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Research Paper

Turkish Adaptation of the European Cyberbullying Intervention Project Questionnaire (ECIPQ)

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ABSTRACT

Over the last two decades, cyberbullying has gained increasing attention from the research community as the phenomenon has become a public health issue affecting children, adolescents, and young adults. Although several instruments assess cyberbullying worldwide, many still need to be adequately validated in different languages, countries, and cultures. The European Cyberbullying Intervention Project Questionnaire (ECIPQ) is one instrument that aims to measure two dimensions of cyberbullying: cyber-victimization and cyber-aggression. Although the instrument has been translated into various languages and validated in several European and non-European countries, validation studies have yet to be conducted in Turkish culture. This study aimed to adapt the ECIPQ into Turkish and to investigate the psychometric quality of the instrument in Turkish population. A total sample of 632 college students participated in the study. Along with the ECIPQ, the Buss-Perry Aggression Questionnaire, the Rosenberg Self-Esteem Scale, and the Satisfaction with Life Scale were administered for validation purposes. The results showed that the Turkish version of the ECIPQ had sufficient internal consistency. The confirmatory factor analysis supported the two-factor structure of the ECIPQ. The ECIPQ showed adequate convergent validity, as evidenced by the positive correlation between the cyberbullying and aggression scores and the negative correlation between cyberbullying and self-esteem scores. In conclusion, the ECIPQ can be considered a psychometrically sound measure to assess Turkish college students' perceived cyber-aggression and cyber-victimization levels.

INTRODUCTION

As a result of the rapid advancements in technology and the increase in the relations between individuals and technological devices, the phenomenon known as "cyberbullying" has become a significant concern in today's society. The detrimental effects of cyberbullying on the mental health of the young population might be one of the leading factors behind this concern, as it is associated with psychological problems such as anxiety, depression, and suicide (Allison et al., 2012; Hinduja & Patchin, 2010; Hinduja & Patchin, 2015; Schenk et al., 2013; Varghese & Pistole, 2017). Cyberbullying may also lead to social isolation and poor self-esteem, further exacerbating mental health problems. According to Kowalski and Limber (2013), cyberbullying victims were three times more likely to attempt suicide than non-victims. Cyberbullying has a substantial effect on social interactions as well. Cyberbullying may result in social isolation and exclusion, making it difficult for victims to form and maintain peer relationships (Kowalski & Limber, 2013). Additionally, cyberbullying can damage victims' reputations, making it difficult to establish a positive social identity (Hinduja & Patchin, 2015).

Unlike traditional bullying, which has been defined as exposure to repeated actions by one or more other individuals directly (e.g., physical attack) or indirectly (e.g., spreding rumors), cyberbullying is considered a modern form of aggression that may cause harm or distress to others through digital platforms and communication channels (Olweus, 1993; Slonje et al., 2013). Although there is a lack of consensus on the definition of cyberbullying, most researchers concur that it encompasses the following crucial elements: "technology, harm, willful, and repetition" (Patchin & Hinduja, 2015, p. 55). Therefore, Hinduja and Patchin (2015) offered a straightforward and reasonably comprehensive definition of cyberbullying as "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (p. 11). Smith et al. (2008) also defined cyberbullying as "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself (p. 376)."

Cyber-victimization and cyber-aggression are two significant phenomena commonly linked to the utilization of technology, particularly the Internet. Cyber-victimization refers to any harm or aggression experienced by an individual online, while cyber-aggression refers to perpetrating such harm. Cyber-victimization and cyber-aggression are widespread, affecting millions of individuals worldwide. A recent study revealed that approximately 46% of adolescents in the United States have experienced

cyberbullying at some point (Cyberbullying Research Center, 2021). Similarly, a study also showed that the prevalence of cyberbullying incidents was identified to be 65.3% within the demographic of high school students in Turkey (Çalışkan Pala et al., 2021). Furthermore, other countries, including Europe and Australia, reported high prevalence rates (Kowalski et al., 2014; Menesini et al., 2012). Thus, it is clear that the rates of cyber victimization and cyber-aggression are on the rise, affecting an ever-growing number of individuals worldwide (Li, 2015; Ybarra & Mitchell, 2014).

