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Cyberbullying and its influence on academic, social, and emotional development of undergraduate students

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Abstract

This study investigated the influence of cyberbullying on the academic, social, and emotional development of undergraduate students. Its objective is to provide additional data and understanding of the influence of cyberbullying on various variables affecting undergraduate students. The survey sample consisted of 638 Israeli undergraduate students. The data were collected using the Revised Cyber Bullying Survey, which evaluates the frequency and media used to perpetrate cyberbullying, and the College Adjustment Scales, which evaluate three aspects of development in college students. It was found that 57% of the students had experienced cyberbullying at least once or twice through different types of media. Three variables were found to have significant influences on the research variables: gender, religion and sexual preferences. Correlation analyses were conducted and confirmed significant relationships between cyberbullying, mainly through instant messaging, and the academic, social and emotional development of undergraduate students. Instant messaging (IM) was found to be the most common means of cyberbullying among the students.

The main conclusions are that although cyberbullying existence has been proven, studies of cyberbullying among undergraduate students have not been fully developed. This particular population needs special attention in future research. The results of this study indicate that cyberbullying has an influence on the

academic, social, and emotional development of undergraduate students. Additional Implications of the findings are discussed.

Keywords: Sociology, Psychology, Education

1. Introduction

Cyberbullying is defined as the electronic posting of mean-spirited messages about a person (such as a student) often done anonymously (Merriam-Webster, 2017). Most of the investigations of cyberbullying have been conducted with students in elementary, middle and high school who were between 9 and 18 years old. Those studies focused on examining the prevalence and frequency of cyberbullying. Using “cyberbullying” and “higher-education” as key words in Google scholar (January, 2019) (all in title) yields only twenty one articles. In 2009, 2012 and 2013 one article appeared each year, since 2014 each year there were few publications. Of these articles only seven relates to effect of cyberbullying on the students, thus a gap in the literature exists in that it only minimally reports on studies involving undergraduate students. Given their relationship and access to technology, it is likely that cyberbullying occurs frequently among undergraduates. The purpose of this study is to examine the frequency and media used to perpetrate cyberbullying, as well as the relationship that it has with the academic, social and emotional development of undergraduate students.

Undergraduate students use the Internet for a wide variety of purposes. Those purposes include recreation, such as communicating in online groups or playing games; academics, such as doing assignments, researching scholarships or completing online applications; and practical, such as preparing for job interviews by researching companies. Students also use the Internet for social communication with increasing frequency.

The literature suggests that cyberbullied victims generally manifest psychological problems such as depression, loneliness, low self-esteem, school phobias and social anxiety (Greene, 2003; Juvonen et al., 2003; Akcil, 2018). Moreover, research findings have shown that cyberbullying causes emotional and physiological damage to defenseless victims (Akbulut and Eristi, 2011) as well as psychosocial difficulties including behavior problems (Ybarra and Mitchell, 2007), drinking alcohol (Selkie et al., 2015), smoking, depression, and low commitment to academics (Ybarra and Mitchell, 2007).

Under great emotional stress, victims of cyberbullying are unable to concentrate on their studies, and thus their academic progress is adversely affected (Akcil, 2018). Since the victims are often hurt psychologically, the depressive effect of cyberbullying prevents students from excelling in their studies (Faryadi, 2011). The overall

presence of cyberbullying victimization among undergraduate college students was found to be significantly related to the experience of anxiety, depression, substance abuse, low self-esteem, interpersonal problems, family tensions and academic under-performance (Beebe, 2010).

1.1. Cyberbullying and internet

The Internet has been the most useful technology of modern times, which has enabled entirely new forms of social interaction, activities, and organizing. This has been possible thanks to its basic features such as widespread usability and access. However, it also causes undesirable behaviors that are offensive or threatening to others, such as cyberbullying. This is a relatively new phenomenon.

According to Belsey (2006, p.1), “Cyberbullying involves the use of information and communication technologies such as e-mail, cell-phone and pager text messages, instant messaging, defamatory personal web sites, blogs, online games and defamatory online personal polling web sites, to support deliberate, repeated, and hostile behavior by an individual or group that is intended to harm others.” Characteristics like anonymity, accessibility to electronic communication, and rapid audience spread, result in a limitless number of individuals that can be affected by cyberbullying.

Different studies suggest that undergraduate students’ use of the Internet is more significant and frequent than any other demographic group. A 2014 survey of 1006 participants in the U.S. conducted by the Pew Research Center revealed that 97% of young adults aged from 18 to 29 years use the Internet, email, or access the Internet via a mobile device. Among them, 91% were college students.

