A Meta-Analytic Review of Big Five-personality Trait and Cyberbullying

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Abstract

With the development of science and technology, the internet and communication technology are constantly expanding and affecting people's lives in many areas. The development of internet and communication technology benefits individuals and society in many ways. The ease of use and access to these technologies causes some problems. The most fundamental of these problems is cyberbullying. Cyberbullying is becoming a major global problem affecting many people. Recent research examines the relationship between cyberbullying and the big five personality traits. Research findings indicate different results between personality traits and cyberbullying. In this context, the current research examines the relationship between the big five personality traits and cyberbullying. For this purpose, 12 studies were examined by meta-analysis method in the current study. As a result of the research, the effect sizes between the big five personality traits and cyberbullying were determined. As a result of the findings, it was seen that the personality traits with the strongest effect size with cyberbullying were agreeableness and conscientiousness personality traits. Neuroticism personality trait was found to be positively related to cyberbullying, while openness to experience, extraversion, agreeableness and conscientiousness personality traits were found to be negatively related. The results obtained from the research were analyzed and discussed within the scope of the literature.

Keywords: Cyberbullying, Big five personality traits, Meta-analysis.

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Introduction

Today, with the rapid and effective developments in both science and technology, the speed and impact of internet technology is increasing in parallel. This widespread use affects almost all areas of life of today's people (Festl & Quandt, 2013; Zhao & Yu, 2021). According to We Are Social 2023 statistics, the number of global internet users reached 5.16 billion as of November 15, 2022. This means that 64.4 percent of the world's population is now online. These data show that the total number of global internet users increased by 1.9 percent in the last 12 months. The widespread use of communication technologies with the Internet provides many benefits to today's people in different fields. However, it is also becoming a suitable ground for cyberbullying, one of the cybercrimes that cause discomfort in online environments (Espinosa, 2018; Smith, 2019; Suciu, 2021). Rapid and effective developments in communication technologies cause more bullying behaviors that are not only seen in social environments to be more common in online social communication networks, which people prefer more (Sánchez-Medina et al., 2020). In addition, individuals who refrain from committing bullying acts while communicating in social environments can use the security vulnerabilities of online environments to commit cyberbullying acts (Wolke, 2017). This situation leads to more cyberbullying behaviors in online environments (Zhu, Huang, Evans, & Zhang, 2021). Cyberbullying is widespread today and is increasing year by year (Alonso & Romero, 2017; Kuadli, 2021).

Cyberbullying acts are mostly carried out by individuals or groups against individuals who have difficulty in self-defense in a repetitive manner at certain time intervals. The purpose of these aggressive actions is to consciously and willingly harm the person seen as the victim (Chan et al., 2021; Hinduja & Patchin, 2014; Smith, 2015). Cyberbullying is different from face-to-face bullying in social settings. Cyberbullying acts are exhibited by sending a message, e-mail or commenting on a subject with an online connection. There are types of cyberbullying actions such as humiliating, harassing and intimidating another person (Smith, 2015). Cyberbullying actions can take place among the abrasive and intimidating behaviors that do more harm than the simplest attacks. In addition, individuals can take on the roles of cyber bully or cyber victim in cyber bullying acts, as in bullying acts in social environments (Fegenbush & Olivier, 2009). Cyberbullying is a global concern with approximately 34% of social media users worldwide (Kuadli, 2021; Xu & Zheng, 2022). whether at the simplest level or at a more hurtful level, cyberbullying has serious negative psychological effects on cyber-victims. research has shown that there are four different relational factors in terms of who exhibits cyberbullying acts more. these are psychological, personal, environmental, and socio-cognitive domains (Shaikh et al., 2020), among these domains, the impact of personal and psychological domains on cyberbullying acts seems to be extremely important (Xu & Zheng, 2022).

Numerous past studies have consistently reported that cyberbullying has significant detrimental effects on victims, including loneliness, anxiety, depression, stress, and even suicide (Martínez-Monteagudo et al, 2020). In addition to the results of this research, significant relationships were found between cyberbullying and self-esteem, impulse control, personality traits, dark triad, dark four, and big five personality traits (Pascual-Sánchez, 2021; Xu & Zheng, 2022). Cyberbullying behavior on social media is complicated by the fact that its perpetrators exhibit diverse demographic features and personalities. Previous research has applied Big Five and Dark Tetrad personality traits along with demographic characteristics using symmetric modeling, but obtained mixed and inconsistent results (Hossain et al., 2022).

