

## Differences in Social Skills among Cyberbullies, Cybervictims, Cyberbystanders, and Those Not Involved in Cyberbullying

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### Abstract

The purpose of this study was to identify differences in social skills (cooperation, assertion, empathy, self-control) between adolescents involved in cyberbullying (bystanders, bullies, victims) and those not, hypothesizing that adolescents involved in cyberbullying would score lower than those not on social skills ratings. Furthermore, the purpose was to examine whether the relationship between the variables of gender, age, and social skills differed between adolescents involved in cyberbullying and those not. The study included 521 Israeli adolescents, 221 boys and 300 girls, aged 13 to 18 years. Participating students completed the Cyberbullying Questionnaire (Huang & Chou, 2010) and the Gresham and Elliott Social Rating System (1990). Results showed that girls tended to be victims or "bystanders and victims," more than boys. Low social skills scores were found among participants who scored in the top 30% on the Cyberbullying Questionnaire and among adolescents who had high scores on the dimensions of "bystanders and victims," "bystanders and bullies," or "bullies and victims." A similar trend was found for the social skills subscales cooperation, assertion, empathy, and self-control. Social skills were generally higher among girls than among boys. The implications of these findings are discussed in the context of online communication, as well as practical implementations for teachers, parents, and adolescents.

**Keywords** Cyberbullying; Social skills; Adolescents; Bullies-victims; Bystanders

### Introduction

In the last decade, new possibilities of online interaction have emerged as a result of the rapid development of modern communication technologies. Especially since smartphones conquered the market, an increasing number of people have mobile access to the Internet and may remain online around-the-clock [3]. However, these technological developments have also led to less positive aspects, especially among adolescents. The more time adolescents spend utilizing communication technologies, the more likely they are to engage in increasingly aggressive behaviors, such as writing embarrassing rumors or comments about classmates on the Internet, sending a link to materials that are personally abusive, or deliberately excluding someone from an online group [4]. These kinds of behaviors are common on numerous digital platforms, such as Facebook, YouTube, and WhatsApp. Cyberbullying, entailing a systematic abuse of power, can be related to poor social skills in the bully, the victim, and perhaps others, which can affect the aggression seen in the virtual social sphere.

### Cyberbullying

The definition of cyberbullying is based on the definition of bullying formulated by Olweus [5-7] and has been accepted by others [8-13]. Cyberbullying is a severe and acute problem that is on the increase. Nevertheless, measuring the frequency of the act and repetition within cyberbullying is not straightforward: One cyberbullying act may readily "snowball" out of the initial control of the bully or stay in

cyberspace for months or years because of the nature of the technology used [14]. Hinduja and Patchin [15] noted that cyberbullying, which takes place in a virtual space, is a (relatively) new type of harassment that uses applications intended for the Internet, cellular phone, or other technological platforms that enable interpersonal communication. They defined cyberbullying as purposefully causing harm to others in a repetitive manner, using electronic devices.

Cyberbullying entails a systematic abuse of power, which takes place through the use of information and communication technology [14]. Compared to traditional bullying, cyberbullying does not cause direct physical harm and its consequences are less visible, particularly since nasty text messages or e-mails can be easily deleted. It can lead to serious offline consequences [16] such as suicide and clinical symptoms like depression or psychosomatic symptoms [17]. One instance of cyberbullying is enough to generate an immediate snowballing effect that can be unstoppable because it is controlled through technology [14]. Bullying that takes place in cyberspace, in the virtual social sphere, is sometimes much more powerful than the conventional bullying that occurs in and around school, due to the Internet's unique features [1]. One of the reasons for the unleashing of aggressive behaviors towards others, including bullying on the Internet, is the phenomenon of online disinhibition. This refers to a process in which Internet users lose (or experience a lessening of) their normal sense of inhibition, leading them to give free rein to their thoughts and emotions, which they then express with little or no fear of being judged or rejected by others [18,19]. Due to the openness and immediacy of the aggression, the injury is primarily of a mental nature, leaving the victim with deep emotional scars [1].

Another factor that may contribute to cyberbullying is the absence of eye contact between bully and victim afforded by the nature of

cyberspace [18] It has been demonstrated that cyberbullies experience less remorse, concern, and empathy for their victims than do bullies in the physical (non-cyber) sphere [20]. The ability to visually recognize the victim's suffering can curb the bully's continued harassment, whereas in the case of the cyberbully, who is not able to see the victim's suffering, the harassment lasts longer. A study involving 2186 participants found that harassing others caused cyberbullies to feel amused and socially powerful and accepted, although many did feel remorse afterwards [21]. Thus, in most cases, the bully senses that the harassing act has a social impact and thus uses it within his or her particular social context. Another study, which examined cyberbullying among adolescents, found that bullies reported that their main reason for harassing the victim was their dislike for that person. Other reasons reported in that study revealed the existence of a prior negative interaction – whether on- or offline – between bully and victim [22]. It has been shown that the advantages of technology, its accessibility and its integration in everyday life, serve to increase the phenomenon of cyberbullying [23], since any personal communication, photo, or video clip can be made public by sharing it with groups of numerous participants on platforms similar to WhatsApp.

