



Research article

Normative beliefs about cyberbullying: comparisons of Israeli and U.S. youth



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ABSTRACT

We examined how normative beliefs about cyberbullying influenced the choice of electronic aggression in hypothetical peer-to-peer scenarios. Data was collected from 1097 Israeli and 1196 U.S. students in grades 5th–10th, who completed self-report surveys examining normative beliefs about cyberbullying, aggressive cyberstrategies, face-to-face verbal and relational aggression, and access to electronic devices. Israeli students had higher levels of all aggression measures than U.S. students, but access to electronic devices was similar across the two countries. Normative beliefs about cyberbullying were positively associated with verbal and relational aggression. In Israeli, normative beliefs in boys were higher than girls in 5th and 6th grade, similar in 7th and 8th grade, and then higher again in 9th and 10th grade. In the U.S., boys had higher normative beliefs about cyberbullying than girls, and older students had higher beliefs than younger students. Findings using logistic regression indicated that normative beliefs about cyberbullying were predictive of Cyber-aggression even when taking into account grade, country, gender, access to electronic devices, and face-to-face relational aggression. Cyber-aggressive strategies were more likely to be present at the highest level of normative beliefs. Ways to change student beliefs using a social cognitive perspective are discussed.

1. Introduction

1.1. Definitions and prevalence of cyberbullying

With increased access to technology (Anderson and Jiang, 2018), adolescents now have additional opportunities for perpetrating via cell phones and or computers. Bullying is defined as recurring physical, verbal, or relational acts of aggression perpetrated by one or more youth, and can take place in person or online (Gladden et al., 2014). Bullying estimates vary but, in general, reveal that 19.3%–36.5% of middle and high school students report traditional bullying perpetration, and 10.9%–15.8% of students perpetrate cyberbullying (Kowalski et al., 2012; Kowalski and Limber, 2013; Schneider, O'Donnell, Stueve and Coulter, 2012). The majority of adolescents report access to and use of phones and computers to communicate regularly with peers via messaging applications and social networking sites; 95% of teens report having a smartphone or access to one, and 45% report being online “almost constantly” (Anderson and Jiang, 2018).

When comparing computers with Internet access, the ratio of students to Internet-enabled instructional computers in the U.S. was 3.1 to 1 in

2008 (Nagel, 2010), the percentage of school districts with high-speed broadband increasing from 30% in 2013 to 88% in 2016 (Education Superhighway, 2017). All schools in Israel have computers with Internet access (Bulman and Fairlie, 2016). When we consider home internet use, 80% of U. S. students and 86% of Israel youth have internet access from home (Morales, 2013; Rafaelli et al., 2010). In 2017, 83.4% of households with children owned a computer and 77.2% had an Internet subscription; (Israeli Central Bureau of Statistics, 2017). For cell phones, 66% of U. S. children ages 8–18 (Kaiser Family Foundation, 2010). By 2015 73% of Teens Have Access to a Smartphone; 15% Have Only a Basic Phone (Lenhart, 2015). A more recent survey by CNN (Howard, 2017) found that about 45% of US children ages 10 to 12 have a smartphone with a service plan. According to a 2018 Pew Research Center survey fully 95% of teens have access to a smartphone, and 45% say they are online 'almost constantly.'

While 43% of Israeli children under the age of 14 had smartphones in 2011 (Geocartographic Survey for Walla Business, 2011), in 2015, 72% of children eight years old and over had a smartphone. The overwhelming majority (95.2%) of Israeli households with children have more than one mobile phone (Israeli Central Bureau of Statistics, 2017)

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Home internet access or cell phone ownership, however, is not a prerequisite for cyberbullying. In a study of a lower-income U.S. school, students engaged in cyber activities primarily during the week using school computers or cell phones (Bauman, 2009).

In 2015 online abuse of Israeli children increased, affecting about 79,000 more households than in 2014 (7.6% of households with children). Children were exposed to theft, violence or the threat of violence, sex offense, and online bullying. In 2015 about 65,000 instances of online abuse of children in 17,000 households were registered (Israeli Central Bureau of Statistics, 2017). Several reports have noted a steady decline in the age at which children acquire smartphones that offer Internet access; On average, children get their first smartphone at ten years old (Influence Central, 2016), down from 12 years in 2012. A recent study reported that the mean age of first smartphone acquisition was 7.1 years, which corresponds with the start of elementary school attendance (Herout, 2016). A survey of Israeli children carried out in early 2015 found that children get their first smartphone as early as six years old, and by the time they are eight years old, 72% have a smartphone (Sarid Institute, 2015).

Olenik-Shemesh et al. (2017) report that Cyberbullying exists in Israel among young children: 15.8% of the children reported being cyber-victims, and 31.7% reported knowing cyber-victims. The percentage of girl cyber-victims was higher than that of boys. It was found that children who had been bullied face-to-face were likely to be cyberbullied as well. The findings indicate that it is likely that the increase in internet usage is associated with higher rates of cybervictimization, another way to put it is that given the frequency of internet usage, children are at much higher risk for cybervictimization.