The role of crime and victimization personality traits in cyberbullying is getting more and more attention (Zhang et al., 2021). Personality and social psychologists are accumulating an empirical knowledge base showing that personality traits can accurately predict some variation in human behavior (Moor & Anderson, 2019). Numerous studies have focused on the personality trait that makes individuals more vulnerable to cyberbullying, documenting that those involved show less empathy compared to those not involved (Kokkinos, Antoniadou, & Markos, 2014). The big five personality traits model covers personality-related traits to a great extent. This inclusiveness will enable to see the relationships between the big five model and cyberbullying research in a broad framework (Xu & Zheng, 2022).

The relationship between personality traits and cyberbullying has been examined by many researchers. Neuroticism, which is defined as emotional instability, and cyberbullying behaviors of individuals have been a subject of curiosity. Similar results have been found in studies. It has been observed that there are significant positive relationships between the cyberbullying levels of individuals with neuroticism personality trait (e.g. Çelik et al., 2012; Eroğlu, 2014; van Geel et al., 2017; Xu and Zheng, 2022; Zhou et al., 2019). However, there is a study in which significant negative correlations were found with cyberbullying (Herpin, 2013). In the context of the literature, significant positive relationships between emotional instability and cyberbullying have been found in general. It also revealed that neuroticism is a core personality trait strongly associated with cyberbullying, crime and victimization (Balakrishnan, Khan & Arabnia, 2020; Garaigordobil, 2017).

Cyberbullying and Openness to Experiences, which is defined as the tendency to be productive, insightful, thoughtful and curious (McCrae and John, 1992) and openness to imagination or culture (McCrae & Costa, 1997) have been the subject of research in many studies. The studies reveal different results from each other. It has been observed that there are significant positive relationships between the cyberbullying levels of individuals with openness to experiences personality trait (e.g. Çelik et al., 2012; Eroğlu, 2014; Herpin, 2013; Zhou et al., 2019). However, there are studies in which significant negative correlations were found with cyberbullying (Kokkinos et al.,

2013; Semerci, 2017; Xu and Zheng, 2022). On the other hand, there are studies in which no relationship was found (Yıldırım, 2021).

The relationship between cyberbullying and Extravertedness, defined as the tendency to be outgoing, sociable, active and interested in other people (McCrae and John, 1992) has been a subject of interest in research. The studies reveal different results from each other. It has been observed that there are significant positive relationships between the cyberbullying levels of individuals with Extravertedness personality traits (Eroğlu, 2014; Kokkinos et al., 2013; Yıldırım, 2021; Zezulka & Seigfried-Spellar, 2016). However, there are also studies in which significant negative relationships between cyberbullying and Extravertedness were found (Çelik et al., 2012; Semerci, 2017; Xu and Zheng, 2022).

The relationship between cyberbullying and Agreeableness, defined as the tendency to be kind, friendly, reliable and trustworthy (McCrae and John, 1992), has been examined in different studies. Similar results are revealed in the studies conducted. It has been observed that there are significant negative relationships between the cyberbullying levels of individuals who mostly have Agreeableness personality trait (e.g. Kokkinos et al., 2013; Semerci, 2017; van Geel et al., 2017; Xu and Zheng, 2022). However, there are also studies in which significant positive relationships were found between cyberbullying and Agreeableness (Eroğlu, 2014; Herpin, 2013).

The relationship between cyberbullying and conscientiousness, defined as the tendency to be responsible, hardworking and organized (McCrae and John, 1992), has been examined in different studies. The studies reveal different results from each other. It has been observed that there are significant negative relationships between the cyberbullying levels of individuals with Conscientiousness personality trait (e.g. Garaigordobil, 2017; Semerci, 2017; Xu and Zheng, 2022; Zezulka & Seigfried-Spellar, 2016). However, there are also studies in which significant positive relationships were found between cyberbullying and conscientiousness (Eroğlu, 2014; Herpin, 2013; Padır, 2015). On the other hand, there is an impartial study that found no relationship between cyberbullying and conscientiousness (Zhou et al., 2019).

Cyberbullying statistics show that it affects a wide range of demographics in different ways. Considering many reflections, an investment in education is by far the most important feature (Kuadli, 2021). The different results found in studies on personality have been the motivation for this study. Because it is important to reveal which personality trait has a higher level of relationship with cyberbullying. In addition, this relationship will shed light on preventive and protective guidance and counseling practices (psychoeducation and group counseling).