### **Bully-victim-bystander**

It appears, thus, that cyberbullying exists alongside bullying in the physical world and that the two feed on each other: the adolescent who argued with a classmate on the way home from school writes an offensive comment on that classmate's Facebook, which receives positive and enthusiastic responses from others. This paves the way to ongoing bullying, and thus, the next day, the fight that breaks out at school is directly related to the communication that took place in cyberspace. Indeed, a relationship has been identified between textual cyberbullying and face-to-face (FtF) bullying [24]. In addition, the roles that adolescents take on themselves in cases of FtF violence can be the same as the roles they adopt in an online environment [25]. Furthermore, adolescents who bully others online tend to spend more time online and feel more comfortable expressing themselves in an authentic manner in cyberspace [24].

Lindfors et al. [17] examined the effects of cyberbullying on adolescents aged 12 to 18, taking into account four groups of participants in cyberbullying: victim, aggressor, a combination of the two (i.e., alternately fulfilling the role of bully and victim), and cyberbystander. According to these researchers, the phenomenon of cyberbullying cannot be fully understood without addressing all of these groups and their combinations. The novelty introduced by this study was the finding that 13% of the study population reported engaging in cyberbullying; however, only a few participants in the study considered this a worrisome or aggravating event. In other words, despite the fact that adolescents are frequently exposed to cyberbullying, only a very few consider it a serious phenomenon. In addition, the study examined the effect of age and gender on the roles of cyberbully and victim. A negative correlation was found between age and cyberbullying, such that the desire to engage in cyberbullying decreased as the age of the participants increased; hence, the older the age group, the fewer the number of victims of cyberbullying.

### **Cyberbullying, age, and gender**

The research literature is divided on the issue of the effect of gender on cyberbullying. Some studies have found that in cyberspace, boys tended to towards the role of bully more than did girls [7], whereas

girls tended towards the role of victim more than did boys [26]. In contrast, other studies have found no correlation between gender and bullying, indicating that boys and girls take on the role of bully and victim to a similar degree [27,28].

A comprehensive study conducted in 25 countries with more than 25,000 participants found that girls tended to be victims in social cyberspace more than in non-cyberspace social settings [24]. This might be explained by the fact that cyberbullying is similar to the indirect bullying style frequently used by girls in everyday non-cyber interactions [29-31]. Furthermore, another study found that more mature female adolescents tended to be victims of sexual bullying and harassment more than did male adolescents of the same age. In contrast, boys of a younger age (fifth and sixth graders) were more frequently harassed in a sexual manner than were girls of the same age [32]. This typology shows key differences between children and adolescents involved in the various types of cyberbullying. These distinctions suggest differences in social aptitude and skills, but have seldom been studied as such. Therefore, an investigation of differences in adolescents' social skills as related to various types of cyberbullying could lead to applicable insights regarding the phenomenon of cyberbullying.

### **Social skills**

Social skills are defined as a set of learned behaviors intended to achieve predefined goals; they are controlled by rules and shaped by specific environments [2,33]. These skills change according to the particular social context and include cognitive and emotional elements that help to elicit positive social reactions and avoid negative ones. Social aptitude is determined by the behaviors of the individual and their efficacy and contribution to forging age-appropriate social relationships. People with strong social skills are viewed as capable of realizing their goals, and as cooperative, responsible, and caring individuals. In this framework, it is often difficult to provide a single definition of the social skills required for high social aptitude [33]. The term social skills encompasses a wide range of dimensions. Reiter and Bryen [34] noted that the term that describes social aptitude includes skills, abilities, motivation, knowledge, and personal characteristics, all of which contribute to effective social interactions within one's environment.

Problems related to social skills can include deficits in information processing, deficits in social perception, egocentric communication patterns, and difficulties in problem solving [33]. These deficient social skills may remain unchanged over time and even deteriorate over the years if left without the intervention of an external agent; they may be manifested in adjustment problems, social isolation, juvenile delinquency, or mental problems [2,16]. Children with deficits in social skills tend to have low self-esteem and be shy and passive [16,35]. They also find it difficult to integrate socially with their peers and meet socially accepted norms [36].

