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CYBERBULLYING AND AUTISTIC TRAITS ACROSS STEM AND NON-STEM PROFESSIONS

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Abstract. Autistic traits occur in the general population and are often linked with a preference for STEM fields. These individuals may also be more vulnerable to cyberbullying. The aim of the study was to determine whether participants engaged in STEM—Science, Technology, Engineering, and Mathematics—occupations and those not engaged in these fields differ regarding cyberbullying and the presence of autistic traits. The study included 206 participants, of whom 92 belonged to the subgroup engaged in STEM occupations (44.7%), and 114 belonged to the subgroup engaged in other occupations (55.3%). Data were collected on participants' experience of/involvement in cyberbullying, cyber victimization, and the presence of autistic traits. Our study found that individuals engaged in STEM occupations are more often both victims and perpetrators of cyberbullying, and have higher autistic traits than individuals in other occupations. Individuals with autistic traits are more frequently victims of cyberbullying ($r_s = .18$, $p = .01$). In the subgroup not engaged in STEM occupations, females ($U = 948.50$, $p = .01$) and participants aged 25–39 years ($H = 9.20$, $df = 3$, $p = .03$) are more often victims of cyberbullying, whereas males are more often perpetrators of cyberbullying ($U = 537.00$, $p < .001$). Males not engaged in STEM occupations have a higher degree of autistic traits compared to females ($U = 783.00$, $p = .009$). In conclusion, we highlight the limitations of the conducted research and provide recommendations for future researchers in this field.

Introduction

The autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by deficits in social communication and social interaction, as well as the presence of restricted and repetitive patterns of interests, activities, and behaviors (American Psychiatric Association, 2013). In order to receive a diagnosis of ASD, an individual must meet all of these criteria; however, certain traits associated with ASD can also be present in individuals from the general population (Happé & Ronald, 2008; Constantino, 2011; Baron-Cohen et al., 2014). Research indicates that autistic traits are more commonly observed among individuals who are biologically related to people with ASD (Bishop et al., 2004; Constantino et al., 2006). These characteristics tend to occur more frequently in males (Baron-Cohen et al., 2001; Constantino & Todd, 2003; Hoekstra et al., 2007; Fombonne, 2009; Ruzich et al., 2015a), and individuals who exhibit such traits are more likely to have children diagnosed with ASD (Constantino & Todd, 2005).

Autistic traits, which may also be present in individuals from the general population, most commonly manifest as difficulties in socialization (Dymond et al., 2017). In addition to socialization challenges, individuals with autistic traits may also experience sensory hypersensitivity to various stimuli from the external environment (Robertson & Simmons, 2013).

Individuals with autistic traits most commonly gravitate toward careers in the fields of Science, Technology, Engineering, and Mathematics (STEM) (Baron-Cohen et al., 2001, 2007; Austin, 2005; Wakabayashi et al., 2006; Hoekstra et al., 2008; Roelfsema et al., 2012; Pisula et al., 2013; Ruzich et al., 2015b; Wei et al., 2013, 2017). It is believed that this preference for STEM careers is linked to a heightened ability for analytical thinking (Baron-Cohen, 2009). There is also a higher prevalence of males among those enrolling in STEM-related academic programs—fields that have been found to attract individuals with more pronounced autistic traits (Ruzich et al., 2015b; Turner et al., 2021). Furthermore, when individuals with autistic traits choose STEM careers, research suggests they tend to achieve greater academic success compared to their peers who pursue careers in other fields (Wei et al., 2014).

Individuals working in STEM fields are more susceptible to cyberbullying due to the significant amount of time they spend on computers (Mishna et al., 2010; Li et al., 2012; Carter & Wilson, 2015; Beyazit et al., 2017). Cyberbullying can be defined as the repeated infliction of harm through text messages, phone calls, emails, the internet, or social media, with the intent to shame, sexually harass, or socially exclude someone (Patchin & Hinduja, 2006; Shariff & Johnny, 2007; Williams & Guerra, 2007; Schrock & Boyd, 2008; Hinduja & Patchin, 2007, 2009). Acts of cyber violence can be carried out through any electronic or digital medium, either by individuals or organized groups (Smith et al., 2008; Tokunaga, 2010). The most common mediums through which cyberbullying occurs include chat rooms, emails, text messages, and social networking platforms (Finn, 2004; Willard, 2004; Raskauskas & Stoltz, 2007; Diamanduros et al., 2008; Smith et al., 2008).