Even though there have been significant developments in cyberbullying research over the past decade, researchers believe that substantial problems exist regarding the phenomenon's proper assessment (Herrera-Lopez et al., 2017). A systemic review by Chun et al. (2020) on cyberbullying measurements highlighted that developing a consistent and standardized definition of cyberbullying to assess cyberbullying behaviors was crucial. Berne et al. (2013) also carried out a systematic review of the instruments that are used to measure the various types of cyberbullying behavior. Their review on the 44 instruments concluded that the majority of the instruments were self-reports, and more than half of those instruments assessed cyber-victimization and cyber-aggression separately. To overcome problems related to this phenomenon assessment, Brighi et al. (2012) developed the European Cyberbullying Intervention Project Questionnaire (ECIPQ). Considering criteria such as repetition and power imbalance, the ECIPQ investigates the dominance of technology in aggressiveness and the absence of protective measures in cases of victimization (Del Rey et al., 2015). The ECIPQ has been rigorously validated across a diverse range of countries. However, the ECIPQ adaptation in Turkey is yet to be done. Therefore, the main objective of this study is to adapt the ECIPQ to the Turkish population.

METHOD

Research Design and Procedure

This study employed a cross-sectional survey design. Permission to adapt the scale in Turkish was obtained via e-mail. To translate the original version of the ECIPQ into Turkish, the authors of this study followed a standard procedure of forward and backward translation. First, the original version was independently translated by the authors of this study, followed by a discussion of discrepancies among the translations to produce a final version. Second, an academic expert in the English language, specializing in teaching English as a second language, reviewed the quality of the translation. Following the translation's approval, an academic expert in Turkish Language Education was consulted to ensure the linguistic adequacy and clarity of the Turkish version. In addition, in items 6 and 17, the term "MSN" was replaced with "Instagram", as the target population in Turkey more commonly uses the latter. These modifications were approved by two PhD-level experts in school counseling. Then, another English-language teaching expert was consulted to back-translate the Turkish version into English. Comparing the back-translated version with the original one, no significant discrepancies were found. The final version was then pre-tested with 12 college students, and they verbally confirmed that the items were clear and understandable.

Participants

Data were collected between March and May of 2022 from two universities located in Turkey. The sample comprised 632 students enrolled in their first or second year of college. The decision to select students enrolled in their first or second year of college was influenced by Del Rey et al. (2015). Most participants in their research were between the ages of 11 and 23. Since this demographic was relevant in the original study, it was ensured to retain the authenticity of the original scale by capturing similar demographic characteristics in our study. Of these 632 students, 470 were female (%74), 162 were male (%24), 329 were freshmen (%52), and 309 were sophomores (%48). Participation was voluntary, and no information that could jeopardize participants' confidentiality and anonymity was collected. Participants were presented with a consent form containing detailed study information.

Instruments

A paper-pencil survey form was administered, including the ECIPQ, the Buss-Perry Aggression Questionnaire, the Rosenberg Self-Esteem Scale, the Satisfaction with Life Scale, and two demographic questions about gender and grade level.

The European Cyberbullying Intervention Project Questionnaire (ECIPQ)

The original ECIPQ was developed by Brighi et al. (2012) to assess the various forms of behavior and actions that constitute cyberbullying. ECIPQ consisted of 22 Likert-type items and was developed based on previous measures by Dooley, Pyzalski, and Cross (2009) and Pyzalski (2012) to measure two dimensions of cyberbullying – cyber-victimization and cyber-aggression. Each dimension has 11 items with five response options (*0 never to more, 1 once or twice, 2 once a month, 3 once a week, and 4 more times a week*). Del Ray et al. (2015) conducted a cross-cultural study on secondary school students from six European countries to test the reliability and structural validity of the questionnaire. They concluded that the internal consistency and validity of the two-factor structure of the questionnaire were theoretically and empirically supported. Del Rey et al. (2015) also provided a classification to determine the prevalence of cyberbullying by considering the roles of behavior, participation, and repetition. Individuals were classified as cyber-victims if they scored a 2 or higher in any item related to cyber-victimization and a 1 or lower in all items related

to cyber-aggression. Those who scored a 2 or higher in any item related to cyber-aggression and a 1 or lower in all items related to cyber-victimization were identified as cyber-aggressors. Cyber-bully/victims were identified as individuals who scored 2 or higher in both cyber-aggression and cyber-victimization.

