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# The Association of Child Abuse Experiences and Intolerance of Uncertainty in Young Adults

Ayşe Hatun Dirican , Ekin Doğa Kozak, Önder Kavakcı, and Berna Sönmez

*Objective:* Drawing upon the identity disruption model, we investigated the association between child abuse experiences (emotional, physical, and sexual) and intolerance of uncertainty. We also addressed demographic differences in uncertainty intolerance in this study. *Methods:* Using online survey questionnaires, we collected data from a sample of 302 young adults in Turkey. The data were analyzed using confirmatory factor analysis, structural equation modeling, one-way analysis of variance, and independent samples t-test. *Results:* The results showed that of the three types of child abuse analyzed, only emotional abuse was significantly and positively associated with intolerance of uncertainty. In contrast, age was negatively associated with intolerance of uncertainty. Regarding demographic differences, we found that the level of intolerance of uncertainty differed based on young adults' gender, psychiatric diagnosis, and education. Specifically, our findings indicated that intolerance of uncertainty is significantly higher in females compared to males. It is also significantly higher in young adults with a diagnosis for psychiatric disorders than those without. Moreover, intolerance of uncertainty is significantly higher in young adults who have a high school graduate degree than their undergraduate and graduate counterparts. We discussed how child abuse is associated with heightened intolerance of uncertainty in young adulthood as well as why demographic differences may exist in uncertainty intolerance. *Conclusions:* The present study expanded the existing research on the psychological consequences of childhood abuse experiences by linking child abuse to intolerance of uncertainty. Particularly, exposure to emotional abuse in early life can be a risk factor to cope with uncertainty in later life.

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## INTRODUCTION

Intolerance of uncertainty (IU) refers to “the tendency to react negatively on an emotional, cognitive, and behavioral level to uncertain situations and events” (Dugas et al., 2004, p. 143). Specifically, it includes negative thoughts regarding unpredictable events, and excessive threat of the possibility of future negative outcomes, regardless of their probability (Arbona et al., 2022; Carleton et al., 2012). For instance, individuals who are highly intolerant of uncertainty may believe that they should avoid uncertain situations because of the possibility of a negative consequence (Basevitz et al., 2008). To these people, uncertainty seems threatening, unacceptable, and overwhelming (Ladouceur et al., 2000). Therefore, they are more likely to experience high level of emotional arousal, stress, or anxiety in the face of uncertain situations (Meeten et al., 2012).

Existing research on IU suggests that it may increase the risk of developing psychopathologies together with early age of onset and increased comorbidity disorders (Hawes et al., 2021; McEvoy et al., 2019; Yook et al., 2010). As such, previous studies have associated IU with a range of psychological disorders, including generalized and social anxiety (Penney et al., 2020), obsessive-compulsive disorder (Pinciotti et al., 2021), depression (Saulnier et al., 2019), eating disorders (Brown et al., 2017), health anxiety (Wright et al., 2016), panic disorder (Carleton et al., 2014) and substance use disorders (Banducci et al., 2016).

A recent study has suggested that IU may develop gradually from childhood through to adolescence (Hawes et al., 2021). This emphasizes the importance of identifying childhood risk factors to prevent the development of IU later in life (Zdebik et al., 2018). In line with this suggestion, Hawes et al. (2021) conducted developmental research on the relationship between child temperament and IU in a sample of children. They found that child temperament traits

(such as negative emotionality/neuroticism, low sociability/assertiveness) predicted higher levels of IU in adolescence. Similarly, Zdebik et al. (2018) provided evidence that IU is predicted by behavioral inhibition in childhood, suggesting that behavioral inhibition (i.e., heightened reactions to novelty and uncertainty) in early life can contribute to IU in adulthood. Furthermore, IU has been recognized as a transdiagnostic maintaining factor underlying the development of psychopathological disorders (Mahoney & McEvoy, 2012; Yiğman & Fidan, 2021). For instance, Hayward et al. (2020) reported that early adversity (e.g., childhood trauma and risk families) exerts its effect on mental ill-health (e.g., depression, generalized anxiety, obsessive-compulsive disorder, social anxiety) through intolerance of uncertainty.

Altogether, if we can predict early childhood predictors that underlie the development and maturation of IU, the transformation of it into psychopathology can be prevented (Hawes et al., 2021). Therefore, to shed more light on the relationship between early childhood factors and IU, we suggest that childhood abuse experiences may also be a risk factor for the development of IU. This relationship is important because to deal with uncertainty in adulthood, treatment techniques and prevention strategies can be developed to help survivors of child abuse cope with uncertainty (Robinson et al., 2021).