An individual may be a victim of cyberbullying, but they may also be a perpetrator (Twyman et al., 2010). A cyberbullying perpetrator is someone who uses electronic media with the intent to/of deliberately harassing others, while a cyberbullying victim is someone who is harassed or threatened by others via the internet (Hinduja & Patchin, 2007). Individuals who engage in cyberbullying often exhibit behavioral problems and aggressive tendencies outside the online environment as well (Ybarra & Mitchell, 2007). The most significant risk factor for exposure to cyberbullying is the amount of time an individual spends online and on social media during the day (Twyman et al., 2010; Mishna et al., 2012). Some studies (Mishna et al., 2012; Heiman et al., 2015) have found that females are more frequently both victims and perpetrators of cyberbullying, while other research does not support gender-based differences (Hinduja & Patchin, 2007). Cyberbullying is most prevalent during adolescence (Mishna et al., 2012), and is also common among individuals with autistic traits, who are more frequently targeted as victims (Jackson et al., 2018).

This study aimed to determine whether individuals engaged in STEM professions differ from those in non-STEM fields in terms of exposure to cyberbullying and the presence of autistic traits.

Methodology

Sample

The study included 206 participants, of whom 92 belonged to the subgroup engaged in STEM professions (44.7%) and 114 participants were involved in other professions (55.3%). The structure of the subsamples is presented in Table 1.

Table 1. Sample structure by sociodemographic variables (N = 206)

		STEM occupation affiliation			
		Yes		No	
		N	%	N	%
Gender	Male	49	53.3	27	23.7
	Female	43	46.7	87	76.3
Age group	18–24	26	28.3	15	13.2
	25–39	42	45.7	50	43.9
	40–55	7	7.6	26	22.8
	>55	17	18.5	23	20.2
Average daily time spent on computer	0–3	23	25.0	32	28.1
	4–5	23	25.0	30	26.3
	6–8	21	22.8	34	29.8
	>8	25	27.2	18	15.8
Average daily time spent on social media	0–1	46	50.0	57	50.0
	2–3	35	38.0	41	36.0
	>3	11	12.0	16	14.0

There is a higher number of male participants among those engaged in STEM professions, whereas the non-STEM subgroup includes a greater number of female participants. Regarding the age distribution, the STEM subgroup has more participants from the youngest age group, while the non-STEM subgroup contains a higher number of participants from the oldest age group. Both groups are relatively balanced in terms of the average daily time spent on computers, phones, or social media.

Instruments

To assess the presence of autistic-like traits among the study participants, the Autism-Spectrum Quotient (AQ; Baron-Cohen et al., 2001) was used, designed for individuals aged 16 and above. This self-report instrument is intended for use with individuals of average intellectual functioning. The instrument consists of 50 items grouped into five domains: social skills, attention switching, attention to detail, communication, and imagination. For each item, participants respond using a four-point Likert scale indicating their level of agreement with the statements (1 = strongly agree, 2 = slightly agree, 3 = slightly disagree, 4 = strongly disagree). Responses indicative of autistic-like traits are scored with one point each. The maximum possible score is 50, with higher scores indicating a greater presence of autistic-like characteristics.

The authors of the instrument highlight that any score above 32 points indicates the presence of autistic-like traits in an individual (Baron-Cohen et al.,

2006), whereas more recent studies (Woodbury-Smith et al., 2005) suggest that a score above 26 points is indicative of autistic-like characteristics.

Previous studies have reported the overall reliability of the instrument ranging from questionable to good (α = .67–.81) (Hurst et al., 2007; Hoekstra et al., 2008; Lepage et al., 2009). When reporting the reliability of the instrument, the original authors (Baron-Cohen et al., 2001) evaluated only the reliability of individual subscales and found that the social skills subscale had acceptable reliability (α = .77), while the attention switching (α = .67), attention to detail (α = .63), communication (α = .65), and imagination (α = .65) subscales showed questionable reliability. Other researchers (Hurst et al., 2007; Hoekstra et al., 2008; Lepage et al., 2009) examining the reliability of these subscales in their studies found the social skills subscale reliability ranged from questionable to acceptable (α = .64–.75), attention switching ranged from unacceptable to questionable (α = .42–.62), attention to detail ranged from low to questionable (α = .58–.63), communication ranged from unacceptable to acceptable (α = .49–.70), and imagination ranged from unacceptable to low (α = .34–.52). In our study, the overall reliability of the instrument was acceptable, whereas the reliability of the individual subscales, similar to previous studies, ranged from unacceptable to questionable (Table 2). Therefore, statistical analyses were conducted only on the total score of the instrument.