The validation studies of the ECIPQ have been done with individuals of different age groups (Williford & DePaolis, 2019) from different countries such as Spain, Germany, Italy, Poland, the United Kingdom, and Greece (Álvarez-Marín et al., 2022; Del Rey et al., 2015; Ortega-Ruiz et al., 2016), Colombia (Herrera-Lopez et al., 2017), China (Zhu et al., 2022), Hungary (Arató et al., 2019). The studies showed that the ECIPQ has sufficient psychometric quality.

The Buss-Perry Aggression Questionnaire

The Buss-Perry Aggression Questionnaire (BPAQ) is a psychological assessment tool developed by Buss and Perry (1992). The BPAQ is intended to measure different aspects of aggression, including physical aggression, verbal aggression, anger, and hostility. The questionnaire consists of 29 items rated on a 5-point Likert scale, where 1 indicates "extremely uncharacteristic", and 5 indicates "extremely characteristic". The total score is obtained by summing the scores of all 29 items, with higher scores indicating higher levels of aggression.

The adaptation study of the BPAQ to Turkish was conducted with a sample of 220 university students by Demirtaş-Madran (2012). The adapted version showed adequate internal consistency with the Cronbach Alpha coefficient for the entire scale of 0.85 and the Cronbach Alpha coefficients of subscale scores ranging from 0.48 to 0.78. The test-retest reliability of the questionnaire was 0.97. The total scores were found to be moderately correlated with anger-related behaviors subscale scores of the Multidimensional Anger Scale, indicating criterion validity evidence for the Turkish version of the BPAQ. In our study, the Cronbach Alpha coefficients were found to be 0.83 for physical aggression, 0.61 for verbal aggression, 0.79 for anger, 0.76 for hostility.

The Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale is a widely used self-esteem tool and consists of 10 items to measure negative and positive feelings about oneself (Rosenberg, 1965). Each item has four different response categories, corresponding to a score ranging from strongly agree to strongly disagree (*1 point* = strongly disagree, *2 points = disagree, 3 points = agree, 4 points* = strongly agree). Higher scores obtained from the scale indicate higher levels of self-esteem of the individual taking the assessment. The scale was adapted to Turkish adolescents by Çuhadaroğlu (1986). The reliability coefficient of the scale was 0.75 in her adaptation study (as cited in Akdemir et al., 2016). The Cronbach Alpha coefficient of the scale was computed as 0.87 in this study.

The Satisfaction with Life Scale

The Satisfaction with Life Scale developed by Diener et al. (1985) is a self-report questionnaire designed to measure individuals' perceived life satisfaction as a whole. The scale consists of five items that ask individuals to rate their agreement with each item on a seven-point scale, ranging from 1 "strongly disagree" to 7 "strongly agree".

Early adaptation studies of the Satisfaction with Life Scale with the Turkish population were conducted (Köker, 1991; Yetim, 1991). Dağlı and Baysal (2016) conducted another adaptation study with the Turkish teachers' sample by reducing the number of response options on a scale to five. They found that their version had retained the one-factor structure and provided adequate psychometric properties such as the Cronbach Alpha of 0.88 and test-retest reliability of 0.97. Using the 5-point scale version in this study, we calculated the Cronbach Alpha coefficient as 0.85.