Method

In the current study, it was aimed to obtain a general conclusion about the effect size of the relationship between cyberbullying and personality traits (neuroticism, openness to experiences, extravertedness, agreeableness and conscientiousness). For this purpose, a meta-analysis of correlational studies between cyberbullying and personality traits was conducted. Meta-analysis is a quantitative, scientific synthesis of research results. Meta-analyses combine results from heterogeneous populations. Then allows for broader generalizations (Gurevitch et al., 2018). The screening, analysis and reporting of the research data were carried out in accordance with ethical principles. However, ethics committee permission was not obtained since the research did not involve experimental studies or studies on humans and animals.

Literature Review

In this meta-analysis research, Google Scholar, Web of Science, Science direct, and Proquest databases were used to identify studies examining the relationship between cyberbullying and the big five personality traits. The studies conducted in the last 10 years (2012- 2022) were examined as the year criterion. The research was conducted between January and February 2023.

Inclusion Criteria

While searching, the phrases "cyberbullying", "being a cyberbully" were each associated with the words "personality traits" "big five" and "five factor personality traits", and a search was conducted to find studies examining the relationships between cyberbullying and the five major personality traits. In addition, the advanced scanning features of electronic databases were used to search for keywords in titles, keywords or abstracts. At the end of the screening process, a total of 51 studies were obtained. Among the studies examined in different databases, those that were the same and repeated were not included in the number of 51. The 51 studies were reviewed for the presence of correlation coefficients between the five factor personality traits and cyberbullying. In addition, 12 studies were included in the analysis after excluding the studies examining Hexoco personality traits different from the dark triad, dark tetrad and the five factors.

Coding of Studies

A coding form was prepared to determine the criteria for the studies to be included in the meta-analysis. The information in the coding form is as follows: five factor personality traits related to cyberbullying, study name, author, correlation values, sample size, characteristics of the participants, type of publication, year of publication, measurement tools used. Each study was recorded using the coding form prepared. The validity of the studies included in the meta-analysis is an important determinant of the validity of the meta-analysis study (Petitti, 2000).

Data Analysis

In the study, the separate and combined effect size of each study included in the meta-analysis was calculated, control of publication bias and homogeneity test were performed. Analyses were performed using Comprehensive Meta-Analysis software. The results of the study were evaluated according to the random effects model. Since each study included in the meta-analysis has an independent sample, the random effects model is recommended in the field of social sciences (Cumming, 2013; Lipsey & Wilson, 2001). The heterogeneity test of the research was performed with Q statistic and I^2 statistic. Begg and Mazumdar rank correlations test was used to control for publication bias.

Findings

General Characteristics of the Studies Analyzed in the Research

The studies examined with the meta-analysis method in the research consist of theses and articles. The years in which the studies were conducted vary between 2012 and 2022. 42% of the studies were conducted with undergraduate students, 33% with high school students, 17% with middle school students and 8% with individuals between the ages of 19-73. 67% of the studies included in the research were articles and 33% were theses.

Consequences of Publication Bias

Begg and Mazumdar rank correlations test was conducted to examine the publication bias of the study. A value of p>.05 for Begg and Mazumdar rank correlation indicates the absence of publication bias. As a result of the Begg and Mazumdar rank correlation test, the p value was 0.11 for neuroticism, 0.27 for openness to experiences, 0.33 for extravertedness, 0.49 for agreeableness, and 0.41 for conscientiousness. A p value greater than 0.05 indicates that there is no publication bias (Peng et al., 2018).

Effect Size Results

The number of independent correlations (k), sample size (N), effect sizes (r) and homogeneity test results of the relationship between personality traits and cyberbullying examined in the study are given in Table 1.

Cohen et al. (2007) interpreted effect sizes as $r < .10$ very weak, $,10 \leq r < .30$ weak, $,30 \leq r < .50$ moderate, $,50 \leq r < .80$ strong, $r \geq .80$ very strong. If the Q value in the Heterogeneity Test exceeds the value corresponding to the degree of freedom (df) in the chi-square table, it means that the studies show heterogeneous distribution (Higgins & Thompson, 2002). The I^2 value is related to the

percentage of variance explained by existing studies and a value above 50% is interpreted as a heterogeneous distribution of studies (Petiti, 2000).

As seen in Table 1, as a result of the meta-analysis, an effect size of 0.08 was obtained between cyberbullying and Neuroticism, -0.02 between Openness to experiences, -0.02 between Extravertedness, -0.13 between digital Agreeableness and -0.11 between Conscientiousness. As a result of the findings, it was determined that the personality traits with the strongest effect size with cyberbullying were Agreeableness and Conscientiousness personality traits. Both personality traits were found to have a weak negative effect size. Extravertedness and Openness to experiences personality traits were found to have a very weak negative effect size with cyberbullying. Cyberbullying and Neuroticism personality trait had a very weak positive effect size. The Q value and I^2 values obtained as a result of the analysis show that the studies examined in the research have a heterogeneous distribution. All I^2 values were found to have a high effect size. These values are openness to experience (I^2 = 79%), extraversion (I^2 = 84%), neuroticism (I^2 = 87%), conscientiousness (I^2 = 90%) and agreeableness (I^2 = 93%). These values are sufficient explanatory variance levels to understand effect sizes.