2. Normative beliefs

For this study, Huesmann and Guerra's (1997) definition of normative beliefs will be used: normative beliefs about cyberbullying, are what an individual believes is acceptable versus unacceptable behavior in a particular situation. Huesmann (1988) developed a social information-processing model of aggressive behavior. From this perspective, Huesmann (1998) argued that aggressive behavior, like all behavior, is mediated by cognition and cognitive processes of which normative beliefs are included. This does not mean that normative beliefs cause behavior, but are one factor that influences behaviors.

In this study, our premise is that normative beliefs about cyberbullying, or what an individual believes is acceptable versus unacceptable behavior in a particular situation (Crick et al., 1996; Huesmann and Guerra, 1997), may guide individuals' behavior (Bandura, 1986). For example, children who have high normative beliefs on aggression usually act in a more aggressive manner than those with lower normative beliefs on aggression (Crick et al., 1996; Huesmann and Guerra, 1997; Owusu-Banahene and Amedahe, 2008). Besides, beliefs regarding face-to-face aggression are also related to higher levels of Cyber-aggression in middle and high school students (Pornari and Wood, 2010; Werner et al., 2010; Ang et al., 2011). Some research, however, has examined the relationship between normative beliefs about Cyber-aggression itself and cyber behavior. In middle and high school students, Williams and Guerra (2007) found that higher levels of moral approval of bullying, including internet bullying, were related to higher reports of verbal and internet aggression, though the relationship was weaker for internet aggression. This evidence suggests that such belief systems serve a self-regulatory function, and are important to examine as a starting point for interventions.

3. The social information processing model

The Social Information Processing (SIP) model posits that an individual's behavior derives directly from their interpretation of social situations (Crick and Dodge, 1996; Dodge, 1991). The SIP model

specifically proposes that several cognitive steps take place between a social event and the behavioral response that is enacted in such event, including the assignment of meaning/interpretation of internal and external social cues, the definition of personal and/or social goals to be achieved within the situation, and the search, comparison and choice of the most advantageous behavior option (Crick and Dodge, 1994). Additionally, and according to Fontaine and Dodge (2006), the comparison between various behavior options is based on several criteria, namely the acceptability of the responses, their social and moral value, their expected outcomes, and ones' self-efficacy in performing them.

Younger students often are more disapproving of activities that they are taught are wrong (Crick et al., 1996), and maybe less likely to be involved in electronic bullying (Raskauskas and Stolz, 2007). Bauman (2009), however, found that cyberbullying was highest among middle school students, and declined in high school (Robson and Witenburg, 2013). In terms of gender differences, on survey measures Huesmann and Guerra (1997) have found no gender differences in normative beliefs about face-to-face aggression. Williams and Guerra (2007) found boys showed no differences in electronic aggression. Finally a meta-analysis by Bartlett and Coyne (2014) found that boys showed higher levels of cyberbullying than girls except for mid-adolescence where girls were higher, but it was a small effect size. We think that if a difference is found, boys will be more likely to select cyber-aggressive strategies than girls, as Erdley and Asher (1998) found for face-to-face strategies, though the pattern is by no means clear. Also, offline verbal or relational aggression may be predictive of cyber-aggression (Werner et al., 2010). Regardless, higher levels of normative beliefs about cyberbullying will be a main predictor of cyber-aggressive strategies.

From the above, we draw hypothesis # 1: When grade, country, gender, and face-to-face aggression are taken into account, normative beliefs will still predict the choice of aggressive cyberstrategies, particularly at the highest level of normative beliefs.

Finally, children are greatly influenced by the environments in which they live, and their attitudes and behaviors can be shaped by those environments (Bronfenbrenner, 1977). Research has shown that youth who engage in higher levels of electronic activities also engage in more electronic aggression (Ybarra and Mitchell, 2004).

No research has examined influences on normative beliefs about cyberbullying across these two countries. While there are technological similarities, there may be cultural differences as well (Krispin et al., 1992; Hofstede, Hofstede, & Minkow, 2010). One of the ways to look at cultural differences is through Hofstede's culture difference model (Hofstede, Hofstede, & Minkow, 2010), one of the dimensions which better express the cultural difference between Israel and the US is The dimension of Uncertainty Avoidance which has to do with the way that a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? This ambiguity brings with it anxiety, and different cultures have learned to deal with this anxiety in different ways. Israel is among the stronger uncertainty avoidant countries (81). In these cultures there is an emotional need for rules (even if the rules never seem to work), time is money, people have an inner urge to be busy and work hard, precision and punctuality are the norm, security is an important element in individual motivation. Cultures with a high score on this dimension are often very expressive. Something the Israelis clearly show while talking with their hands, gesticulating, and vocal aggressiveness. While The US scores below average, with a low score of 46, on the Uncertainty Avoidance dimension. As a consequence, the perceived context in which Americans find themselves will impact their behavior more than if the culture would have either scored higher or lower. Thus, this cultural pattern reflects itself as follows: There is a fair degree of acceptance for new ideas, innovative products, and a willingness to try something new or different, whether it pertains to technology, business practices or food. Americans tend to be more tolerant of ideas or opinions from anyone and allow freedom of

expression. At the same time, Americans do not require a lot of rules and are less emotionally expressive than higher-scoring cultures. At the same time, 9/11 has created a lot of fear in American society culminating in the efforts of government to monitor everybody through the NSA and other security organizations.