Studies indicate a direct relationship between lack of social skills and social anxiety, which increases with age [37,38]. Thus, a child who grows up with a high level of social anxiety will have a more difficult time developing new social skills, leading to fewer friendships, which in turn leads to more severe social anxiety, particularly during adolescence. Another reason for lack of social skills is related to the immediate social environment, the peer group or classmates, who – particularly during the teenage years – may be indifferent to the feelings of others; this can result in social distancing and thus become an obstacle to forging relationships with other adolescents. The

outcome of this situation is often social avoidance [37-40]. The acquisition of social skills is not limited to early childhood, but continues on into adolescence. It has been shown that the acquisition of skills such as collaboration, self-expression, empathy, and self-control are essential for efficient social functioning in adolescence. Acquiring these skills enables adolescents to enter into interactions with peers and to avoid undesirable social reactions [41].

Furthermore, a deficiency in social skills could lead to poor information processing, deficient social perceptions, egocentric communication patterns, and difficulties in problem solving [42]. Children with deficient social skills tend to have low self-esteem and are often shy and passive [35]. Likewise, they have difficulty integrating socially among their peers and meeting acceptable social norms [36]. Thus, it appears that children who have difficulty acquiring social skills are vulnerable to being harassed and becoming victims, or conversely are likely to take on the role of bullies, since they have the characteristics of both victim and bully as described in the professional literature.

To summarize, findings from these studies indicate that social competence is inseparable from the skills that an individual needs to acquire in order to function efficiently in society. In the course of our lives we acquire the tools that help us construct valid and efficient social interactions that are accepted by our environment. Adolescents involved in bullying, whether as bullies, victims, or bystanders, may have difficulty acquiring and using social skills, which could in turn lead to the use of harassing behaviors, particularly if the interaction enables a physical and emotional distancing from the victim and his or her reactions.

### Cyberbullying and social skills

A study that reviewed the behavior of youths who engaged in online impersonation, which could be viewed as a form of cyberbullying, found that participants scored low on social skills and self-confidence and demonstrated high levels of social anxiety and aggression [43]. Recent research found a relationship between FtF bullying and difficulty with social skills: in their attempt to identify the main reason that youths in grades 6-8 adopt bullying behaviors, Postigo, González, Mateu, and Montoya [44] considered the factors "inability to adapt at school," "social skills," and "popularity" among peers (belonging to the in-group). Although these three factors had been studied previously, their study added a different perspective by considering their interactions. They found that overall, lack of social skills (the inability to solve problems or monitor emotions, and lack of self-control) combined with inability to adapt might explain FtF bullying or predict aggressive behaviors; however, as they demonstrated in the same study, FtF bullying can also be explained by changes in the adolescent's level of "popularity," which is explained in terms of inability to adapt socially, which in turn depends on the adolescent's level of social skills. Clearly, these findings regarding FtF bullying indicate the need for an in-depth study of the relationship between social skills and cyberbullying.

In summary, there is a great deal of literature describing the characteristics that distinguish between bully and victim, particularly in terms of social skill deficiencies and social adaptability [5,6,44,45]. It seems that the characteristics that describe victims in FtF situations either dissipate or are mitigated in cyberspace, enabling an extroverted and "true self" to emerge, one capable of self-defense. While this suggests a logical connection between cyberbullying and deficient social skills, there has been little research on this subject. The current

study seeks to address the following question: What differences can be found between the social skills of adolescents involved in cyberbullying (as bullies, victims, bystanders) and the social skills of adolescents who interact in cyberspace but are not involved in cyberbullying? The social skills examined were cooperation, assertion, empathy, and self-control.

An additional purpose was to search for differences in social skills according to the gender and age of adolescents involved in cyberbullying and those who are not.

The research hypotheses were as follows:

- 1) Girls will report being victims of cyberbullying more than will boys, while boys will report being bullies in cyberbullying situations more than will girls.
- 2) Junior high school students will report being involved in cyberbullying more than will high school students.
- 3) Social skills will be lower among adolescents involved in cyberbullying than among those who are not.

## Method

### Sample

The sample included 521 Israeli adolescents, 221 boys (42.4%) and 300 girls (57.6%), aged 13 to 18 years ( $M = 15.16$  years,  $SD = 1.36$ ). Of the participants, 323 were junior high school students (62.0%) and 198 were high school students (38.0%). Most came from intact families ( $n = 391$ , 75.0%) ("Living with both parents"), and others mainly had separated/divorced parents ( $n = 100$ , 19.2%). Of the participants, 227 were the oldest children in their families (44.4%), and 162 were the youngest (31.7%).

### Instruments

#### Measurement of cyberbullying

The youths completed a questionnaire on cyberbullying that included two-sections: personal data and cyberbullying.

The first part of the questionnaire, which gathers participants' personal data, served for the examination of some of the study's independent variables: gender and grade level.