Table 1. Effect size and homogeneity test results

Cyberbullying	k	N	R	p	95%C.I	Q	I^2 (%)
Neuroticism	12	10166	0.08	0.01	[0.02, 0,14]	89.44	87.70
Openness to experiences	12	10166	-0.02	0.48	[-0.06, 0,03]	54.17	79.69
Extravertedness	12	10166	-0.01	0.77	[-0.06, 0.04]	69.96	84.27
Agreeableness	12	10166	-0.13	0.00	[-0.21, 0.05]	163.97	93.29
Conscientiousness	12	10166	-0.11	0.00	[-0.18, -0.05]	110.48	90.04

Discussion and Conclusion

In this study, a meta-analysis was conducted to quantitatively summarize the studies examining the relationship between five factor personality traits and cyberbullying. Results of the meta-analysis in which 12 studies were included, shows that neuroticism, agreeableness and conscientiousness sub-dimensions of the five major personality traits were significantly associated with cyberbullying. On the other hand, no significant relationship was found between openness to experience and extraversion sub-dimensions. As a result of the findings obtained in this meta-analysis, it was determined that the greatest effect was found between cyberbullying and agreeableness personality trait. However, the smallest effect size was found between cyberbullying and neuroticism personality trait. The results show that personality traits are associated with cyberbullying.

As a result of the meta-analysis study, it was determined that there was a weak negative significant effect between agreeableness personality trait and cyberbullying. This finding suggests that

cyberbullying behaviors are less likely to occur for individuals with higher levels of agreeableness. A negative relationship between agreeableness and cyberbullying is supported by other research findings in the literature (Garaigordobil, 2017; Koban et al., 2018; Kokkinos et al., 2013; Padır, 2015; Semerci, 2017; van Geel et al., 2017; Xu and Zheng, 2022). However, although the findings are less, there are studies that have a positive correlation between the agreeableness personality trait and cyberbullying (Eroğlu, 2014; Herpin, 2013). Individuals with high agreeableness personality traits are defined as compassionate, tolerant and sensitive. On the other hand, individuals with low levels of agreeableness personality trait are considered to be vindictive, arrogant, stubborn, competitive, intractable, and difficult to reconcile (Bacanlı et al., 2009; Costa & McCrae, 1995). The negative effects (e.g., the possibility of suicidal ideation and exhibiting high levels of anxiety, depression, and stress) of cyberbullying behaviors on individuals are known (Bourassa, 2012; Hinduja & Patchin, 2014; Martínez-Monteagudo et al., 2020). In this context, it can be evaluated that individuals with more agreeableness personality traits are less likely to exhibit cyberbullying behaviors because they are more sensitive to negative effects on others.

As a result of the meta-analysis, it was determined that there was a weak negative significant effect between responsibility personality trait and cyberbullying. This finding indicates that cyberbullying behaviors are observed less in individuals with higher levels of responsibility. A significant negative relationship between responsibility personality trait and cyberbullying is supported by other research findings in the literature (Çelik et al., 2012; Kokkinos et al., 2013; Padır, 2015; van Geel et al., 2017; Xu & Zheng, 2022; Zezulka & Seigfried-Spellar, 2016). On the other hand, there are a small number of studies that have a positive correlation between responsibility personality trait and cyberbullying (Eroğlu, 2014; Herpin, 2013). However, there is also a study that could not find a relationship between the responsibility personality trait and cyberbullying actions (Zhou et al., 2019). The tendencies of individuals with responsibility personality trait to be responsible, careful, hardworking and organized are reflected in their interpersonal relationships (Bacanlı et al., 2009; Costa & McCrae, 1995; McCrae & John 1992). Being more careful and organized in online interpersonal relationships contributes to less cyberbullying.

As a result of the study, it was seen that the smallest effect size was between neuroticism personality trait and cyberbullying. A very weak positive significant effect was found between neuroticism personality trait and cyberbullying. This finding indicates that cyberbullying behaviors are more likely to be observed in individuals with higher levels of neuroticism. A significant positive relationship between neuroticism personality trait and cyberbullying is supported by other research findings in the literature (Çelik et al., 2012; Eroğlu, 2014; Garaigordobil, 2017; Kokkinos et al., 2013; Xu & Zheng, 2022 Zezulka & Seigfried-Spellar, 2016; Zhou et al., 2019).