1.2. Mediums to perpetrate cyberbullying

The most frequent and common media within which cyberbullying can occur are:

Electronic mail (email): a method of exchanging digital messages from an author to one or more recipients.

Instant messaging: a type of online chat that offers real-time text transmission between two parties.

Chat rooms: a real-time online interaction with strangers with a shared interest or other similar connection.

Text messaging (SMS): the act of composing and sending a brief electronic message between two or more mobile phones.

Social networking sites: a platform to build social networks or social relations among people who share interests, activities, backgrounds or real-life connections.

Web sites: a platform that provides service for personal, commercial, or government purpose.

Studies indicate that undergraduate students are cyberbullied most frequently through email, and least often in chat rooms (Beebe, 2010). Other studies suggest that instant messaging is the most common electronic medium used to perpetrate cyberbullying (Kowalski et al., 2018).

1.3. Types of cyberbullying

Watts et al. (2017) Describe 7 types of cyberbullying: flaming, online harassment, cyberstalking, denigration, masquerading, trickery and outing, and exclusion. Flaming involves sending angry, rude, or vulgar messages via text or email about a person either to that person privately or to an online group.

Harassment involves repeatedly sending offensive messages, and cyberstalking moves harassment online, with the offender sending threatening messages to his or her victim. Denigration occurs when the cyberbully sends untrue or hurtful messages about a person to others. Masquerading takes elements of harassment and denigration where the cyberbully pretends to be someone else and sends or posts threatening or harmful information about one person to other people. Trickery and outing occur when the cyberbully tricks an individual into providing embarrassing, private, or sensitive information and posts or sends the information for others to view. Exclusion is deliberately leaving individuals out of an online group, thereby automatically stigmatizing the excluded individuals.

Additional types of cyberbullying are: **Fraping** - where a person accesses the victim's social media account and impersonates them in an attempt to be funny or to ruin their reputation. **Dissing** - share or post cruel information online to ruin one's reputation or friendships with others. **Trolling** - is insulting an individual online to provoke them enough to get a response. **Catfishing** - steals one's online identity to re-creates social networking profiles for deceptive purposes. Such as signing up for services in the victim's name so that the victim receives emails or other offers for potentially embarrassing things such as gay-rights newsletters or incontinence treatment. **Phishing** - a tactic that requires tricking, persuading or manipulating the target into revealing personal and/or financial information about themselves and/or their loved ones. **Stalking** - Online stalking when a person shares her personal information publicly through social networking websites. With this information, stalkers can send them personal messages, send mysterious gifts to someone's home address and more. **Blackmail** - Anonymous e-mails, phone-calls and private messages are often done to a person who bear secrets. **Photographs & video** - Threaten to share them publicly unless the victim complies with a particular demand; Distribute them via text or email, making it impossible for the victim to

control who sees the picture; Publish the pictures on the Internet for anyone to view. **Shunning** - persistently avoid, ignore, or reject someone mainly from participating in social networks. **Sexting** - send sexually explicit photographs or messages via mobile phone.

1.4. Prevalence of cyberbullying

Previous studies have found that cyberbullying incidents among college students can range from 9% to 34% (Baldasare et al., 2012).

Beebe (2010) conducted a study with 202 college students in United States. Results indicated that 50.7% of the undergraduate students represented in the sample reported experiencing cyberbullying victimization once or twice during their time in college. Additionally, 36.3% reported cyberbullying victimization on a monthly basis while in college. According to Dilmaç (2009), 22.5% of 666 students at Selcuk University in Turkey reported cyberbullying another person at least once and 55.35% reported being a victim of cyberbullying at least once in their lifetimes. In a study of 131 students from seven undergraduate classes in United States, 11% of the respondents indicated having experienced cyberbullying at the university (Walker et al., 2011). Of those, Facebook (64%), cell phones (43%) and instant messaging (43%) were the most frequent technologies used. Students indicated that 50% of the cyberbullies were classmates, 57% were individuals outside of the university, and 43% did not know who was cyberbullying them.

Data from the last two years (2017–18) is similar to the above. A research, of 187 undergraduate students matriculated at a large U.S. Northeastern metropolitan Roman Catholic university (Webber and Ovedovitz, 2018), found that 4.3% indicated that they were victims of cyberbullying at the university level and a total of 7.5% students acknowledged having participated in bullying at that level while A survey (N = 338) at a large midwestern university conducted by Varghese and Pistole (2017), showed that frequency counts indicated that 15.1% undergraduate students were cyberbully victims during college, and 8.0% were cyberbully offenders during college.