The questionnaire is based on Olweus' [5] bullying questionnaire, adapted to address cyberbullying [1]. It was translated into Hebrew by the researchers by back-and-forth translation. This part of the questionnaire included 27 items, to which participants were asked to respond on a 5-point scale (1 = never; 5 = several times a week). Like the original questionnaire, high internal consistencies were found in this study in the three different role perspectives of cyberbullying events: the experiences and attitudes of (a) bystanders, i.e., being aware of cyberbullying experiences (Cronbach's  $\alpha = .88$ ) (Cronbach's  $\alpha = .91$  in the original questionnaire), (b) victims, i.e., victimization experiences (Cronbach's  $\alpha = .99$ ) (Cronbach's  $\alpha = .90$  in the original questionnaire), and (c) bullies, i.e., bullying experiences (Cronbach's  $\alpha = .88$ ) (Cronbach's  $\alpha = .95$  in the original questionnaire).

### Measurement of social skills

The adolescents completed the Social Skills Rating System by Gresham and Elliott [2], translated into Hebrew and then back translated. It consists of 40 items relating to four sub-scales (10 items each): cooperation, assertion, empathy, self-control. Cooperation: works with others, helps others, good communication. Assertion: initiates communication, feels self-confident, takes social responsibility. Empathy: understands others' feelings, listens, shares, gives compliments. Self-control: controls behavior and expression of feelings, reaches for a compromise. Each item is rated on a scale of 0 to 2, the higher the score the more frequent the behavior. Gresham and Elliott [2] demonstrated sufficient internal consistency ( $\alpha = 0.74$ ) in measuring social skills. Acceptable internal consistencies were found in this study: total score  $\alpha = .86$ , cooperation  $\alpha = .75$ , assertion  $\alpha = .64$ , empathy  $\alpha = .72$ , self-control  $\alpha = .60$ .

### Procedure

The questionnaire was distributed via Facebook to individuals in the 13-18 years age group. Individuals who expressed their willingness to participate in the study received online questionnaires asking about their social experience in FtF interactions and on social media platforms. Participants were assured that the information they provided would remain anonymous and confidential.

### Ethical considerations

The current study examined aggressive aspects of human behavior in different environments, therefore requiring a high degree of self-disclosure from the participants. This in turn demanded the maintenance of complete anonymity and confidentiality of all data collected in the study. Presentation of findings relates to subgroups within the population rather than to individual participants. All participants freely volunteered to participate in the study. Furthermore, they received the researchers' contact information in order to obtain additional information, a copy of the results, or additional details within the accepted standards.

### Results

Most participating adolescents reported using the computer every day ( $n = 428, 82.1\%$ ), for about four hours on average ( $M = 3.95$  hours,  $SD = 2.49$ ). They reported using it mainly for communication (email, chat,  $n = 462, 88.7\%$ ), downloading (games, music,  $n = 381, 73.1\%$ ), school purposes ( $n = 318, 61.0\%$ ), information searching ( $n = 300, 57.6\%$ ), and internet games ( $n = 267, 51.2\%$ ). Most adolescents used a cell phone ( $n = 498, 95.6\%$ ) and an internet camera ( $n = 332, 63.7\%$ ) regularly.

### Cyberbullying

Table 1 presents descriptive results for cyberbullying. Mean value for bystanders was the highest ( $M = 1.73$ , range 1-5), with 85% of the adolescents answering positively to at least one item. Mean value for victims was next ( $M = 1.40$ , range 1-5), with 63% of the adolescents answering positively to at least one item. Mean value for bullies was the lowest ( $M = 1.21$ , range 1-5), with 45% of the adolescents answering positively to at least one item. This difference between the three modes of cyberbullying was found significant ( $F(2, 1040) = 223.96, p < .001, \eta^2 = .301$ ). An examination of the distributions revealed that 193 adolescents reported at least one item of both bullying and being a

victim (37.0%), 223 adolescents reported at least one item of both bullying and bystanding (42.8%), and 315 adolescents reported at least one item of both being a victim and bystanding (60.5%).

In order to create a clearer distinction between the categories, we identified only those participants in each category who scored highest, within the top 30% of their category. For the purposes of this study, and as has been done in previous studies [46], the top 30% of each mode of cyberbullying was defined as being involved in that activity.