However, although it is less common, there are research that has a negative correlation between neuroticism personality trait and cyberbullying (Herpin, 2013). The tendency of individuals with neuroticism personality traits to be impatient, restless, depressed, fearful, anxious and sensitive to threats (Bacanlı et al., 2009; Costa & McCrae, 1995; McCrae & John 1992) is reflected in their relationships with others. Anxiety, depressive and impatient attitudes in cyber interpersonal relationships pave the way for cyberbullying behaviors.

As a result of the meta-analysis study, it was determined that there was a very weak negative and insignificant effect between openness to experience personality trait and cyberbullying. This finding indicates that cyberbullying behaviors are very weakly predicted in individuals with openness to experience personality trait. A negative relationship between openness to experience personality trait and cyberbullying is supported by other research findings in the literature (Kokkinos et al., 2013; Padır, 2015; Semerci, 2017; Xu & Zheng, 2022). However, there are also studies with a positive correlation between openness to experience personality trait and cyberbullying (Eroğlu, 2014; Herpin, 2013; Zezulka & Seigfried-Spellar, 2016; Zhou et al., 2019). As a result of the studies examined in the meta-analysis, an insignificant relationship was observed. Individuals with openness to experience personality trait tend to be understanding, thoughtful, open to new relationships and curious (Bacanlı et al., 2009; Costa & McCrae, 1995; McCrae & John 1992).

The last finding of the study is that there is a very weak negative and insignificant effect between extraversion personality trait and cyberbullying. This finding indicates that cyberbullying behaviors are very weakly predicted in individuals with extraversion personality trait. A negative relationship between extraversion personality trait and cyberbullying is supported by other research findings in the literature (Çelik et al., 2012; Kokkinos et al., 2013; Semerci, 2017; Xu and Zheng, 2022). On the other hand, there are studies with a positive correlation between extraversion personality trait and cyberbullying (Eroğlu, 2014; Yıldırım, 2021; Zezulka & Seigfried-Spellar, 2016). Individuals with extraversion personality trait tend to be cheerful, sociable, attention-grabbing, active and interested in other people (Bacanlı et al., 2009; Costa & McCrae, 1995; McCrae & John 1992).

As a result of the meta-analysis, a weak effect was found between the personality traits of agreeableness and conscientiousness and cyberbullying, and a very weak effect was found with neuroticism. On the other hand, no significant effect was found between openness to experience and extraversion personality traits and cyberbullying. It is important to carry out group guidance studies on responsibility and compliance in preventive and protective guidance and psychological counseling practices. Meta-analysis study has some limitations. First, 12 studies were included in this study. Cyberbullying and five-factor personality traits are limited to the measurement features of the scales expressed in the research. In order to reveal the relationship between cyberbullying and personality traits, meta-analysis studies including other personality traits can be done. On the other hand, different

results were obtained between personality traits and cyberbullying in the studies examined in this study. Qualitative research can be conducted to contribute to the relationship between both variables.

Policy Implications

Cyberbullying behaviours have some negative effects on victims. When the literature is examined, it is seen that the most important of these negative effects are loneliness, anxiety, depression, stress and suicide (Martínez-Monteagudo et al., 2020). It is important to prevent these situations that negatively affect students' academic, social and emotional development. The findings of this study are beneficial for preventive and protective guidance and psychological counselling psychoeducation. Because the role of personality traits of individuals who exhibit cyberbullying behaviours in creating crime and victimisation is attracting more and more attention (Zhang et al., 2021). Therefore, awareness of students' personality traits may serve as a buffer in preventing cyber behaviours. As a result of the analysis, there are two important findings of this study. Firstly, it was determined that the personality traits with the strongest effect size with cyberbullying are Agreeableness and Conscientiousness personality traits. Secondly, it is seen that neuroticism personality trait and cyberbullying are positively related. In educational activities, information and counselling services can be provided to students with high neurotic personality traits. In addition, psychoeducational activities can be carried out to support students' agreeableness and conscientiousness personality traits. Thus, students' exhibiting cyberbullying behaviours can be reduced. As a result, the findings of this study will contribute to educational policy planning studies.

Conflict of Interest

No potential competing interest was reported by the author.

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Ethical Statement

The meta-analysis studies are exempt from ethics approval because data was retrieved and synthesized from already published studies.

Credit Author Statement

The author confirms that she had all responsibilities for the following: conceptualization of the study and design, data collection, data analysis and interpretation of the findings, and preparation of the manuscript.

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