Another example comes from a study, which found that Israeli children were more assertive than U.S. children in play behavior (Krispin et al., 1992). Other research has shown higher rates of bullying and victimization in Israel than the U.S. for boys but not for girls (Craig et al., 2009). Finally, among college students, Margalit and Mauger (1984) found that Israeli college students indicated they would be more likely to express their anger than Americans. Based on this research, we assume that approval of cyber-aggression, as well as cyber-aggressive strategies, may be higher in Israeli versus U.S. students.

From the above we draw hypothesis # 2: There may be cross-cultural differences in levels of study variables among U.S. and Israeli students. Specifically, normative beliefs about cyberbullying and cyber-aggressive choices in hypothetical scenarios may be higher in Israeli students than in U.S. students.

4. Current study

The focus of this research is to better understand student views about cyberbullying and its influence on cyber behavior among U.S. and Israeli youth. Rather than focus on ‘bullies’ and ‘victims’, the intent is to examine thoughts about the appropriateness of electronic aggression across a broad spectrum of students from different cultures.

In this report, we have chosen to explore cyber-aggression based on a social information processing model (Dodge and Coie, 1987). For example, research has found that most often adolescents who show aggression toward others may lack the ability to clearly read social cues, misinterpret innocuous situations as threatening, and choose aggressive responses to protect themselves (Camodeca et al., 2003; Dodge and Coie, 1987). This model, however, has not been previously examined in relation to cyberbullying. Children who are more likely to approve of aggression have been shown to choose more aggressive strategies in hypothetical scenarios, particularly at the highest level of normative beliefs (Erdley and Asher, 1998). Here we expect to see the same pattern in a cyberbullying context. We will also explore age and gender differences in these patterns. The current study utilized a self-report design to examine relationships between normative beliefs regarding cyberbullying, face-to-face verbal and relational aggressive behavior, and strategies

in response to scenarios involving electronic peer activities in 5th through 10th graders. Grade and gender differences were explored as well.

4.1. Research model

See Figure 1.

4.2. Participants

In the current study cluster sampling methodology was employed. The schools in Israel and the U.S. were chosen, so are little to none socio-economic difference between them. As rural Pennsylvania was a given, in accordance, a rural district in northern Israel was chosen. In the U.S. the school districts were directly approached and asked to participate in the research. In Israel, initial approval was acquired from the ministry of education. In each school the whole grade level participated. In all the schools there were no students who participated in the National School Lunch Program.

U.S. participants included 1196 5th through 10th-grade students (567 males, 624 females, 5 unidentified) from two middle and high schools in rural Western Pennsylvania. Students were primarily Caucasian (85.1%). Israeli participants included 1097 (418 boys, 498 girls, 181 unidentified) students from three rural late elementary, middle, and high schools. The largest ethnic groups proportionally among Israeli youth were Jews (49.6%), Muslims (21.4%), and Druze (19.4%).

The research was approved by the western Galilee College and Westminster College IRB's as well as the Israeli ministry of education and the relevant US school districts.

5. Measures

5.1. Normative beliefs

To assess the individual's normative beliefs about cyberbullying, each participant was given a brief questionnaire that asks how “okay” he/she believes a variety of actions to be based on Erdley and Asher (1998). There were a total of 18 questions, nine which addressed indirect cyberbullying (e.g., ‘Is it okay to write a mean status [on Facebook] about someone without including their name if they made you angry?’) and nine which dealt with direct cyberbullying (e.g., ‘Is it okay to send someone a mean text message if they made you angry?’). Since this survey was created for this study, as a check to see if the surveys were