	M (SD)	At least one item N (%)	Top 30% N (%)
<b>Bystander</b>	1.73 (0.70)	445 (85.4)	163 (31.3)
<b>Victim</b>	1.40 (0.56)	329 (63.1)	157 (30.1)
<b>Bully</b>	1.21 (0.39)	234 (44.9)	137 (26.3)
<b>Bystander and victim</b>	--	315 (60.5)	105 (20.2)
<b>Bystander and bully</b>	--	223 (42.8)	81 (15.5)
<b>Victim and bully</b>	--	193 (37.0)	81 (15.5)

**Table 1:** Descriptive results for cyberbullying (N = 521)

Grade level and gender differences were examined for the continuous scores of cyberbullying, using a MANOVA. The multivariate difference was found significant only for gender ( $F(3, 515) = 5.03, p = .002, \eta^2 = .028$ ), showing that bystanding was higher for girls ( $M = 1.78, SD = 0.74$ ) than for boys ( $M = 1.64, SD = 0.63$ ) [ $F(1, 517) = 4.45, p = .035, \eta^2 = .009$ ]; and that being a victim was higher for girls ( $M = 1.48, SD = 0.63$ ) than for boys ( $M = 1.31, SD = 0.44$ ) [ $F(1, 517) = 8.51, p = .004, \eta^2 = .016$ ], beyond grade level. The gender difference for bullying, the grade level differences, and the grade by gender differences were not significant.

Table 2 describes gender and grade level differences among the top 30% of the adolescents participating in cyberbullying (N = 521). Significance of the difference ( $\chi^2$ ) was calculated proportionately to the gender and age level ratios in the sample.

Results in Table 2 show significant gender differences among the top 30% of adolescents involved in cyberbullying as victims or as both bystanders and victims.

Girls tend to be victims and both bystanders and victims more than boys (taking into consideration the gender proportion in the sample). The distribution of other types of cyberbullying does not differ by gender, and all grade level differences were not found significant.

	Boys N (%)	Girls N (%)	$\chi^{2(1)}$	Junior high N (%)	High school N (%)	$\chi^{2(1)}$

<b>Bystander</b>	62 (28.1)	101 (33.7)	1.27	96 (29.7)	67 (33.8)	0.67
<b>Victim</b>	52 (23.5)	105 (35.0)	5.54*	105 (32.5)	52 (26.3)	1.59
<b>Bully</b>	64 (29.0)	73 (24.3)	1.05	86 (26.6)	51 (25.8)	0.04
<b>Bystander and victim</b>	32 (14.5)	73 (24.3)	6.11*	71 (22.0)	34 (17.2)	1.41
<b>Bystander and bully</b>	34 (15.4)	47 (15.7)	0.01	53 (16.4)	28 (14.1)	0.41
<b>Victim and bully</b>	30 (13.6)	51 (17.0)	0.95	54 (16.7)	27 (13.6)	0.75
*p < .05						

**Table 2:** Gender and grade level differences in cyberbullying among the top 30% (N = 521)

**Social skills by cyberbullying**

Social skills by	Cyberbullying			Gender	Grade level	Cyber b. by gender	Cyber b. by grade level	Cyber b. by gender by grade level
	Top 30% M (SD)	Others M (SD)	F (1,513) (η <sup>2</sup> )					
<b>Bystander</b>	1.17 (.27)	1.21 (.26)	2.91 (.006)	8.51** (.016)	0.09 (.001)	2.63 (.005)	0.27 (.001)	0.07 (.001)
<b>Victim</b>	1.19 (.25)	1.20 (.27)	2.56 (.005)	12.50* (.024)	0.31 (.001)	0.26 (.001)	0.92 (.002)	0.16 (.001)
<b>Bully</b>	1.12 (.27)	1.23 (.26)	16.62* (.031)	10.13* (.019)	0.82 (.002)	0.14 (.001)	2.87 (.006)	0.85 (.002)
<b>Bystander and victim</b>	1.17 (.25)	1.21 (.27)	3.88* (.008)	7.25** (.014)	0.20 (.001)	0.13 (.001)	0.20 (.001)	0.39 (.001)
<b>Bystander and bully</b>	1.10 (.29)	1.22 (.26)	15.77* (.030)	5.75* (.011)	1.70 (.003)	0.16 (.001)	2.46 (.005)	0.11 (.001)
<b>Victim and bully</b>	1.13 (.25)	1.21 (.27)	7.39** (.014)	5.78* (.011)	0.21 (.001)	0.12 (.001)	0.16 (.001)	0.82 (.002)
*p < .05, **p < .01, ***p < .001								

**Table 3:** Means, standard deviations, and F values for the total score of social skills by types of cyberbullying, gender, and grade level (N = 521)

ANOVAs were used to examine the differences in the total score of social skills by the various types of cyberbullying (top 30%), gender, and grade level. Each row in Table 3 represents an ANOVA of the total score of social skills by one type of cyberbullying, gender, grade level, and their interactions. For purposes of brevity, only central results are shown.

Results in the table reveal that adolescents who were in the top 30% of bullies had a lower total mean score for social skills than those not. Likewise, adolescents who were high on both bystanding and being a victim, bystanding and bullying, or bullying and being a victim, had a lower total mean score for social skills than those not.