Data Analysis

In part of examining the psychometric properties of the ECIPQ, we estimated a confirmatory factor analysis model to test a two-factor structure of the ECIPQ. The goodness of model fit was evaluated based on the chi-squared test and a few goodness of fit indices. We report on at least one fit index from different model fit categories, such as parsimonious, absolute, and incremental fit indices (Brown, 2015). To evaluate the goodness of fit indices, we adopted the following thresholds for acceptable fit suggested by Hu and Bentler (1999): RMSEA < 0.06 and SRMR < 0.08, GFI, CFI, and TLI > 0.95. The CFA analysis was conducted using the lavaan package-0.6-16 version (Rosseel, 2012) in R statistical software (R Core Team, 2023). For criterion validity, we examined the relations of cyberbullying with aggression, self-esteem, and satisfaction with life by computing Spearman`s rank correlations since total scores of the cyber-bullying and cyber-aggression did not follow a normal distribution. We also report the Cronbach Alpha and McDonald's Omega for each sub-scale as indices for internal consistency.

Prior to the main analyses, the data were screened for missing data, multicollinearity, univariate normality, and multivariate normality. Missingness was considered trivial as the ECIPQ data contained only six missing data cells, which corresponded to less than %0.001 missing data. Tabachnick and Fidell (2013) stated that different missing data imputation methods perform similarly in cases where missing data is less than %5. We used median imputation considering the categorical-ordinal nature of our data. Regarding multicollinearity, we examined the bivariate polychoric correlations between the ECIPQ items. None of the bivariate

correlations was larger than 0.90, indicating no multicollinearity (Tabachnick & Fidell, 2013). Based on our visual examination of the histograms and quantile-quantile plots for the ECIPQ, most item distributions were found to be extremely right-skewed with high kurtosis. The skewness and kurtosis values for all items were outside the range of -1 and +1. Thus, none of the items followed the univariate normal distribution. We also concluded that the data did not possess multivariate normality since Mardia's skewness test (x^2 = 76947.79, df = 2024) and kurtosis tests (z=534.52) were found to be significant at 0.01 alpha level. Given the non-normality and ordinal nature of the data, the CFA model was estimated under the robust weighted least squares approach using the weighted least squares mean and variance adjusted (WLSMV) estimator.

RESULTS

The goodness of fit statistics for the initial two-factor CFA model were reported in Table 1. The results revealed a significant chi-square test. However, it is known that the chi-square test is sensitive to sample size; the test produces small significance values as the sample size gets large. While GFI indicated acceptable model fit, RMSEA, CFI, TLI, and SRMR suggested poor fit.

Table 1. The goodness of fit statistics results for the initial CFA model of ECIPQ

χ2	df	RMSEA	SRMR	GFI	CFI	TLI
1090.64*	208	0.082	0.115	0.972	0.947	0.941

*p < .001

The model modification indices for an improved model fit were examined to see whether any suggested modifications were theoretically sound. The error terms of item 4 (Someone hacked into my account and stole personal information (e.g., through email or social networking accounts)), item 5 (Someone hacked into my account and pretended to be me (e.g., through instant messaging or social networking accounts)) and item 6 (Someone created a fake account, pretending to be me (e.g., on Facebook or Instagram) were correlated in the modified model. These interrelated errors may be justified by the excessive amount of similarity in the wording of these three items (Brown, 2015). Relying on the same logic, we added the correlation between error terms of item 12 (I said nasty things to someone or called them names using texts or online messages) and item 13 (I said nasty things about someone to other people) online or through text messages). The modified model suggested that the model fit was acceptable based on the RMSEA, GFI, CFI, and TLI. However, SRMR was still found to be above 0.08. Given that other indices indicated adequate fit and that SRMR did not exceed 0.10 (Schermelleh-Engel et al., 2003), we concluded that the modified model had an acceptable fit. The goodness of fit statistics for the modified model is reported in Table 2.

Table 2. The goodness of fit statistics results for the modified CFA model of ECIPQ

χ2	df	RMSEA	SRMR	GFI	CFI	TLI
571.66*	204	0.053	0.095	0.985	0.978	0.975

*p < .001

Figure 1 shows the CFA diagram for the modified-two-factor model for ECIPQ with the estimated values of the standardized factor loadings of the items, correlation between the factors, and correlations between the error terms of the items.