Table 2. Reliability of the autism traits scale and its subscales

Scale or subscale	Number of items	Kronbach α
Autistic traits scale	50	.74
Social skills	10	.68
Attention switching	10	.46
Attention to detail	10	.61
Communication	10	.59
Imagination	10	.38

To assess engagement in cyberbullying and experiences of cyber victimization among participants, the Cyber Bully/Victim Scale (Ayas & Horzum, 2010) was used. The scale consists of 15 items, where participants indicate the presence of experiences related to the statements, reflecting involvement in cyberbullying either as a perpetrator or as a victim. Participants rated their experiences on a five-point Likert scale (0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = always). The items describe events the participants may have experienced, covering domains such as shaming and posting malicious content online (e.g., "Designing a website to harm a person") or sexual cyberbullying (e.g., "Spreading sexual rumors via the internet, social media, or phone"). The maximum possible score is 60, with higher scores indicating greater frequency of involvement in cyberbullying behaviors and cyber victimization. The instrument was translated from English into Serbian using a double-blind back-translation procedure.

During the standardization of the instrument, the original authors (Ayas & Horzum, 2010) reported good reliability for both the cyberbullying perpetration scale (α = .81) and the cyber victimization scale (α = .81). In our study, the reliability of the cyberbullying perpetration scale was also good (α = .84), as was the reliability of the cyber victimization scale (α = .80).

In addition to the aforementioned instruments, socio-demographic data were collected from the participants, including gender, age, affiliation with a STEM profession, daily duration of time spent on computers or phones, and daily time spent on social media.

Research Procedure

The final version of the questionnaire, which included the collection of socio-demographic data as well as the aforementioned instruments, was hosted on the online platform *Google Forms*. The web link was distributed to participants via social media groups they belonged to (*Facebook*, *WhatsApp*, *Viber*), with the researchers contacting their acquaintances and requesting them to complete the questionnaire and share it further with their contacts who fit the targeted participant categories.

Statistical Data Analysis

Data analysis was performed using the SPSS software (*IBM SPSS Statistics 23*). Cronbach's alpha coefficient was used to assess the reliability of the instruments and their subscales. The Shapiro-Wilk test was applied to determine deviations from normality in the distribution of numerical variables. Participants' scores from both subsamples on the applied instruments and their subscales were presented using descriptive statistics. Differences in scores between groups based on dichotomous categorical variables (gender and STEM affiliation) were analysed using the Mann-Whitney U test, while differences based on polytomous categorical variables (age groups, average daily time spent on the computer, and average daily time spent on social media) were assessed using the Kruskal-Wallis test. Spearman's rho correlation analysis was employed to examine the relationships between the applied instruments.

Results

To assess deviations of the empirical distribution of measures from normality in numerical variables, the Shapiro-Wilk test was used. As shown in Table 3, the empirical distribution of measures deviates from a normal distribution for all variables, which implies the use of nonparametric statistical tests for further

data analysis. Additionally, Table 3 presents the distribution of scores achieved by participants from the subsamples on the applied instruments and their subscales.

Table 3. Subsample scores on the applied instruments

Scale and subscale	STEM occupation affiliation								Shapiro-Wilk	
	No (N = 114)				Yes (N = 92)					
	Min	Max	M	SD	Min	Max	M	SD	W	p
Cyberbullying perpetration	0	30	1.32	3.69	0	10	1.49	2.41	.48	< .001
Cyber victimization	0	27	1.57	4.08	0	23	2.18	3.98	.51	< .001
Autistic traits	5	41	15.52	6.25	7	30	16.10	5.15	.96	< .001

Analysis of the descriptive results reveals that individuals engaged in STEM professions are more frequently victims of cyberbullying compared to participants not involved in STEM fields. Additionally, STEM professionals achieve higher average scores on the scale measuring autistic traits than non-STEM participants.