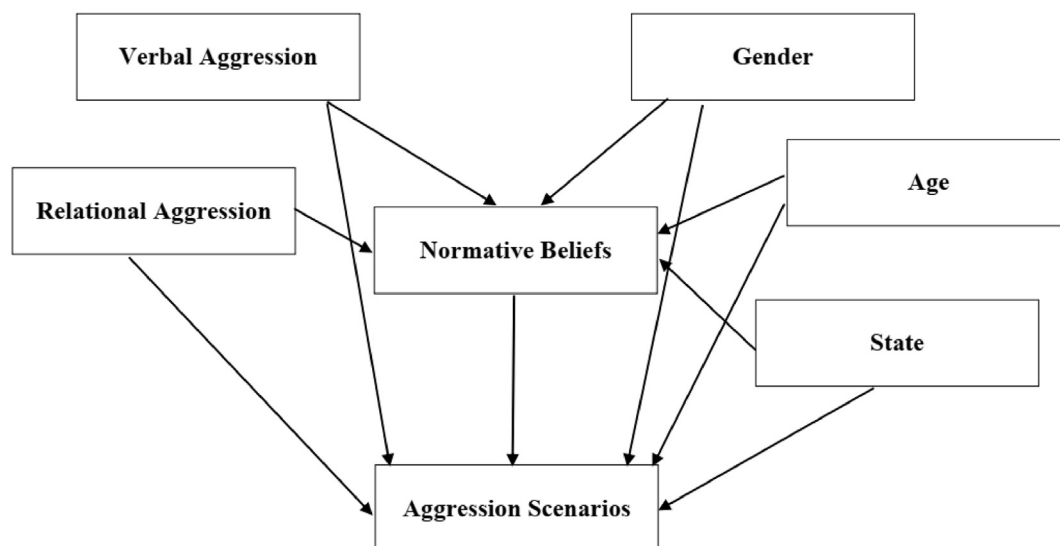


Figure 1. The research model presents the relationship between the Independent variables: Face-to-Face Aggression (Verbal Aggression and Relational Aggression), Socio-demographic variables (Gender, Age, and State) and Aggression Scenarios mediated by Normative Beliefs.

equivalent for both countries, a factor analysis using a principal components analysis with oblique rotation was computed for each sample. Factor analysis showed that there were 17 items that loaded on one factor for both countries, accounting for 51.2% of the variance in U.S. samples, and 41.02% of the variance in Israeli samples. A final mean score was calculated for each participant (Chronbach's alphas: Israel = .91; U.S. = .93).

5.2. Social information processing

This survey assessed how individual participants responded to hypothetical situations (spreading rumors with text messages, taking or sharing embarrassing pictures, dealing with a mean comment using cyber means, social networking issues) regarding cyber activity (based on Dodge and Coie, 1987). Participants were asked to respond to each situation by choosing from four options: (a) avoidant, 'ignore them'; (b) prosocial, 'discuss your problems in person'; (c) indirect cyberbullying, 'post a status update that says something mean about them, without including their name'; and (d) direct cyberbullying, 'send them a mean text message'. Each participant was asked to choose only one answer per scenario. Aggressive responses were electronic, and the focus of this investigation. We combined the aggressive responses, and the proportion of aggressive answers participants chose was calculated (Chronbach's alphas: Israel = .59; US = .64; McDonald's omegas: Israel = 0.51; US = 0.51). Scores ranged from 0 to 100%. The distribution for these scores was highly skewed, similar to other studies (e.g., Williams and Guerra, 2007; Pornari and Wood, 2010). Therefore, as a conservative approach to the analysis, this variable was dichotomized, with participants who did not select any aggressive responses as 0 and participants who chose 25% or more as 1.

5.3. Aggression questionnaire

To assess an individual participant's aggression level, we used items from the Aggression Questionnaire (Little et al., 2003). Two categories of aggression were calculated: overt verbal ('I'm the kind of person who says mean things to others') and relational ('I'm the kind of person who tells my friends to stop liking someone'). All participants rated the statements on a 5-point Likert scale of 1 = *Not at all like me* to 5 = *Almost always like me*. Mean scores were calculated (Chronbach's alphas: Overt verbal: Israel = .79; U.S. = .89; Relational Israel = .90, U.S. = .91).

6. Procedure

Data was collected from all possible students in grades 5th through 10th. For Israeli students, the items were translated from English to Hebrew and Arabic. To ensure translation accuracy, the surveys were retranslated into English. Teachers or trained research assistants administered the surveys and assisted the students as needed. At the beginning of data collection, students were presented with the following definition of cyberbullying "bullying [occurs] through e-mail, instant message, in a chat room on a Web site, or through digital messages or images sent to a cellular phone" (Kowalski et al., 2008, p. 1). To ensure anonymity, the students were asked not to put their names on the questionnaires. Students were informed that they do not have to participate or stop participating at any point. All surveys were administered in the same order: normative beliefs, social information processing, face-to-face aggression, and demographic information.

7. Analysis

Questionnaires were used if participants had completed at least 80% of the questions for a particular survey (Swing and Anderson, 2014), and mean scores were used for analysis. Missing responses were excluded from an analysis by analysis basis. For preliminary analyses related to normative beliefs, ANOVAs with Scheffe posthoc analyses and Pearson

product-moment correlations were calculated. Finally, as predictor variables were skewed towards lower values, a hierarchical logistic regression model was utilized to evaluate the impact of predictor variables on whether or not an aggressive cyber strategy was chosen. Hierarchical logistic regression is used to evaluate categorical responses and has no a priori assumptions about the nature or pattern of the predictors (Tabatchnik and Fidell, 2013). The research model was examined using PROCESS procedure in SPSS.