We grounded our proposition in the identity disruption model (Vartanian et al., 2018) because adverse childhood experiences may damage one’s identity development (Carlson et al., 1999; Hayward et al., 2020). They may also result in recurring traumatic thoughts and feelings, which can lead to impaired self-understanding (Wong et al., 2019). Exposure to abuse in early life may invalidate one’s sense of identity by disrupting the structure of the self-concept (Brown & McGill, 1989; Wong et al., 2019). In this sense, if self-concept is impaired or its organization is disrupted, its utility as a conceptual tool may decrease. This disruption may undermine

one's ability to predict and control their environment (Brown & McGill, 1989). Therefore, abused individuals are expected to be more intolerant of uncertain or unpredictable situations because of their poor view of themselves (Wong et al., 2019). In line with this, previous research showed that childhood maltreatment was related to an incoherent sense of identity and lower levels of self-esteem and self-confidence (Danese & Baldwin, 2017; Hayward et al., 2020). As a result, child abuse may lead to the inability of an individual to manage stressful situations by impairing the identity-related system, which would, in turn, be more intolerant to ambiguous situations (Arbona et al., 2022; Brown & McGill, 1989).

From an alternate perspective, abused individuals are more likely to experience early-life stress because of the traumatic events they were exposed to in childhood (Danese & Baldwin, 2017). Childhood is a sensitive period to feel the negative effects of traumatic experiences which may trigger stress reactivity (Berenz et al., 2018). Consistent with this premise, previous studies have showed a positive relation between childhood trauma and post-traumatic stress disorder (Bertule et al., 2021; Burns et al., 2010; Tsur & Abu-Raiya, 2020). It is possible that, abused individuals can be more vulnerable to disturbing life events because they have a potential to overidentify threat signals (Danese & Baldwin, 2017). Therefore, uncertain situations that cannot be fully known, foreseen, or guaranteed may appear more threatening, distressing, or stressful to them (Basevitz et al., 2008). We expect that individuals who experienced abuse in early-life may be more intolerant to uncertainty in later life.

In light of these theoretical and empirical findings, we addressed the relationship between three types of child abuse (emotional, physical, and sexual) and IU in a sample of young adults. We also aimed to explore whether IU changed with demographic characteristics including age, gender, education, and psychiatric diagnosis which is scarcely known (Basevitz et al., 2008). In a nutshell,

the aim of our study is: (a) to examine the association between child abuse (emotional, physical, and sexual) and IU in young adulthood (b) to investigate whether IU differed based on demographic characteristics.

## METHOD

### Sample and Procedure

The data were collected using self-reported questionnaires. The questionnaire was developed in Google Forms and sent to participants by e-mail and social media tools. The participants were chosen using convenience sampling method. Participation was voluntary and participants with at least a high school degree were invited to complete the online questionnaire. The questionnaire included two parts as well as written instructions on how to answer the questions. All participants were given an explanation of our research, and instructions on how to fill out the questionnaire, and briefly defined child abuse and intolerance of uncertainty. In the first part, we asked demographic questions about age, gender, education level, and psychiatric diagnosis. The psychiatric diagnosis was measured with a "yes or no" option to determine whether the participants had been diagnosed with a psychiatric

TABLE 1. Demographic Information

	n	%
<b>Gender (N = 302)</b>		
Female	140	46.4
Male	162	53.6
<b>Educational level (N = 302)</b>		
High school	62	20.5
Undergraduate	204	67.5
Graduate	36	11.9
<b>Had a psychiatric diagnosis (N = 302)</b>		
No	268	88.7
Yes	34	11.3

disorder. The second part consisted of items aimed at measuring child abuse and intolerance of uncertainty.

We received 351 completed questionnaires and after eliminating incomplete answers 302 individuals remained. The participants were young adults (Age = 20-40 years), and their mean age was 30.01 years ( $SD = 9.22$ ). The sample included 53.6% males and 46.4% females. More than half of the sample had an undergraduate degree (67.5%), and the rest had a high school degree (20.5%) and graduate degree (11.9%) (see [Table 1](#)).