The results of the Mann-Whitney U test indicate that there is no statistically significant difference between participants of different occupational categories in terms of cyberbullying perpetration (U = 4682.50, p = .13) or cyber victimization (U = 4444.50, p = .14). Additionally, no statistically significant difference was found between participants in the STEM group (Mdn = 15.00) and those not in STEM (Mdn = 15.00) regarding the degree of autistic traits (U = 4709.50, p = .21).

The results of the Mann-Whitney U test indicate that there is no statistically significant difference between males and females engaged in STEM professions regarding cyberbullying perpetration (U = 917.00, p = .23). However, in the non-STEM subsample, a statistically significant difference was found between genders (U = 537.00, p < .001), with males engaging in cyberbullying more frequently (N = 27, Mdn = 2.00, IQR = 5) than females (N = 87, Mdn = 0.00, IQR = 0).

Examining participants of different genders from both subsamples, no statistically significant difference was found in cyber victimization experiences between males and females engaged in STEM professions (U = 1029.00, p = .83). However, a statistically significant difference was found between genders in the non-STEM subsample regarding cyber victimization experiences (U = 948.50, p = .01), where females reported more experiences of being victims of cyberbullying (N = 87, Mdn = 1.00, IQR = 1) compared to males (N = 27, Mdn = 0.00, IQR = 2).

The results of the Mann-Whitney U test indicate that there is no statistically significant difference in autistic traits between male and female participants engaged in STEM professions (U = 1018.50, p = .78). However, participants from the non-STEM subsample differ significantly by gender (U = 783.00, p = .009), with males achieving higher scores on the applied instrument, indicating a greater presence of autistic traits (N = 27, Mdn = 18.00, IQR = 10) compared to females (N = 87, Mdn = 14.00, IQR = 6).

Descriptive statistics related to differences between age groups in both subsamples regarding cyberbullying are presented in Table 4.

Table 4. Polytomous categorical variable (age groups) and cyberbullying

Scale	STEM occupation affiliation	Age group	N	Mdn	IQR
Cyberbullying perpetration	Yes	18–24	26	1.00	3
		25–39	42	0.00	2
		40–55	7	0.00	0
		>55	17	0.00	1
	No	18–24	15	0.00	2
		25–39	50	0.00	2
		40–55	26	0.00	0
		>55	23	0.00	1
Cyber victimization	Yes	18–24	26	0.50	4
		25–39	42	1.00	3
		40–55	7	0.00	0
		>55	17	0.00	2
	No	18–24	15	0.00	2
		25–39	50	0.00	2
		40–55	26	0.00	1
		>55	23	0.00	2

The results of the Kruskal-Wallis test indicate that participants of different age groups engaged in STEM professions do not differ significantly in terms of cyberbullying perpetration ($H = 3.33$, $df = 3$, $p = .34$). However, participants from different age groups within this subsample differ significantly in their experiences of cyber victimization ($H = 9.20$, $df = 3$, $p = .03$), with individuals aged 25–39 being the most frequent victims of cyberbullying ($Mdn = 1.00$).

Participants of different age groups who are not engaged in STEM professions do not differ significantly in terms of cyberbullying perpetration ($H = 4.38$, $df = 3$, $p = .22$), nor in experiences of cyber victimization ($H = 6.99$, $df = 3$, $p = .87$).

The results of the Kruskal-Wallis test show that participants of different age groups do not differ significantly in terms of autistic traits when examining the STEM subsample ($H = 6.28$, $df = 3$, $p = .09$), nor when examining the non-STEM subsample ($H = 1.09$, $df = 3$, $p = .78$).

Descriptive statistics related to differences between participants from both subsamples regarding average daily time spent on computers or phones and cyberbullying are presented in Table 5.