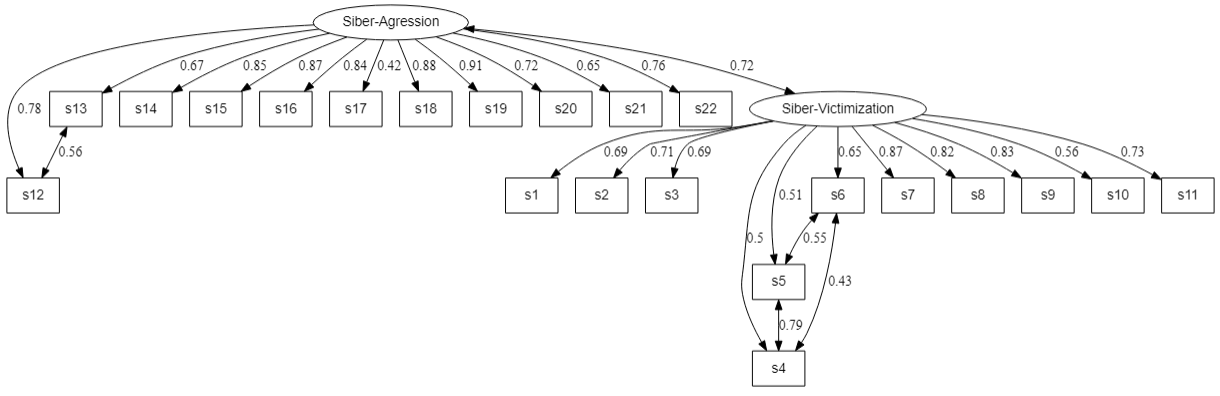

Figure 1. CFA diagram for the modified-two-factor model for ECIPQ.

As reported in Table 3, the standardized factor loadings of all items were statistically significant, ranging from 0.42 to 0.91. Most of them were higher than 0.70.

Table 3. The results of CFA for the two-factor ECIPQ

Subscale	Items	Standardized Factor Loadings	SE	*z*
CYBER-VICTIMIZATION	Item 1	0.688	0.028	24.358
	Item 2	0.711	0.028	25.243
	Item 3	0.692	0.029	23.600
	Item 4	0.502	0.034	14.858
	Item 5	0.513	0.040	12.677
	Item 6	0.646	0.035	18.605
	Item 7	0.866	0.030	28.502
	Item 8	0.824	0.048	17.225
	Item 9	0.829	0.036	22.995
	Item 10	0.562	0.041	13.760
	Item 11	0.733	0.036	20.338
CYBER-AGGRESSION	Item 12	0.783	0.036	22.051
	Item 13	0.667	0.042	15.975
	Item 14	0.850	0.035	24.003
	Item 15	0.869	0.045	19.288
	Item 16	0.838	0.058	14.506
	Item 17	0.423	0.043	9.788
	Item 18	0.875	0.046	19.182
	Item 19	0.913	0.039	23.645
	Item 20	0.722	0.052	13.764
	Item 21	0.652	0.040	16.303
	Item 22	0.757	0.043	17.657

The average variance extracted values for cyber-victim and cyber-aggression were 0.49 and 0.59, respectively, indicating that the ECIPQ has adequate convergent validity (Fornell & Larcker, 1981). We also followed Fornell-Larcker criterion for discriminant validity. The square roots of the average variance extracted values for cyber-victim and cyber-aggression were 0.70 and 0.77. These values were larger than the correlation between the constructs (r=0.51), providing evidence to support the discriminant validity of the ECIPQ (Fornell & Larcker, 1981).

To address the criterion-related validity of the ECIPQ, we examined the degree to which the dimensions of cyberbullying correlate with aggression, self-esteem, and satisfaction with life. Both cyber-victim and cyber-aggression were negatively correlated with self-esteem and satisfaction with life. Although the relationships were statistically significant, their magnitudes were weak. Conversely, the cyber-victim and cyber-aggression showed a positive-modest relationship with aggression. The correlations among all constructs are reported in Table 4.