### Measures

**Intolerance of uncertainty.** The intolerance of uncertainty scale was developed by Freeston et al. (1994) to measure reactions to uncertain situations (Buhr & Dugas, 2002). It consists of four subscales: (a) Uncertainty is stressful and upsetting, (b) negative self-assessment about uncertainty, (c) disturbing thoughts about the uncertainty of the future, (d) uncertainty keeps me from acting. Example items are as follows: (a) "It frustrates me not having all the information I need"; (b) "Being uncertain means that I am not first rate"; (c) "I always want to know what the future has in store for me"; (d) "When I am uncertain, I can't go forward." Respondents completed the measures using a 5-point Likert scale (1 = "not at all characteristics of me" to 5 = "entirely characteristic of me." The Cronbach's alpha coefficient for uncertainty is stressful and upsetting ( $\alpha = .84$ ), negative self-assessment about uncertainty ( $\alpha = .85$ ), disturbing thoughts about the uncertainty of future ( $\alpha = .78$ ), and uncertainty keeps me from acting ( $\alpha = .82$ ). This 27-item scale was translated to Turkish by Sarı and Dağ (2009). We used the translated Turkish version of this scale in this study.

### Childhood Abuse

We used Childhood Trauma Questionnaire (Bernstein et al., 1994) to measure child

abuse prior to the age of 20. This scale consists of 15 items to measure three types of child abuse: Emotional abuse (e.g., "People in my family said hurtful or insulting things to me"); physical abuse (e.g., "People in my family hit me so hard that it left me with bruises or marks") and sexual abuse (e.g., "Someone tried to touch me in a sexual way or tried to make me touch"). Respondents completed the measures using a 5-point Likert scale (1 = "never" to 5 = "always"). The Cronbach's alpha coefficient for emotional abuse ( $\alpha = .80$ ), physical abuse ( $\alpha = .82$ ), and sexual abuse ( $\alpha = .92$ ). It was translated to Turkish by Sar et al. (2012) and we used the translated Turkish version of this scale.

### Control Variables

To account for alternative explanations for the findings, the participants' age (measured in years) was controlled for because previous research reported a significant relationship between age and intolerance of uncertainty (Basevitz et al., 2008).

### Analysis Strategy

We analyzed the data using AMOS 24 and SPSS 25. Confirmatory factor analysis was performed to evaluate the measurement model and validity of the scales used in this study. Cronbach's alpha values were calculated to test the scales' reliability. Structural equation modeling (SEM) was implemented in AMOS by using maximum likelihood estimation to analyze the relationship between independent variables and dependent variable. SEM is a powerful statistical method combining path model with latent and observed variables (indicators; Anderson & Gerbing, 1988; Gürbüz, 2019; Hox & Bechger, 1998). It allows testing of interrelationships between a range of variables simultaneously (Porritt et al., 2015). In addition, SEM models estimate measurement errors explicitly for both independent and dependent variables (Novikova et al., 2013). To

determine if the mean scores of the IU differed significantly by demographic groups, independent samples t-test and one-way analysis of variance (ANOVA) were conducted in SPSS.

## RESULTS

### Validity and Reliability

Confirmatory factor analysis (CFA) was applied to check if the measurement model provided a good fit to the data and to evaluate the distinctiveness of the constructs (Anderson & Gerbing, 1988). The fit of the measurement model was assessed based on five fit indices recommended by Hu and Bentler (1998): Comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR).

The measurement model consisted of seven latent variables: emotional abuse, physical abuse, sexual abuse, uncertainty is stressful and upsetting, negative self-assessment about uncertainty, disturbing thoughts about the uncertainty of the future, uncertainty keeps me from acting and 41 indicators. This model treated these constructs as seven distinct factors. After removing low-factor loading items, our seven-factor measurement model demonstrated an acceptable fit with the data,  $\chi^2(438, N = 302) = 986.19, p < .01$  ( $\chi^2/df = 2.25$ ; CFI = .91; TLI = .91; RMSEA = .06; SRMR = .06). All items loaded on their constructs and all loadings were significant ( $p < .01$ ). This result provided support for discriminant validity of the seven constructs.