The main effect for gender was found significant, showing that the total mean score of social skills was higher for girls (M = 1.24, SD = 0.25) than for boys (M = 1.14, SD = 0.28). No differences were found for grade level or for interactions of cyberbullying with gender and grade level.

MANOVAs were used to examine the differences in the four subscale scores of social skills (cooperation, assertion, empathy, self-control) by the various types of cyberbullying (top 30%), gender and grade level. Each MANOVA included the four scores of social skills by one type of cyberbullying, gender, grade level, and their interactions, six analyses total. For purposes of brevity only central results are shown.

	Cyberbullying			Gender	Grade level	Cyber b. by gender	Cyber b. by grade level	Cyber b. by gender by grade level
	Top 30% M (SD)	Others M (SD)	F (1,513) (η <sup>2</sup> )					
<b>Bystander</b>								
Cooperation	1.18 (.38)	1.30 (.35)	8.36** (.016)	1.27 (.002)	0.37 (.001)	1.73 (.003)	0.70 (.001)	0.17 (.001)
Assertion	1.07 (.32)	1.14 (.35)	3.23 (.006)	6.63** (.013)	5.46* (.011)	1.27 (.002)	0.05 (.001)	2.05 (.004)
Empathy	1.43 (.35)	1.44 (.31)	0.37 (.001)	20.14* (.038)	0.75 (.001)	0.95 (.002)	0.41 (.001)	0.80 (.002)
Self-control	0.91 (.32)	0.96 (.32)	2.63 (.005)	0.91 (.002)	0.19 (.001)	6.00* (.012)	1.48 (.003)	0.01 (.001)
<b>Victim</b>								
Cooperation	1.20 (.36)	1.29 (.36)	10.57* (.020)	3.84 (.007)	1.95 (.004)	0.48 (.001)	0.44 (.001)	0.29 (.001)
Assertion	1.11 (.34)	1.12 (.34)	1.78 (.003)	11.00* (.021)	4.61* (.009)	0.97 (.002)	0.03 (.001)	0.13 (.001)

Empathy	1.44 (0.31)	1.43 (0.33)	0.89 (.002)	21.87* ** (.041)	0.95 (.001)	0.06 (.001)	0.05 (.001)	1.38 (.003)
Self-control	0.95 (0.32)	0.94 (0.33)	0.47 (.001)	2.11 (.004)	0.64 (.001)	0.08 (.001)	3.13 (.006)	0.33 (.001)
<b>Bully</b>								
Cooperation	1.11 (0.35)	1.32 (0.34)	34.47* ** (.063)	1.12 (.002)	1.61 (.003)	0.01 (.001)	0.52 (.001)	2.92 (.006)
Assertion	1.04 (0.34)	1.15 (0.33)	9.98** (.019)	5.55* (.011)	6.57* (.013)	0.28 (.001)	0.80 (.002)	0.40 (.001)
Empathy	1.36 (0.37)	1.46 (0.30)	10.17* * (.019)	20.48* ** (.038)	0.03 (.001)	0.18 (.001)	3.22 (.006)	0.10 (.001)
Self-control	0.87 (0.32)	0.97 (0.32)	11.50* ** (.022)	2.93 (.006)	0.37 (.001)	0.31 (.001)	1.66 (.003)	0.40 (.001)
<b>Bystander and victim</b>								
Cooperation	1.16 (0.37)	1.29 (0.35)	11.14* ** (.021)	1.99 (.004)	0.84 (.002)	0.01 (.001)	0.01 (.001)	0.02 (.001)
Assertion	1.08 (0.31)	1.13 (0.35)	2.63 (.005)	5.64* (.011)	3.78** (.013)	0.08 (.001)	0.01 (.001)	0.25 (.001)
Empathy	1.43 (0.33)	1.43 (0.32)	1.36 (.003)	14.49* ** (.027)	0.83 (.002)	0.03 (.001)	0.01 (.001)	4.08* (.008)
Self-control	0.91 (0.29)	0.95 (0.33)	2.58 (.005)	0.56 (.001)	0.81 (.002)	1.55 (.003)	1.52 (.003)	0.02 (.001)

\*p < .05, \*\*p < .01, \*\*\*p < .001

**Table 4:** Means, standard deviations, and F values for subscales of social skills by types of cyberbullying, gender, and grade level (N = 521)

The analyses were found significant for all main effects of cyberbullying [ $F_{\text{bystander}}(4, 510) = 2.48, p = .043, \eta^2 = .019$ ;  $F_{\text{victim}}(4, 510) = 3.11, p = .015, \eta^2 = .024$ ;  $F_{\text{bully}}(4, 510) = 9.34, p < .001, \eta^2 = .068$ ;  $F_{\text{bystander and victim}}(4, 510) = 3.05, p = .017, \eta^2 = .023$ ;  $F_{\text{bystander and bully}}(4, 510) = 6.91, p < .001, \eta^2 = .051$ ;  $F_{\text{victim and bully}}(4, 510) = 5.57, p < .001, \eta^2 = .042$ ].

