9.29, *p* = .003). The final model was significant (*F*(4,157) = 21.64, *p* < .001) and accounted for 36% of the variance in social anxiety.

Following this result, an interaction analysis using macro for SPSS from Hayes (2012) was only performed to further investigate the interaction between FNE and AS. As a result, the interaction between FNE and AS accounted for a significant contribution, ΔR^2 = 0.44%, ΔF (1,342) = 4.86, *p* = .028.

As can be seen from Figure 1, the effect of FNE on social anxiety was not significant at all level of AS, indicated by the all bootstrapped confidence intervals which lie across zero. On the other hand, Figure 2 showed the effect of AS on social anxiety was significant only when FNE > 37, the value of *b* at FNE = 38, *b* = - .3872, *t*(1,160) = - 2.00, *p* = .047. By way of the increases in FNE, the relationship between AS and social anxiety becomes weaker.

Discussion

This study aimed to examine a proposed model where FNE (fear of negative evaluation), AS (anxiety sensitivity) and IU (intolerance of uncertainty) hypothetically predict social anxiety. Furthermore, it aimed to investigate any possible interaction among those three cognitive predictors in order to describe more clearly how these three cognitive vulnerabilities may maintain social anxiety.

The result showed that FNE and AS independently predicted social anxiety among Indonesian adolescents, while IU did not. They also interacted with each other, but the increase of the one would decrease the effect of another one. The effect of FNE was not significant in the presence of AS, while the effect of AS would be significant only when FNE was high.

First, this supports previous studies suggesting that FNE is the main predictor of social anxiety. It could independently predict social anxiety (Carleton et al., 2007; Weeks et al., 2005; Yuniardi, 2017; Yuniardi et al., 2018). Second, it is also support previous studies suggested that AS contribute to the development of anxiety (Taylor et al., 2007; Yuniardi, 2017), including social anxiety (Yuniardi, 2017).

Interestingly, this study revealed that IU has insignificant contribution to the maintenance of social anxiety among Indonesian adolescents. This result was not in accordance with (Boelen et al., 2010). They investigated the contribution of IU adolescents from Netherlands and reported that the contribution of IU was significant there. Previous studies among older samples in the Western countries also reported that IU significantly contributed to the development of social anxiety (Boelen & Reijntjes, 2009; Boelen et al., 2014, 2010; Brown & Naragon-Gainey, 2013; Carleton et al., 2010; McEvoy & Mahoney, 2011, 2012; Michel et al., 2016; Norr et al., 2013; Sapach et al., 2015; Whiting et al., 2014; Yuniardi, 2017; Yuniardi et al., 2018). However, a previous study among older sample from Indonesia reported that the contribution of IU to the variance of social anxiety was smaller than the contribution of FNE and AS (Yuniardi, 2017). Therefore, a possible relation to the other factors such as cultural dimensions possibly affected the result. For instance, It is revealed by a multinational survey investigating cultural dimension (Hofstede in https://www.hofstede-insights.com/country-comparison/indonesia/) that Indonesians reported a moderate level in relation to uncertainty avoidance (in the range 0 to 100, Indonesians is 48). It means that Indonesians moderately feel threatened by uncertainty.

Consequently, social situation, which is an example of uncertainty situation, is perceived moderately threatening as well. However, this possible explanation is warrant further study.

Second, as have been mentioned above, this study revealed that the interaction between FNE and AS contributed a significant additional contribution to the model. It is opposite to the result of previous study using the UK data (Yuniardi, 2017) where there was no interaction between FNE and AS. This may be related with the significant contribution of AS inpredicting social anxiety for Indonesians, which is slightly opposite to the result of the UK study (Yuniardi, 2017) where the contribution of AS was the smallest one. The reason underlying all this equivocal may be also related to the tendency of Asians who reported to be prone to somatic symptoms (Hinton, Park, Hsia, Hofmann & Pollack, 2009).

More interesting finding is the result from the Johnson and Neyman approach depicting the nature of this interaction. It demonstrated that as the increasing of AS, the effect of FNE was decreased, and vice versa. Therefore, it is assumed that individuals reporting high FNE and thus, being socially anxious, possibly would be more suffering anxiety related to panic attack as the increasing of AS. Therefore, it suggests that AS increases anxiety which is caused by FNE. However, the increasing of AS lead the individuals to more concern with his body sensation and consequently, getting panic attack, than to the social anxiety.

This result was not in accordance with the result from a previous study where FNE and AS strengthened each other (Yuniardi, 2017). This previous study was conducted in the UK and it collected data from university students with a range of age from 18 to more 45 years old. Therefore, it is assumed that this opposite result is related to the difference of culture, which has been mentioned above, and age. For instance, the previous study controlled age and gender (Yuniardi, 2017), while this study did not and consequently, this lack of control might influence the result. However, a further study addressing this possibility is warrant.

This study is the first study examining this proposed model to predict social anxiety among Indonesian adolescents. Referring the lack of study investigating social anxiety among adolescents, particularly this model was never being investigated before in Asia, and thus, the result of this study was novel and very significant to explain the maintenance of social anxiety among adolescents particularly who are Indonesians.

Limitations

Despite this bold strength, this study has several weakness and proposes are commendation for the future study. First, this study is a cross-sectional study and consequently cannot explain a causal relationship. Second, this study used self-report method and thus, any biases related to this method are present within this study. For example, possibly there were participant who did not answer the questionnaire genuinely. Third, it is also possible that the lack of control variables might influent the equivocal result. Based on prior research (Yuniardi, 2017), age and gender were controlled as covariates. Therefore, further study is suggested to include those variables into their study. Lastly, this study recruited a non-clinical sample and thus, the result cannot be generalized into clinical sample. Regarding the insignificant contribution of IU within this study that was not in accordance with the result previous studies conducted in Western countries, consequently, it is strongly recommended to investigate cultural values as the possible explanation.

Conclusion

The result of this study not only is novel but also significant for either treatment development, specifically for Indonesian adolescents suffering from social anxiety, or further study. Referring the in accordance result with the previous studies across sample, this study strongly suggested fear of negative evaluation as the main target in the cognitive therapy process for social anxiety. However, specifically for Indonesian adolescents, anxiety sensitivity could be the second concern in the cognitive therapy following the significant contribution of this cognitive risk factor in predicting social anxiety within this study. Lastly, further investigation particularly for the role of intolerance of uncertainty is warrant. It is recommended to explore the role of cultural dimensions for possible reason underlying the unequivocal of the contribution of intolerance of uncertainty in the maintenance of social anxiety.

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