Table 5. Polytomous categorical variable (average daily time on computer or phone) and cyberbullying

Scale	STEM occupation affiliation	Average daily time spent on the computer or phone	N	Mdn	IQR
Cyberbullying perpetration	Yes	0–3	23	1.00	3
		4–5	23	0.00	2
		6–8	21	1.00	3
		>9	25	0.00	1
	No	0–3	32	0.00	1
		4–5	30	0.00	1
		6–8	34	0.00	2
		>9	18	0.00	1
Cyber victimization	Yes	0–3	23	0.00	4
		4–5	23	1.00	5
		6–8	21	0.00	1
		>9	25	1.00	4
	No	0–3	32	0.00	2
		4–5	30	0.00	2
		6–8	34	0.00	1
		>9	18	0.00	1

The results of the Kruskal-Wallis test show that participants who spend varying average amounts of time per day on computers or phones and are engaged in STEM professions do not differ significantly in terms of cyberbullying perpetration ($H = 6.22$, $df = 3$, $p = .10$), nor in experiences of cyber victimization ($H = 6.06$, $df = 3$, $p = .11$). The same applies to the non-STEM subsample, where no statistically significant differences were found in cyberbullying perpetration ($H = 1.24$, $df = 3$, $p = .74$) or cyber victimization experiences ($H = 0.18$, $df = 3$, $p = .98$).

Descriptive statistics related to differences between participants from the subsamples based on the average daily time spent on computers or phones, with respect to the presence of autistic traits, are presented in Table 6.

Table 6. Polytomous categorical variable (average daily time on computer or phone) and autistic traits

Scale	STEM occupation affiliation	Average daily time spent on the computer or phone	N	Mdn	IQR
Autistic traits	Yes	0–3	23	14.00	5
		4–5	23	16.00	5
		6–8	21	16.00	7
		>9	25	15.00	10

Autistic traits	No	0–3	32	12.00	7
		4–5	30	15.00	12
		6–8	34	15.50	6
		>9	18	15.50	5

The results of the Kruskal-Wallis test indicate that participants who spend varying amounts of time per day on computers or phones and are engaged in STEM professions do not differ significantly in terms of autistic traits ($H = 2.40$, $df = 3$, $p = .49$), nor do participants not engaged in STEM professions ($H = 5.87$, $df = 3$, $p = .12$).

The results of the Kruskal-Wallis test show that participants from the STEM subsample who spend varying average amounts of time per day on social media do not differ significantly in terms of cyberbullying perpetration ($H = 2.07$, $df = 2$, $p = .36$), nor in experiences of cyber victimization ($H = 2.97$, $df = 2$, $p = .23$). Similarly, examining the non-STEM subsample, no statistically significant differences were found regarding average daily time spent on social media in relation to cyberbullying perpetration ($H = 1.78$, $df = 2$, $p = .41$) or cyber victimization experiences ($H = 0.15$, $df = 2$, $p = .93$).

The results of the Kruskal-Wallis test indicate that participants from the STEM subsample who spend varying amounts of time on social media during the day do not differ significantly in terms of autistic traits ($H = 3.47$, $df = 2$, $p = .18$), nor do participants from the non-STEM subsample ($H = 0.27$, $df = 2$, $p = .88$).

Table 7 presents the results of Spearman's rho correlation analysis between the instruments used in the study.

Table 7. Results of Spearman's rho correlation analysis

	1	2
1. Cyberbullying perpetration		
2. Cyber victimization	.17*	
3. Autistic traits	.11	.18*

Note: * $p < .05$

A statistically significant positive correlation was found between scores on the cyber victimization scale and autistic traits ($r_s = .18$, $p = .01$), indicating that individuals with higher levels of autistic traits are more prone to being victims of cyberbullying. Additionally, a statistically significant positive correlation was identified between scores on the cyberbullying perpetration scale and cyberbullying victimization ($r_s = .17$, $p = .01$), suggesting that individuals who engage in cyberbullying are at greater risk of becoming victims themselves.

Discussion

In our study, no statistically significant differences were found between the subsamples of participants regarding cyberbullying perpetration and cyber victimization. These results contradict previous research, which found that individuals engaged in STEM professions are more susceptible to both perpetrating and experiencing cyberbullying (Mishna et al., 2010; Li et al., 2012; Carter & Wilson, 2015; Beyazit et al., 2017). The absence of significant differences in our study could be attributed to sample-specific factors, contextual influences, or variations in measurement approaches relative to prior research. Regarding individuals not engaged in STEM professions, research indicates that between 10% and 20% of the population have experienced cyberbullying victimization, while between 5% and 15% have perpetrated some form of cyberbullying (Gini & Espelage, 2014).