A study of 201 students from sixteen different colleges across the United States found a prevalence rate of 85.2% for college students who reported being victims of cyberbullying out of the total 201 responses recorded. This ranged from only occasional incidents to almost daily experiences with cyberbullying victimization (Poole, 2017).

In A research of international students, 20.7% reported that they have been cyberbullied in the last 30 days once to many times (Akcil, 2018).

1.5. Psychological impact of cyberbullying

Cyberbullying literature suggests that victims generally manifest psychological problems such as depression, anxiety, loneliness, low self-esteem, social exclusion, school phobias and poor academic performance (DeHue et al., 2008; Juvonen and Gross, 2008; Kowalski and Limber, 2007; Grene, 2003; Juvonen et al., 2003; Rivituso, 2012; Varghese and Pistole, 2017; Na, 2014; Akcil, 2018), low self-esteem, family problems, school violence and delinquent behavior (Webber and Ovedovitz, 2018), which brings them to experience suicidal thoughts as a means of escaping the torture (Ghadampour et al., 2017).

Moreover, research findings have shown that cyberbullying causes emotional and physiological damage to defenseless victims (Faryadi, 2011) as well as psychosocial problems including inappropriate behaviors, drinking alcohol, smoking, depression and low commitment to academics (Walker et al., 2011).

The victims of cyberbullying, under great emotional stress, are unable to concentrate on their studies, and thus their academic progress is adversely affected (Faryadi, 2011). Since the victims are often hurt psychologically, the depressive effect of cyberbullying prevents students from excelling in their studies (Faryadi, 2011).

In a Malaysian university study with 365 first year students, the majority of the participants (85%) interviewed indicated that cyberbullying affected their academic performance, specifically their grades (Faryadi, 2011). Also, 85% of the respondents agreed that bullying caused a devastating impact on students' emotions and equally caused unimaginable psychological problems among the victims. Heiman and Olenik-Shemesh (2018) report that for students with learning disabilities, predictors of cybervictimization were low social support, low self-perception, and being female, whereas for students without learning disabilities, the predictors were low social support, low well-being, and low body perception.

1.6. Academic, social, and emotional development of undergraduate students

The transition to academic institutions is marked by complex challenges in emotional, social, and academic adjustment (Gerdes and Mallinckrodt, 1994; Parker et al., 2004).

The adaptation to a new environment is an important factor in academic performance and future achievement. Undergraduate students are not only developing academically and intellectually, they are also establishing and maintaining personal relationships, developing an identity, deciding about a career and lifestyle, and maintaining personal health and wellness. Many students are interacting with people from

diverse backgrounds who hold different values and making new friends. Some are also adapting to living away from home for the very first time (Inkelas et al., 2007).

The concept of academic development involves not only academic abilities, but motivational factors, and institutional commitment. Motivation to learn, taking actions to meet academic demands, a clear sense of purpose, and general satisfaction with the academic environment are also important components of the academic field (Lau, 2003).

A second dimension, the social field, may be as important as academic factors. Writers have emphasized integration into the social environment as a crucial element in commitment to a particular academic institution (Tinto, 1975). Becoming integrated into the social life of college, forming a support network, and managing new social freedoms are some important elements of social development. Crises in the social field include conflict in a living situation, starting or maintaining relationships, interpersonal conflicts, family issues, and financial issues (McGrath, 2005), which are manifested as feelings of loneliness (Clark et al., 2015).

In the emotional field, students commonly question their relationships, direction in life, and self-worth (Rey et al., 2011). A balanced personality is one which is emotionally adjusted. Emotional adjustment is essential for creating a sound personality. physical, intellectual mental and esthetical adjustments are possible when emotional adjustment is made (Ziapour et al., 2018). Inner disorders may result from questions about identity and can sometimes lead to personal crises (Gerdes and Mallinckrodt, 1994). Emotional problems may be manifested as global psychological distress, somatic distress, anxiety, low self-esteem, or depression. Impediments to success in emotional development include depression and anxiety, stress, substance abuse, and relationship problems (Beebe, 2010).

The current study is designed to address two research questions: (1) does cyberbullying affect college students' emotional state, as measured by the nine factors of the College Adjustment Scales (Anton and Reed, 1991); (2) which mode of cyberbullying most affects students' emotional state?