8. Results

8.1. Descriptive

The means and standard deviations for each variable by country for predictor variables are presented in Table 1. Israeli students versus U.S. students had higher values for verbal aggression, relational aggression, and normative beliefs about cyberbullying. There was no difference in access to electronic devices between the two countries.

To evaluate the relationships between normative beliefs about cyberbullying and face-to-face verbal and relational aggression, Pearson product-moment correlation coefficients were calculated for each relationship. As shown in Table 2, there was a moderate positive correlation between normative beliefs and verbal and relational aggression, respectively, in both countries. In addition, in both countries, overt verbal and relational aggression were highly correlated. Therefore, for the final analysis only relational aggression was used to represent face-to-face aggression.

We expected to find that Israeli students would have higher normative beliefs than United States students and that normative beliefs would increase with grade. A 2 (Country: Israel, United States) x 6 (Grade: 5th-10th) x 2 (Gender: Boys, Girls) between-groups analysis of variance was conducted with normative beliefs as the dependent variable, and effect sizes for these variables are found in Table 3.

For all analyses, the Levene's test for the equality of error variances was significant ($p < .001$), so probabilities for F values were considered significant if they were .01 or higher. Given that there was a 3-way interaction between Country x Grade x Gender, a 6 (Grade: 5th-10th) x 2 (Gender: Boys, Girls) between-groups analysis of variance were conducted for each country, as shown in Table 4.

In Israel, a grade x gender interaction indicated that boys in 5th and 6th grade had higher normative beliefs than girls; girls in 7th and 8th grade were similar to boys, and boys had higher normative beliefs in 9th and 10th grade than girls (see Table 5). In addition, main effects indicated that boys had higher normative beliefs than girls ($M = 1.67$, $SD = .65$ vs. $M = 1.48$, $SD = .58$), and normative beliefs increased with age. In the U.S., boys had higher normative beliefs than girls ($M = 1.45$, $SD = .60$ vs. $M = 1.34$, $SD = .52$), and post-hoc tests indicated that normative beliefs for 5th and 6th grades were lower than normative beliefs for 9th and 10th, but there was no interaction. Overall, for both countries, effect sizes showed that grade had the strongest influence on beliefs.

8.2. Predicting aggressive strategies

Hierarchical logistic regression was used to examine the impact of normative beliefs on the choice of aggressive strategies after other variables were considered. Here we examined the best fit model while testing the prediction that after demographic and face-to-face aggression variables were entered, normative beliefs would still account for the variation in selection of aggressive cyberstrategies. The model that accounted for the greatest proportion of variation is presented. For step one, grade, country, gender, and access to electronic devices were entered as there were predictions for all four variables. The results are presented in Model 1 of Table 6. All four variables were significant in the predicted pattern. The greatest impact was for gender, where males had an odds ratio of 2.34, indicating that they were twice as likely to choose an aggressive strategy than females. For country, Israeli students had an odds ratio of

Table 1. Means and SDs for study predictor variables comparing students from Israel and the United States.

Variables	Israel			United States			
	Mean	SD	n	Mean	SD	n	p
Verbal	1.59	.64	1028	1.39	.60	1177	.001
Relational	1.49	.61	1029	1.42	.51	1179	.001
NB	1.58	.63	1090	1.39	.56	1190	.001
Electronic	3.02	1.08	1014	3.02	.98	1185	NS

Note: All items were on a 5-point scale. Lower scores indicate lower values.

Table 2. Correlations and intercorrelations among face-to-face aggression and normative beliefs comparing students from Israel and the United States.

Variables	Israel			United States		
	1	2	3	1	2	3
1. Verbal	—			—		
2. Relational	.80***	—		.82***	—	
3. NB	.58***	.63***	—	.67***	.63***	—

Note: *** $p < .001$.

2.27, indicating they were over two times more likely to choose an aggressive strategy than U.S. students. Finally, older students and students with higher electronic usage were both 1.26 times more likely to choose an aggressive strategy than younger students.

Next, as shown in Model 2 of Table 6, face-to-face relational aggression was added. Here students who were higher in relational aggression had an odds ratio of 9.69, indicating that they were over nine times more likely to choose an aggressive strategy. Access to electronic devices was no longer a significant predictor.

Finally, normative beliefs about cyberbullying were added in step 3 - (Model 3). The full model containing all of the predictors was statistically significant $\chi^2 (5, N = 1918) = 649.71, p < .001$, indicating that the model was able to distinguish between students who selected versus did not select an aggressive strategy. The model as a whole explained 42.3% (Nagelkerke R squared) of the variance in aggressive strategies, and correctly classified 82.5% of cases. The odds ratio for normative beliefs was 3.68, indicating that after controlling for other variables in the model, students with higher levels of normative beliefs were over three times more likely to select aggressive cyberstrategies. Notably, with normative beliefs in the model, the influence of face-to-face relational aggression was reduced. As a final test of the influence of normative beliefs on cyber-aggressive strategies, NBs were divided into 3 groups using percentiles (<33.33%, 33.33–66.66%, >66.66%). A chi-square test for independence for each country was conducted to examine whether the influence of NBs was higher at higher levels. Findings are shown in Table 7.