We had initially intended to treat the four subscales of IU separately, but the significantly high correlations among them led us to combine the subscales of IU to form a composite scale of IU (Norr et al., 2013; Rosen et al., 2014; Thielsch et al., 2015). Before combining the four subscales of IU, we wanted to ascertain the distinctiveness of these subscales. Since the above analysis results showed that these four subscales have discriminant

validity, we then combined all four subscales with their items. The one-factor model showed a good model fit,  $\chi^2(138, N = 302) = 382.37, p < .01$  ( $\chi^2/df = 2.95$ ; CFI = .93; TLI = .93; RMSEA = .07; SRMR = .05). Afterwards, we built and reassessed a new measurement model including emotional abuse, physical abuse, sexual abuse, and the composite IU. The final four-factor measurement model fitted the data well,  $\chi^2(476, N = 302) = 1000.76, p < .01$  ( $\chi^2/df = 2.10$ ; CFI = .91; TLI = .91; RMSEA = .06; SRMR = .06). The results provided the distinctiveness of the four variables used in this study. Additionally, the alpha reliability of composite IU ( $\alpha = .94$ ) was well beyond the accepted level of 0.70 (Nunnally, 1967), indicating a good internal reliability.

### Descriptive Statistics

The means, standard deviations, reliabilities, and correlations among variables were reported in Table 2. The results revealed that IU demonstrated a significant positive correlation with emotional abuse ( $r = 0.30, p < .01$ ), physical abuse ( $r = 0.16, p < .01$ ) and sexual abuse ( $r = 0.16, p < .01$ ). IU also showed a significant negative correlation with age ( $r = -0.28, p < .01$ ). In addition, all types of child abuse significantly and positively correlated with all dimensions of IU except for “uncertainty keeps me from acting.”

### Comparison among Demographic Variables

We examined whether IU differed with young adults' demographic characteristics, including gender, psychiatric diagnosis, and education level. Before applying parametric tests to compare demographic groups, we performed a normality test based on skewness and kurtosis coefficients (Bonett & Woodward, 1990). The normality test indicated that the values of the skewness and kurtosis were  $-0.04$  and  $-0.75$ , respectively. This finding showed that the skewness and



TABLE 2. Means, Standard Deviations, and Correlations Among Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	-											
2. Education	.16**	-										
3. Psychiatric diagnosis	-.08	-.02	-									
4. Age	.23**	.49**	.01	-								
5. Emotional abuse	-.22**	-.04	.08	.00	-							
6. Physical abuse	.08	.07	.13*	.10	.56**	-						
7. Sexual abuse	-.15**	-.06	.08	-.01	.42**	.32**	-					
8. Uncertainty is stressful and upsetting.	-.33**	-.10	.14*	-.28**	.28**	.14*	.17**	-				
9. Negative self-assessment about uncertainty	-.24**	-.14*	.18**	-.26**	.28**	.20**	.15**	.78**	-			
10. Disturbing thoughts about the uncertainty of future	-.27**	-.06	.19**	-.19**	.29**	.16**	.13*	.81**	.76**	-		
11. Uncertainty keeps me from acting	-.27**	-.14*	.14*	-.23**	.24**	.06	.13*	.68**	.75**	.69**	-	
12. Intolerance of uncertainty	-.31**	-.12*	.17**	-.28**	.30**	.16**	.16**	.92**	.92**	.89**	.85**	-
Mean				30.01	6.80	4.42	5.83	17.65	13.69	8.69	10.54	50.59
SD				9.22	2.85	1.36	2.65	5.97	5.07	3.33	3.97	16.60
Cronbach Alpha					.80	.82	.92	.84	.85	.78	.82	.94

\* Correlation is significant at the 0.05 level.  
 \*\* Correlation is significant at the 0.01 level.

kurtosis values were within the recommended range (from -1 to 1; Gürbüz & Şahin, 2014; Hair et al., 2009), supporting IU data was normally distributed.

We conducted independent samples t-test analysis to compare the mean scores of the IU by gender and psychiatric diagnosis groups. This test demonstrated that the females had significantly higher IU than the males (M = 56.21, SD = 15.94 versus M = 45.74, SD = 15.64,  $p < .01$ ). Similarly,

the participants with a psychiatric diagnosis had significantly higher IU than those without a psychiatric diagnosis (M = 58.91, SD = 14.86 versus M = 49.54, SD = 16.64,  $p < .01$ ).