Table 4. Spearman's rank correlation coefficients among the constructs

Dimensions	1	2	3	4	5
1. Cyber-victimization	---				
2. Cyber-aggression	0.47*	---			
3. Aggression	0.31*	0.39*	---		
4. Self-esteem	-0.09*	-0.12*	-0.26*	---	
5.Satisfaction with Life	-0.14*	-0.09*	-0.23*	0.44*	---

*p < .05

In evaluating the internal consistency of the ECIPQ, Cronbach's Alpha and McDonald's ω were 0.87 and 0.89 for cyber-victim, 0.86 and 0.88 for cyber-aggression. Given that the modified model contains correlated errors, we also report on Raykov's rho composite reliability estimates. The Raykov's rho for cyber-victim and cyber-aggression were 0.79 and 0.80, respectively. Thus, we conclude that the ECIPQ has acceptable internal consistency (Hair et. al, 1998).

DISCUSSION

In this study, we translated the last version of the ECIPQ into Turkish, adapted it for measuring whether the person has experienced cyberbullying as a victim or an aggressor. Preliminary evidence was provided supporting the reliability and validity of the scale for assessing cyber-aggression and cyber-victimization experiences. The Turkish ECIPQ comprised 22 items generated from the original ECIPQ, including 11 items for cyber-aggression and 11 items for cyber-victimization. The aim was to adapt the ECIPQ and to examine its psychometric characteristics in a sample of Turkish college students. Regarding construct validity, the results revealed that the confirmatory factor analysis supported the two-factor structure of the ECIPQ. The factor loadings of the items were found to be statistically significant, showing that the items were good indicators of both cyber-aggression and cyber-victimization. The correlation between the cyber-victim and cyber-aggression was relatively strong, indicating they were related but distinct constructs. Previous studies conducted in different countries supported the two-factor solution for the ECIPQ (Álvarez-Marín et al., 2022). In addition, our findings supported the ECIPQ's reliability as the internal consistency coefficients were high, with Cronbach's Alpha, McDonald's ω and Raykov's rho values above 0.70 for both factors. This finding is also consistent with previous adaptation studies of the ECIPQ that reported adequate internal consistency coefficients (Álvarez-Marín et al., 2022; Del Rey et al., 2015).

The criterion-related validity of the ECIPQ was tested by investigating the relation of cyberbullying with its related measures, such as aggression, self-esteem, and satisfaction with life. As expected, we found a significant positive correlation between cyberbullying and aggression. This is also consistent with the previous studies that the individual who has experienced cyberbullying may tend to be more aggressive (Çetin et al., 2011; Hussain et al., 2023). Additionally, the present study showed that cyberbullying correlated negatively with self-esteem and satisfaction with life. In line with the result of this study, a significant number of research shows that individual who has experienced cyberbullying as either a victim or an aggressor may have lower levels of self-esteem and life satisfaction (Brewer & Kerslake, 2015; Leung et al., 2018, Oriol et al., 2021; Palermiti et al., 2017; Patchin & Hinduja, 2010). These findings demonstrated evidence for the criterion-related validity of the ECIPQ. Thus, we conclude that the ECIPQ is a valid questionnaire for measuring Turkish college students' perceived cyber-aggression and cyber-victimization levels.

Limitations

We used a convenience sample that was limited to the students in their first and second years in college. Future adaptation studies may be conducted with a younger population, such as middle and high school students, to improve generalizability. In addition, we included only aggression, self-esteem, and satisfaction with life as relevant constructs of cyberbullying in establishing evidence for criterion-related validity. The relationships between cyberbullying and its other related variables could further be investigated to test the validity of the ECIPQ. Further research could also investigate the measurement invariance of the ECIPQ across different groups of individuals. Despite these limitations, this study is the first and preliminary attempt to adapt the ECIPQ to Turkish population.

Ethical Approval Procedure: Ethics committee approval was received for this study from the Ethics Committee of Graduate School of Educational Sciences at the University (Approval Date: December 13, 2023. Approval Number: E-77082166-302.08.01-235923).

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