Analyses were found significant for gender [ $F_{\text{gender}}(4, 514) = 7.51, p < .001, \eta^2 = .055$ ] and grade [ $F_{\text{grade}}(4, 514) = 4.90, p = .003, \eta^2 = .037$ ], but non-significant for any interactions with cyberbullying. Results reveal that the top 30% of bystanders, the top 30% of victims, and the top 30% of adolescents who were both bystanders and victims were lower on cooperation than adolescents who were less involved with cyberbullying as bystanders, victims, or being both a bystander and a victim (respectively). The top 30% of bullies and the top 30% of adolescents who were both bystanders and bullies were lower on all

four dimensions of social skills (cooperation, assertion, empathy, self-control) than adolescents who were less involved with cyberbullying as bullies or as both bystanders and bullies. The top 30% of adolescents who were both victims and bullies were lower on three of the four dimensions of social skills (cooperation, assertion, empathy) than other adolescents who were less involved with cyberbullying as both victims and bullies.

In other words, cooperation was lower for the top 30% of adolescents involved in all types of cyberbullying. Assertion and empathy were lower for the top 30% of bullying adolescents and for the top 30% of those involved with both bullying and bystanding or both bullying and being a victim. Self-control was lower for the top 30% of bullying adolescents, and for the top 30% of those involved with both bullying and bystanding.

Further, assertion was higher for girls (M = 1.16, SD = 0.34) than for boys (M = 1.05, SD = 0.32), and empathy was higher for girls (M = 1.50, SD = 0.28) than for boys (M = 1.34, SD = 0.35). In addition, assertion was higher in junior high school (M = 1.15, SD = 0.34) than in high school (M = 1.06, SD = 0.34). As mentioned above, all interactions were non-significant.

## Discussion

The purpose of this study was to identify differences in social skills (cooperation, assertion, empathy, self-control) between adolescents involved in cyberbullying (bystanders, bullies, victims) and those not, hypothesizing that adolescents involved in cyberbullying would have lower levels of social skills than those not. Furthermore, the purpose was to search for gender and age differences in social skills between adolescents involved with cyberbullying and those not.

The sample included 521 Israeli junior high and high school students, boys and girls. They filled out questionnaires about cyberbullying and social skills. Almost all adolescents (85%) reported at least one instance of cyberbullying where they had been bystanders, about two-thirds reported at least one instance of being victimized by cyberbullying, and almost a half (45%) reported at least one instance of cyberbullying others. Co-occurrence of these phenomena was quite common.

As hypothesized, girls reported being more involved in cyberbullying as victims than boys, while boys reported being more involved with cyberbullying as bullies than girls. Social skills were found to be lower among adolescents involved with cyberbullying than among those not.

## Cyberbullying, age and gender

Grade level (junior high vs. high school) did not differ significantly in terms of the various modes of cyberbullying. An examination of the continuous scores of cyberbullying revealed higher bystanding and victimization scores for girls than for boys. A further examination of the top 30% of adolescents involved in cyberbullying revealed that among them, the percentage of girls who reported being victims or who reported being both a victim and a bystander was higher than the percentage of boys. This finding is in line with the findings of previous studies on this subject, according to which girls had a higher tendency to be the victims of cyberbullying than did boys [26,27].

## Cyberbullying and social skills

Social skills were higher for girls than for boys when considering the total score, assertion, and empathy. In addition, assertion was higher among junior high school students than among high school students.

The total score for social skills was lower for the top 30% of bullies than for others, and was lower for adolescents who had high scores on being both bystanders and victims, bystanders and bullies, or bullies and victims. Examining the dimensions of social skills revealed additional results. Cooperation was lower among the top 30% of adolescents involved in all types of cyberbullying than among those not. Assertion and empathy were lower among the top 30% of bullying adolescents and those who were both bullies and bystanders or both bullies and victims than among those not. Finally, self-control was lower among the top 30% of bullying adolescents and those who were both bullies and bystanders than among those not. Indeed, previous studies have shown that bullies are characterized by being more aggressive than victims. Furthermore, in those studies, the group characterized as having the highest level of aggression was that of bullies-victims [47]. In addition, one of the major differences noted between cyberbullying and school bullying was that in FtF bullying, the bully sees the reactions of the victim, whereas in cyberspace the bully does not have that ability, and therefore cannot develop empathy for the others' suffering, which could lead to the cessation of the bullying [20]. This difference becomes even more important when taking into account the findings of the current study, which indicate that bullies are less empathetic. The findings of a study by Boulton and Smith [48] suggested that in the physical sphere, bullies and victims are less likely to belong to the in-group and more likely to belong to the socially rejected group. It can be concluded that this finding too suggests that bullies' and victims' skills in social communication are limited and, hence, their social skills are weaker as well.