There was a clear association between normative belief level and choice of aggressive cyber-strategy in both Israel, $\chi^2 (2, n = 1029) = 160.85, p < .001$, Cramer's $V = .39$, and the United States $\chi^2 (2, n = 1137) = 284.02, p < .001$, Cramer's $V = .50$, indicating a large effect size in both countries. The adjusted residuals showed that at low and medium levels

there was a higher proportion of aggressive responses absent, whereby at the highest level there was a higher proportion of aggressive responses present than expected. Therefore, normative beliefs about cyberbullying have the greatest impact at the highest levels, as expected.

Table 4. Analysis of variance for the influence of grade and gender by country on normative beliefs about cyberbullying.

Source	df	SS	MS	F	p	Partial eta
Israel						
Grade	5	31.82	6.36	18.61	.001	.094
Gender	1	10.65	10.65	31.14	.001	.033
Grade*Gender	5	6.66	1.33	3.89	.002	.021
Error	901	208.12				
United States						
Grade	5	15.10	3.02	9.99	.001	.041
Gender	1	2.61	2.61	8.66	.003	.007
Grade*Gender	5	2.99	.59	1.98	NS	.008
Error	1173	354.41				

Table 5. Means, SDs, and sample sizes for normative beliefs for students from Israel and the United States by age and gender.

Grade	Israel			United States		
	Boys M (SD) n	Girls M (SD) n	Total M (SD)	Boys M (SD) n	Girls M (SD) n	Total M (SD)
5	1.52 (.49) 62	1.25 (.33) 65	1.38 (.44) ^a	1.29 (.49) 111	1.27 (.54) 107	1.28 (.51) ^a
6	1.51 (.56) 70	1.21 (.25) 79	1.35 (.45) ^{a,c}	1.24 (.33) 89	1.24 (.41) 112	1.24 (.38) ^a
7	1.50 (.63) 74	1.46 (.56) 81	1.48 (.59) ^a	1.47 (.59) 94	1.33 (.49) 100	1.40 (.54)
8	1.54 (.55) 76	1.60 (.71) 87	1.57 (.64) ^{a,d}	1.45 (.45) 67	1.32 (.39) 104	1.37 (.42)
9	1.94 (.74) 80	1.65 (.62) 84	1.79 (.69) ^b	1.66 (.80) 116	1.39 (.62) 115	1.53 (.73) ^b
10	2.08 (.65) 56	1.62 (.61) 99	1.79 (.66) ^b	1.55 (.61) 87	1.54 (.60) 83	1.54 (.60) ^b

Note. Different subscripts represent statistically significant differences.

Table 3. Analysis of variance for the influence of country, grade, and gender on normative beliefs about cyberbullying.

Source	df	SS	MS	F	p	Partial eta	Observed Power
Country	1	15.62	15.62	48.88	.001	.023	
Grade	5	45.51	9.10	28.49	.001	.064	
Gender	1	12.38	12.38	38.77	.001	.018	
Country*Grade	5	3.72	.74	2.32	NS	.006	0.776
Country * Gender	1	1.91	1.91	5.99	NS	.003	0.755
Grade*Gender	5	3.54	.71	2.22	NS	.005	0.712
Country*Grade*Gender	5	6.03	1.21	3.77	.002	.009	0.866
Error	2074	662.53					

Table 6. Hierarchical logistic regression predicting aggressive electronic strategies using demographic characteristics and face-to-face relational aggression as a control for normative beliefs about cyber-aggression.

Variable	Model 1		Model 2		Model 3	
	B	OR	B	OR	B	OR
Demographic						
Grade	.23***	1.26	.17***	1.18	.12**	1.13
Country	.82***	2.27	.90***	2.45	.73***	2.07
Gender	.85***	2.34	.66***	1.94	.59***	1.81
Electronic	.24***	1.26	.03	1.02	-.02	.98
RA			2.27***	9.69	1.59***	4.94
NB					1.30***	3.68
Nagelkerke pseudo ²		14.1%		36.8%		42.3%
χ^2		91.39, <i>df</i> = 4, <i>p</i> < .0001		549.04, <i>df</i> = 5, <i>p</i> < .0001		645.71, <i>df</i> = 6, <i>p</i> < .0001

Note. Israel = 1, US = 0; Boy = 1, Girl = 0.

***p* < .01.

****p* < .001.

Table 7. Frequency distribution and relative frequencies of choice of cyber-aggressive strategy in relation to level of normative belief (NB) about cyber-aggression, by country.