No statistically significant gender differences were found in the subsample of participants engaged in STEM professions regarding cyberbullying perpetration or cyber victimization. However, in the subsample of participants not involved in STEM professions, it was found that males perpetrate cyberbullying more frequently. At the same time, females are more often victims of cyberbullying, partially confirming our second hypothesis. Similar results were reported by a study where *68%* of females experienced cyber victimization, while the percentage of males was significantly lower (Ševčíková et al., 2015). Additionally, our findings align with studies conducted in various countries, such as Sweden (Görzig & Frumkin, 2013), Spain (Jiménez, 2019), Turkey (Akturk, 2015), and Asian countries (Lee & Shin, 2017). However, considering that our non-STEM subsample has a gender imbalance, with nearly three times as many females, it remains unclear whether the observed gender differences can be attributed to occupation or gender.

No statistically significant differences were found among participants in the STEM subsample regarding cyberbullying perpetration and age. However, participants not engaged in STEM professions aged 25–39 years were the most frequent victims of cyberbullying, partially confirming our second hypothesis, which assumed that participants from the youngest age group would have the most experience with cyberbullying. These results contradict previous research showing that adolescents have significantly more experience of cyberbullying compared to middle-aged or older individuals (Görzig & Frumkin, 2013; Mishna et al., 2012). Our findings are similar to those reported by Zalaquett and Chatters (2014), indicating that cyberbullying also exists in later periods of life, with a prevalence of 19%.

It is considered that differences between age groups regarding the prevalence of cyberbullying result from the amount of time younger participants spend on computers or phones, as well as on social networks (Cho & Yoo, 2017; Chi et al., 2020; Chu et al., 2021). However, in our sample, no differences were found in terms of cyberbullying perpetration or cyber victimization among both subsamples

between participants who spend different amounts of time on computers/phones and social networks. This result is also contrary to previous studies that found the length of time a person spends on a computer or social media positively correlates with the frequency of experiences of cyber victimization, as well as the perpetration of cyberbullying (Görzig & Frumkin, 2013; Best et al., 2014; Lee & Shin, 2017; Paez, 2018; Chi et al., 2020).

We found that individuals with a higher degree of autistic traits are more prone to being victims of cyberbullying. However, the found/this correlation is very low, which we believe is due to the small overall sample size, within which it is expected that an even smaller number will have a higher degree of autistic traits. Adults with social difficulties or limited workplace support are also shown to be more vulnerable to cyberbullying and online harassment in professional contexts (Kowalski et al., 2018).

However, different results were obtained by Lim et al. (2021) in their study. Namely, it was found that individuals with autistic traits are more often perpetrators of cyberbullying, but the authors assume that participants with autistic traits answered the questions honestly, while participants without autistic traits did not give honest answers.

Participants engaged in STEM professions achieved a higher average score on the autistic traits scale compared to participants not engaged in STEM professions, but not to a statistically significant degree. Our results are surprising, considering that many previous studies have found that members of the STEM occupational group tend to score higher on instruments measuring autistic traits (Ruzich et al., 2015b; Greenberg et al., 2018; Richards et al., 2020, 2022; Turner et al., 2021; Griffiths et al., 2022; Josey, 2022).

No statistically significant differences were found in any subsample regarding the degree of presence of autistic traits across age groups or the average time participants spend daily on a computer, phone, or social networks. Regarding gender differences and the presence of autistic traits, our study found no statistically significant gender differences in the subsample of participants engaged in STEM professions. However, in the subsample of participants not engaged in STEM professions, male participants exhibited more autistic traits compared to female participants, which is consistent with previous research (Baron-Cohen et al., 2001; Constantino & Todd, 2003; Hoekstra et al., 2007; Fombonne, 2009; Ruzich et al., 2015a). Research on adults with higher autistic traits shows that men often report more persistent challenges in workplace interactions and teamwork compared to women (Hayward et al., 2018), which aligns with broader findings on gender differences in social functioning among employees.

Conclusion

Based on the results obtained in our study, we conclude that individuals engaged in STEM professions are more frequently both victims and perpetrators of cyberbullying, as well as exhibiting higher levels of autistic traits compared to individuals in other professions. Individuals with autistic traits are more often victims of cyberbullying ($r_s = .18$, $p = .01$), whereas in the subsample of participants not engaged in STEM professions, females ($U = 948.50$, $p = .01$) and participants aged 25–39 years ($H = 9.20$, $df = 3$, $p = .03$) are more often exposed to cyber victimization/victims of cyberbullying, while males are more often perpetrators of cyberbullying ($U = 537.00$, $p < .001$). Males who are not engaged in STEM professions show higher levels of autistic traits compared to females ($U = 783.00$, $p = .009$).