We performed one-way analysis of variance (ANOVA) to determine whether IU differed by education level. Before applying ANOVA, Levene’s test was conducted to ascertain the homogeneity of variance. It was found that the variance within each group was homogeneous ( $F(2,299) = 0.757, p > .05$ ). As

TABLE 3. ANOVA: Comparison of Intolerance of Uncertainty Scores by Education Level

Education Level	n	Mean	SD	F	p
High school	62	55.61	.96	3.622	.028
Undergraduate	204	49.29	1.16		
Graduate	36	49.30	2.78		
Total	302	50.59	.95		

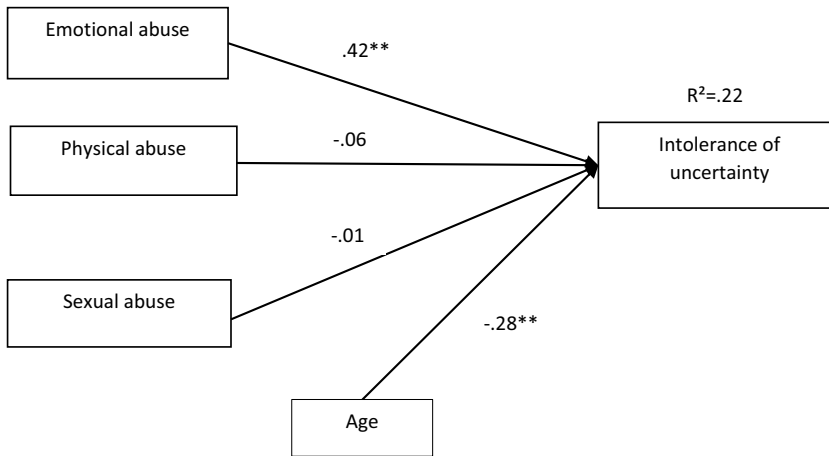


FIGURE 1  
The research model with standardized path coefficients (N = 302). \*\* $p < .01$ . Note: Only structural relationships are displayed for clarity.

shown in Table 3, the ANOVA results revealed that participants' IU statistically differed by their educational level ( $F(2, 299) = 3.622, p < .05$ ). Based on this result, the participants with a high school graduate degree had a significantly higher IU than their undergraduate ( $M = 55.61, SD = 15.49$  versus  $M = 49.29, SD = 16.70, p < .05$ ) and graduate counterparts ( $M = 55.61, SD = 15.49$  versus  $M = 49.30, SD = 16.68, p < .05$ ).

### Structural Equation Modeling

Figure 1 shows standardized path coefficients, path significances, and variance explained ( $R^2$ ) by each path for the structural model. The structural model exhibited an acceptable fit,  $\chi^2(510, N = 302) = 1097.55, p < .01$  ( $\chi^2/df = 2.15$ ; CFI = .90; TLI = .90; RMSEA = .06; SRMR = .06). As shown in Figure 1, when all types of abuse were simultaneously analyzed, only emotional abuse was significantly and positively related to IU ( $\beta = .42, p < .01$ ). In addition, it was found that age was significantly and negatively related to IU ( $\beta = -.28, p < .01$ ). All predictors explained 22.2% of the variance of intolerance of uncertainty.

### DISCUSSION

To our knowledge, this is the first study to explore the association between child abuse (emotional, physical, and sexual) and intolerance of uncertainty in a sample of young adults. We also examined whether young adults' demographic characteristics make a difference in their uncertainty tolerance. The results from the present study extended the knowledge about the psychological consequences of childhood abuse experiences by linking child abuse to IU. Our findings largely supported our theoretical framework and contributed to the literature in several ways as we discuss next.

We found that exposure to emotional abuse was positively associated with IU. This finding indicates that young adults who experienced emotional abuse in early life may be intolerant of uncertainty later in life. This result consistent with a recent study that also demonstrated a positive relationship between early adversity (e.g., childhood trauma) and IU (Hayward et al., 2020). Our finding suggests that abused individuals are more likely to be unable to deal with uncertain events. In line with the identity disruption model, this could



be because exposure to child abuse together with early-life stress may lead to changes in one's personal identity system and damage one's coping skills to manage stressful situations. This possibility is supported by previous research that has associated adverse childhood experiences with post-traumatic stress disorder (Arbona et al., 2022) and impaired self-concept systems (Wong et al., 2019). From this perspective, childhood can be considered as a period of increased vulnerability to traumatic experiences. During the traumatic event, the child was most likely incapable of preventing, controlling, or predicting it. Therefore, reduced perceived control over traumatic event may result in stress, fear, and inadequacy later in life (McLean & Anderson, 2009). In accordance with this, child abuse experiences may complicate predicting and controlling possible negative events in an uncertain environment. Because of this, survivors of child abuse are more likely to be less tolerant or, more importantly, more vulnerable to ambiguous situations. It is reasonable that avoiding rather than coping with uncertainty would protect them from possible threats and stress.