ACS	Low NB		Medium NB		High NB	
	N	%	N	%	N	%
Israel						
Absent	210	83.7	264	76.1	177	41.1
Present	41	16.3	83	23.9	254	58.9
Total	251	100	347	100	431	100
United States						
Absent	367	95.8	418	89.5	137	47.7
Present	16	4.2	49	10.5	150	52.3
Total	383	100	467	100	287	100

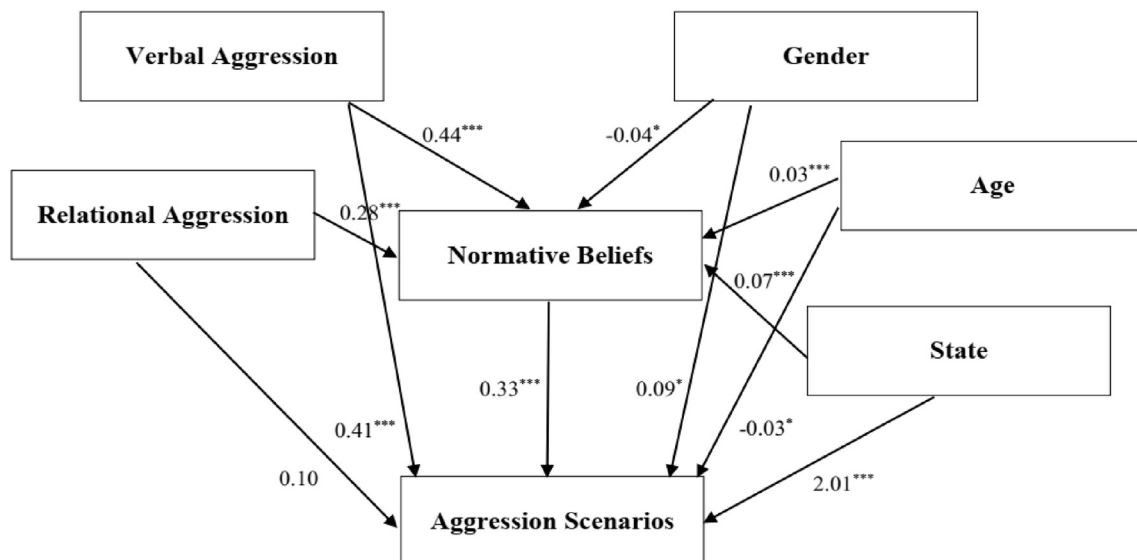
Note. ACS = Aggressive Cyber-strategy.

9. The overall model

The overall model (see Figure 2) was statistically significant, $F_{(6, 1777)} = 487.61$, $p < 0.001$, $R^2 = 0.62$, meaning that the relationship between the Independent variables: Face-to-Face Aggression (Verbal Aggression

and Relational Aggression), Socio-demographic variables (Gender, Age and State) and Aggression Scenarios is mediated by Normative Beliefs. As Figure 2 illustrates, the standardized regression coefficient between the components Face-to-Face Aggression and Normative Beliefs was statistically significant: Verbal Aggression ($b = 0.44$, $t_{(1778)} = 13.97$, $p < 0.001$) and Relational Aggression ($b = 0.28$, $t_{(1778)} = 8.21$, $p < 0.001$). Similarly, the standardized regression coefficient between the Socio-demographic variables and Normative Beliefs was statistically significant as well: Gender ($b = -0.04$, $t_{(1778)} = 2.02$, $p < 0.05$), Age ($b = 0.03$, $t_{(1778)} = 6.18$, $p < 0.001$) and State ($b = 0.07$, $t_{(1778)} = 3.42$, $p < 0.001$). The standardized regression coefficient between Normative Beliefs and Aggression Scenarios was statistically significant ($b = 0.33$, $t_{(1777)} = 6.46$, $p < 0.001$).

The significance of the indirect effect was tested using bootstrapping procedures. Unstandardized indirect effects were computed for each of 10,000 bootstrapped samples, and the 95% confidence interval was computed by determining the indirect effects at the 2.5th and 97.5th percentiles. The bootstrapped unstandardized indirect effect of Normative Beliefs and Aggression Scenarios was .15, and the 95% confidence interval ranged from .08 to .23. This indirect effect was statistically significant. The observed power based on the sample size and the effect size

**Figure 2.** Standardized regression coefficients for the relationship between the Independent variables: Face-to-Face Aggression (Verbal Aggression and Relational Aggression), Socio-demographic variables (Gender, Age and State) and Aggression Scenarios as mediated by Normative Beliefs. **p* < 0.05, ***p* < 0.01, ****p* < 0.001.

of Country, Grade and Gender's effect on Normative Beliefs About Cyberbullying is 0.87 (see Table 3).