The present study's findings also indicate that adolescents who partook in cyberbullying were found to have less self-control. This finding is doubly important: given that this bullying takes place in cyberspace, which is characterized by disinhibition, the user is more likely to feel empowered to behave in any way he or she pleases, without suffering the penalties typically associated with improper behaviors [49].

In addition, girls were found to have higher social skills than do boys; nevertheless, it was found that girls were also harassed more frequently and reported being victims of bullying more than the boys. This finding can be explained in two ways. The first suggests that social skills, such as empathy and cooperation, contribute to girls not being as involved in bullying as boys, yet these particular skills do not help them avoid becoming victims of bullying. In other words, while having social skills may have prevented the girls from bullying others, it neither precluded nor reduced the frequency of their falling victim to bullying.

A second explanation is that because girls have stronger social skills, they are more sensitive and able to identify social patterns such as bullying, hence they are apt to be aware of and report bullying more often than boys do. In fact, these findings may indicate gaps between boys' and girls' perceptions of bullying (between one's definition of bullying and the experience of being the object of bullying), which may result from differences in social aptitudes; consequently, girls demonstrate a greater sensitivity to scenes of bullying.

A reflection on the study's weaknesses brings to light the selectivity of the sample, which was based on an online questionnaire. Still, this

online assessment seems to be suitable for the examination of cyberbullying, as it enables anonymity and being alone when answering the questions about this sensitive issue.

The current research deals with an important issue, cyberbullying, which is highly relevant nowadays, but it is necessary to further investigate the mechanisms underlying cyberbullying. The overall picture of the high incidence of cyberbullying among adolescents calls for action. First, more research should be conducted in this area. It is a difficult field to study, since the issues under investigation are private, painful, and may involve families as well as outside agencies such as the police, lawyers, social workers, and psychologists. As this was a quantitative study, there is room for further qualitative studies to be conducted in the field, in an attempt to hear directly from the youths about their perceptions regarding their own social skills and their exposure to cases of bullying, to understand what motivates them to bully others, what prevents them from responding when they are in the role of observers, and the type of interactions that led to being the object of bullying. An in-depth case study could attempt to develop a specific and goal-oriented program that could correspond to the needs of adolescents, as evidenced in the field.

Second, there should be formal and informal ways to channel and deal with complaints of cyberbullying. In our opinion, violence and bullying will occur wherever social interaction exists; however, educators and parents have the power to influence how they are dealt with by society. It is vital to raise the awareness of young people regarding the repercussions of cyberbullying, as well as the implications of merely looking on. Educators must develop meaningful dialogue with all those impacted by the phenomena: the victim, the bullies, and the bystanders, providing both support and appropriate punishment. Intervention programs for children and youth must encourage them to open up and disclose any experiences of cyberbullying [50,51]. The professionals and paraprofessionals involving in intervention programs must be ready to be open to "listening" and take action in this area. Apart from the staff running the program, there should be open and ongoing communication with outside agents such as social workers, psychologists and the police.

Third, preventive measures should be taken and all adolescents, whether bullies, victims, or both, should be empowered by enhancing their self-awareness and developing skills that will help them resist bullies and prevent them from becoming victims [52,53]. For some, awareness and assertive skills may be undeveloped, in which case the very first step should be to help them become aware of the fact that they are being bullied and that acts against them are legally prohibited. Teaching them defensive behaviors could assist them in ignoring or ending the abusive interaction (e.g., by reminding them that they could close the browser or chat window at any given time) or inducing them to be pro-active, assertive, and clear about ending the bullying. However, since the findings of the current study show that more research is called for regarding social skills among adolescents involved in bullying, it may not be enough to teach the victims to be more assertive. As suggested in previous studies [46], strengthening the positive social identity of bullies and working on their social traits and competencies, such as helping others or active problem solving, may replace their aggressive behavior. Furthermore, it is important to encourage and reinforce attempts, whether initiated by a victim or an observer, to recruit the help of an adult in cases of bullying.

The implication of this study to the increasing use of cyberspace as the native habitat for youth is that special attention should be paid to the vulnerability of victims and bystanders to incidences of

cyberbullying. Preventative measures can be applied by raising the awareness of adolescents, parents, and teachers to this issue, opening it up for discussion. In this way, rather than either ignoring cases of cyberbullying or carrying out crisis intervention when they occur, adolescents, parents, and teachers can learn how to avoid such situations.

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