Contrary to our expectations, physical abuse and sexual abuse were not significantly associated with IU. As a similar construct, prior research has also not found a significant relationship between sexual abuse and tolerance to stress (Berenz et al., 2018). The reason behind our finding could be that the mean of emotional abuse is higher ( $M = 6.80$ ,  $SD = 2.85$ ) compared to physical and sexual abuse ( $M = 4.42$ ,  $SD = 1.36$ ;  $M = 5.83$ ,  $SD = 2.65$ , respectively) in our sample. In addition, the findings of previous research on child abuse showed that emotional abuse is a stronger predictor of emotional distress (Carleton et al., 2012; Gentes & Ruscio, 2011; McEvoy et al., 2019), major depressive disorder (Gibb et al., 2007), health (Irving & Ferraro, 2006), and schizotypal personality disorder (Powers et al., 2011) as compared to physical and sexual abuse. Taken together, emotional abuse in early life may play an important role in the development of IU later in life.

We also found that age was negatively associated with IU, suggesting the level of IU significantly changes and decreases as people get older. A similar study using young and old adult samples, indicated that older adults are more tolerant of uncertainty than younger adults, which supported our finding (Basevitz et al., 2008). In late adulthood, the tendency to worry might be less in older people (Gould & Edelstein, 2010; Hunt et al., 2003) because they have more coping skills to withstand life's adversities and see less value in worrying compared to their younger counterparts (Basevitz et al., 2008). In addition, repeated positive and negative life experiences with increasing age can help older people know how to better regulate their emotions in the face of uncertain events. Older adults are also more aware of time limitations and therefore they give priority to maximizing positive experiences and minimizing negative experiences (Gould & Edelstein, 2010). On the other hand, young people may struggle to deal with uncertainty due to inadequate life experiences and less emotional maturity. It is possible that young individuals are exposed to more demanding and unstable environments. In this sense, they have unpredictable future possibilities related to school or social issues, including career, marriage, future offspring, removing opportunities, familial things, and possible responsibilities that potentially increase uncertainty in their life.

Regarding demographic differences, females had a higher level of IU than males. One reasonable explanation for our finding is that, compared to men, women are more frequently exposed to anxiety-evoking traumas (e.g., sexual assault, domestic violence, or rape) and develop anxiety disorders such as panic disorder, agoraphobia, post-traumatic stress disorder, or generalized anxiety disorder (McLean et al., 2011). Therefore, females are expected to be more vulnerable to fear-arousing situations. There is also evidence that females tend to exaggerate the probability of threat, and use passive emotion-based strategies (e.g., denial or mental disengagement) instead of active coping strategies in

the face of adverse events (McLean & Anderson, 2009). Because of this, it's possible that females have a higher intolerance to uncertain situations with a greater fear of it than males.

Another possible explanation for our finding is that IU may be affected by gender roles. In general, males are often encouraged from childhood to confront fears and dissuaded to avoid fearful situations than females. It may result in stronger exposure to fear and elimination of fear reactions in males (Christiansen, 2015). Also, expressions of fear, withdrawal, or inhibition are inconsistent with male gender roles (McLean & Anderson, 2009). Therefore, avoidance behaviors exhibited by males are less tolerated in masculine culture (Christiansen, 2015). From a different perspective, mothers or caregivers tend to use control over daughters without granting them the same level of autonomy compared to sons (McLean & Anderson, 2009). This over-control may lead to a feeling of inability and inadequacy in women when confronted with an uncertain situation. Taken together, it is reasonable that females are expected more intolerant of uncertainty than males.

Regarding psychiatric diagnosis, we found that young adults with a previous psychiatric disorder diagnosis had a higher level of IU than those without. This finding suggests that individuals may be less able to deal with uncertainty when they have one or more psychiatric disorders. Our result is consistent with the literature offering a strong relationship between IU and psychopathology (McEvoy et al., 2019) including eating disorders (Kesby et al., 2019), posttraumatic stress disorder (Raines et al., 2019), obsessive-compulsive personality disorder (Wheaton & Ward, 2020), depression (Yao et al., 2021), panic disorder (Clarke & Kiropoulos, 2021), generalized anxiety disorder and social anxiety disorder (Hayward et al., 2020). Hence, it is not surprising that individuals who have a psychiatric diagnosis may be more intolerant of uncertainty.