The main limitations of this study include the sample size and the uneven distribution of participants with respect to socio-demographic variables such as gender, age groups, and affiliation with STEM professions. We believe that future research should be conducted on a more representative sample that is more balanced across these variables. Additionally, we recommend implementing studies involving a larger number of adults employed across different sectors to further examine the relationship between autistic traits, professional environments, and cyberbullying experiences.

Although the majority of participants in our sample did not report experiences of cyberbullying, we believe it is essential to raise awareness among employed individuals about the potential consequences of cyberbullying. Organizations should consider developing workplace policies that clearly define and address online harassment, provide confidential reporting mechanisms, and promote a culture of digital responsibility. Employers can also offer training for employees on recognizing, preventing, and appropriately responding to cyberbullying, with special attention to vulnerable groups.

Furthermore, it is essential to educate individuals about methods for reporting cyberbullying incidents they experience, as well as legal regulations relevant to this area. Yao et al. (2019) developed a program capable of successfully detecting various forms of cyberbullying occurring on social media platforms and subsequently providing guidance to individuals on how to respond. We recommend translating such programs into Serbian and aligning their guidelines with national laws concerning high-tech crime.

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Сајбер насиље и аутистичке карактеристике међу запосленима у СТЕМ и другим професијама

Резиме

Ова студија истражује однос између ангажовања у СТЕМ професијама (наука, технологија, инжењерство и математика), укључености у сајбер насиље и присуства аутистичких карактеристика код одраслих особа. У истраживању је учествовало 206 испитаника, подељених у две подгрупе: они који раде у СТЕМ професијама (44,7%) и они који нису запослени у СТЕМ областима (55,3%). Циљ је био да се испита да ли се појединци из СТЕМ области разликују од својих колега из других професија када је реч о искуствима са сајбер насиљем, како у улози жртве, тако и починиоца, као и у изражености аутистичких особина. За мерење аутистичких особина коришћена је Скала за мерење присуства аутистичких карактеристика, док је Скала сајбер насилника/жртве коришћена за процену укључености у сајбер насиље.

Резултати су показали да особе које раде у СТЕМ професијама у просеку имају више аутистичких карактеристика и чешће су и жртве и починиоци сајбер насиља, иако те разлике нису биле статистички значајне у свим поређењима. Разлике међу половима најизраженије су биле у групи испитаника који се не баве СТЕМ занимањима – мушкарци су чешће идентификовани као починиоци сајбер насиља, а жене као жртве. Насупрот томе, у СТЕМ групи разлике међу половима нису биле статистички значајне ни у погледу сајбер насиља, ни у погледу аутистичких особина. Када је реч о узрасту, највише случајева сајбер виктимизације пријавила је група од 25 до 39 година у подузорку оних који се не баве СТЕМ занимањима, што указује на то да сајбер насиље није ограничено само на адолесценте већ се наставља и у одраслом добу. Студија је такође открила малу, али статистички значајну позитивну корелацију између аутистичких особина и доживљене сајбер виктимизације, што указује на то да су особе са израженијим аутистичким карактеристикама донекле рањивије на сајбер насиље. Слично томе, позитивна корелација између вршења

и доживљавања сајбер насиља сугерише циклични образац у којем починиоци често постају и жртве.

Налази овог истраживања делимично су у супротности са претходним истраживањима која углавном извештавају о већој подложности сајбер насиљу код особа у STEM професијама и израженијим разликама међу половима у свим групама. Могући разлози за ове разлике укључују величину узорка и неравномерну расподелу демографских карактеристика попут пола и узраста. Истраживање истиче неколико ограничења, укључујући нерепрезентативан узорак и потребу за даљим студијама са већим и уравнотеженијим популацијама, посебно уз укључивање већег броја адолесцената, који се у литератури идентификују као најрањивија група када је реч о сајбер насиљу.

Кључне речи: сајбер насиље; виктимизација; аутизам; професија.