10. Discussion

Based on a cross-cultural analysis, our first hypothesis was that normative beliefs about cyberbullying and cyber-aggressive choices in hypothetical scenarios would be higher in Israeli students than in U.S. students, particularly for boys, due to the dimension of uncertainty avoidance (Hofstede et al., 2010), as well as evidence from other studies on bullying and victimization (Craig et al., 2009). For normative beliefs, Israeli students had higher scores than U.S. students, but this effect was moderated by a grade by gender interaction. More specifically, Israeli boys had higher normative beliefs in the 5th and 6th, as well as 9th and 10th grades, but were similar to girls in 7th and 8th grades. In the U.S., boys had higher scores than girls, and normative beliefs increased with age, similar to Crick et al. (1996).

Similar findings by Li et al. (2010) based on different culture values (individualism and collectivism) and aggression among Chinese adolescents found that adolescents' endorsement of collectivism was negatively related to their use of overt and relational aggression whereas positive associations were found between the endorsement of individualism and adolescent aggression while adolescents' conflict level and social status insecurity accounted for a significant part of these associations. For cyber-aggressive choices, both country and gender were the strongest influences, with Israeli males more likely to choose an aggressive strategy, following a similar pattern to normative beliefs. Overall, these findings show at least partial support for our predictions and indicate that culturally sensitive programs may be needed to reduce electronic aggression in schools.

Our second hypothesis was that when grade, country, gender, and face-to-face aggression are taken into account, normative beliefs will still predict the choice of aggressive cyberstrategies, particularly at the highest level of normative beliefs. This hypothesis was also supported. More specifically, higher beliefs about the appropriateness of cyber-aggression were associated with a higher likelihood that students would choose a cyber-aggressive act in peer-to-peer hypothetical scenarios, accounting for 28.2% of the variance in cyber-aggressive scores. Also, similar to previous research (Williams and Guerra, 2007; Wright and Lynn, 2013), the impact of normative beliefs about cyberbullying was greatest at the highest level of normative belief in both Israel and the United States. Therefore, normative beliefs provide a cognitive framework that does not predetermine but may increase the possibility that students will perceive that Cyber-aggression as an appropriate response to challenging peer situations. Indeed, these findings confirm Williams and Guerra's idea that causal pathways (2007) appear to be similar for internet aggression as for physical and verbal aggression. And yet indicate that school interventions that target the roots of beliefs and behaviors would be effective.

It would be interesting to separate our beliefs about direct and indirect forms of cyber-aggression, as shown in Wright and Lynn (2013), which was not possible in our study. Additional cross-cultural work on refining the use of the social information processing scenarios as indicators of peer Cyber-aggression would also be helpful, as students may have different interpretations of the same situations depending on their context. Following students longitudinally would allow us to draw stronger conclusions about whether beliefs can predict electronic behavior over a longer period of time. Finally, examining the use of electronic devices for social communication versus general use (e.g., Werner et al., 2010) might have resulted in stronger findings for electronic usage. Future studies, focusing more on different types of normative beliefs about aggression, such as witnessing cyberbullying, may help to provide more detailed information for interventions (e.g., Doane et al., 2017). Despite these limitations, our findings shed new light on cultural differences and how the role of beliefs influence perceived behaviors.

This study adds needed information on cultural context of beliefs regarding electronic aggression. In summary, normative beliefs about cyberbullying clearly influence intended Cyber-aggression over and above contextual influences such as country, grade, or gender. Expanding research in this field will be an important step in understanding attitudes of adolescents and providing a structure for intervention. Adler (2013), outlines a detailed comprehensive prevention program that can be utilized in any culture, which is one of over 4000 cyber-aggression prevention programs published between 2000-2017 (Gaffney et al., 2019). Although there are cultural, gender, and age effects on normative beliefs about aggression, the findings suggest a measure of universality concerning the effect of exposure to online content, mainly via smartphones. Peled (2018) Point out the gaps that exist between the parent's perception and the child's perception of how the child operates in the online environment and the level of risk he or she is taking. Thus, it is crucial to start the prevention process at the home level at a very young age.

11. Conclusions

The results of this study indicate that normative beliefs increased with age. There is no clear cut difference between boys' and girls' normative beliefs, finding which coincide with Bartlett and Coyne's (2014) meta-analysis. There is a clear association between normative belief level and choice of aggressive cyber-strategy in both Israel and the United States. Normative beliefs about cyberbullying influence intended Cyber-aggression over and above contextual influences such as country, grade, or gender. The model was able to distinguish between students who selected versus did not select an aggressive strategy. Our findings confirm Williams and Guerra's idea that causal pathways (2007) appear to be similar for internet aggression as for physical and verbal aggression. Future research should further explore in what ways uncertainty avoidance influence normative beliefs. As cyber-aggression is a complex problem that cannot be effectively addressed in one or two class periods, a comprehensive effort by parents, educators, law enforcement, and other community resources is needed to proactively educate adolescent students about cyber-aggression and to prevent its occurrence.

Declarations

Author contribution statement

Yehuda Peled, Mandy B. Medvin: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

Efrat Pieterse, Linda Domanski: Conceived and designed the experiments; Performed the experiments.

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Competing interest statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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