Our analysis also found that young adults who had a high school graduate

degree were more intolerant of uncertainty than their undergraduate and graduate counterparts. This finding suggests that low educational level was associated with heightened IU. Prior research findings indicated that psychological disorders, notably anxiety and depression, were more frequent in individuals with less education (Andrews et al., 2001; Bjelland et al., 2008). A possible explanation for this is that low educational level may restrict or limit individuals' education-based resources such as socio-economic resources, occupational options, social psychological resources, or monetary resources when compared with high education level (Bjelland et al., 2008; Kaplan et al., 1987; Ross & Wu, 1996). Individuals with high graduate degrees are more likely to have good-paying jobs with benefits and pension plans, all of which increase future promotions and earnings (Ross & Wu, 1996). Based on these arguments, a high education level with acquired resources may protect individuals against unpredictable situations and compensate for future possible negative outcomes. Therefore, they are more likely to feel a greater sense of personal control over an uncertain environment than those with low education.

## IMPLICATIONS FOR CLINICAL PRACTICE

The findings of this study have a number of clinical implications. Gaining a better understanding of child abuse and IU relationships could provide significant implications for treatment interventions and help clarify which demographics influence this relationship and in what way. The present study clearly showed the association between child abuse and IU, especially among those who experienced emotional abuse. IU is presumed to be a transdiagnostic sustaining factor underpinning a wide variety of psychological disorders (Mahoney & McEvoy, 2012). Therefore, clinicians working with individuals

experiencing child abuse may be careful about their IU levels. With exposure and ritual prevention techniques, IU can be a focus in cognitive-behavioral therapy (Tolin et al., 2003). While uncertainty may be addressed by experienced therapists through cognitive restructuring, exposure, problem-solving, or assertiveness, inexperienced therapists might not (Einstein, 2014). Moreover, explicitly acknowledging, and normalizing uncertainty arousal as an outcome of IU is also assumed as essential aspects of the treatment (Einstein, 2014). Clinicians should take into consideration demographic differences and explore strategies to make it easier for abused people to cope with uncertainty.

### LIMITATIONS

The present study should be considered in lights of its limitations to interpret our findings properly. First, the findings cannot be generalized to a more diverse sample because our sample included only young adults. Second, we used the cross-sectional design which limits us to making of causal inferences of reported relations, but future studies can use a longitudinal or time-lagged study design to examine the long-term effects of child abuse. Third, we collected data using self-reports, which is more appropriate for evaluating individual perceptions (Lian et al., 2012), but future data can be obtained by using multiple data resources including self-report, laboratory observation and clinical interviews. Fourth, we obtained our sample using non-random sampling, which may violate the assumption of independence. To avoid this problem, simple random-sampling method can be used, which gives each sample an equal chance of being chosen (Gürbüz & Şahin, 2014). Lastly, we used three abuse subscales (emotional, physical and sexual) of Childhood Trauma Questionnaire (Bernstein et al., 1994). Future studies can expand our research by including emotional and physical neglect as well as the abuse subscales.

### FUTURE RESEARCH

Future research could examine mediating mechanism of the relationship between child abuse and IU, including personality traits (Lee & Song, 2017), self-esteem (Kim et al., 2022), resilience (Xie et al., 2021), dissociation (Paetzold & Rholes, 2021), self-concept (Wong et al., 2019), emotional exhaustion (McKee-Lopez et al., 2019), self-confidence (Danese & Baldwin, 2017) and post-traumatic stress disorder (Powers et al., 2011). Future researchers should also consider potential moderators in child abuse-IU relationship. One such variable may be uncertainty avoidance because the relationships explored in this study may vary based on the level of uncertainty avoidance. Therefore, a similar study can be conducted in countries where uncertainty avoidance is high and low by comparing the findings.

### CONCLUSION

The present study indicated that emotional abuse is associated with increased intolerance of uncertainty. This result emphasizes that exposure to emotional abuse in early life can be a risk factor to cope with uncertainty later in life. This work extended the existing research on the psychological consequences of child abuse. Our results also point to the significant influence of age on the level of uncertainty tolerance. The findings are important because this is the first study to investigate the association of IU with child abuse and demographic characteristics of young adults. Based on our findings, we suggest that females, individuals who had psychiatric diagnoses, and less educated young adults may be more susceptible to having a higher level of intolerance of uncertainty.

### DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

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