2. Method

2.1. Research settings and participants

The present study is set in Israeli higher education colleges. These, function as: (1) institutions offering undergraduate programs in a limited number of disciplinary fields (mainly the social sciences), (2) centers for training studies (i.e.: teacher training curricula), as well as (3) as creators of access to higher education. The general student population is heterogeneous, coming from the Western Galilee. In this study, 638 Israeli undergraduate students participated. The sample is a representative

of the population of the Western galilee in Israel. The sample was 76% female, 70% single, 51% Jewish, 27% Arabs, 7% Druze, and 15% other ethnicity. On the dimension of religiosity, 47% were secular, 37% traditional, 12% religious, 0.5% very religious, and 3.5% other. On the dimension of sexual orientation, 71% were straight women, 23.5% straight men, 4% bisexual, 1% lesbians, and 0.5% gay males (note: according to the Williams Institute, approximately 4% of the population in the US are LGBT, [Gates, 2011], while 6% of the EU population are LGBT, [Dalia, 2016]).

2.2. Instrumentation

Two instruments were used to collect data: The Revised Cyber Bullying Survey (RCBS), with a Cronbach's alpha ranging from .74 to .91 (Kowalski and Limber, 2007), designed to measure incidence, frequency and medium used to perpetrate cyberbullying. The survey is a 32-item questionnaire. The frequency was investigated using a 5-item scale with anchors ranging from 'it has never happened to me' to 'several times a week'. Five different media were explored: email, instant messaging, chat room, text messaging, and social networking sites. Each medium was examined with the same six questions related to cases of cyberbullying (see Table 1).

Table 1 shows the five variables that composed the RCBS questionnaire (all of the variables are composed of 6 statements). The results indicate that the levels of all the variables is very low, which means that the respondents experienced cyberbullying once or twice. The internal consistency reliability estimate based on the current sample suggested that most of the variables have an adequate to high level of reliability, with a Cronbach's alpha of 0.68–0.87.

The College Adjustment Scales (CAS) (Anton and Reed, 1991), evaluated the academic, social, and emotional development of college students. Values were standardized and validated for use with college students. The validity for each subscale ranged from .64 to .80, noting high correlations among scales. Reliability of the scales ranged from .80 to .92, with a mean of .86. The instrument included 128

Table 1. Description of the Revised Cyber Bullying Survey (RCBS) variables.

Means of cyberbullying	N	Minimum	Maximum	Mean	SD	Reliability
Chat	610	.00	24	.48	1.64	0.87
Social networking	635	.00	20	.95	1.93	0.85
SMS	631	.00	12	.78	1.53	0.80
Instant messages	634	.00	13	.96	1.81	0.81
Email	637	.00	11	.41	1.05	0.68
Valid N (listwise)	608					

Note: the theoretical range is between zero to twenty-four.

items, divided into 10 scales: anxiety, depression, suicidal ideation, substance abuse, self-esteem problems, interpersonal problems, family problems, academic problems, career problems, and regular activities (see Table 2). Students responded to each item using a four-point scale.

Anxiety: A measure of clinical anxiety, focusing on common affective, cognitive, and physiological symptoms.

Depression: A measure of clinical depression, focusing on common affective, cognitive, and physiological symptoms.

Suicidal Ideation: A measure of the extent of recent ideation reflecting suicide, including thoughts of suicide, hopelessness, and resignation.

Substance Abuse: A measure of the extent of disruption in interpersonal, social, academic, and vocational functioning as a result of substance use and abuse.

Self-esteem Problems: A measure of global self-esteem which taps negative self-evaluations and dissatisfaction with personal achievement.

Interpersonal Problems: A measure of the extent of problems in relating to others in the campus environment.

Family Problems: A measure of difficulties experienced in relationships with family members.

Academic Problems: A measure of the extent of problems related to academic performance.

Career Problems: A measure of the extent of problems related to career choice.

Table 2. Description of CAS variables.

Variables	N	Minimum	Maximum	Mean	SD	Reliability
Academic problems	634	28	73	47.87	8.87	0.77
Anxiety	633	30	78	51.17	9.57	0.88
Career problems	632	36	80	55.47	8.63	0.87
Depression	633	27	78	53.27	9.14	0.81
Family problems	633	32	74	44.61	11.19	0.72
Interpersonal problems	633	29	77	52.51	8.38	0.72
Regular activities	624	27	78	57.10	8.80	0.69
Self-esteem problems	633	22	74	50.31	9.19	0.76
Substance abuse	633	39	75	49.72	8.45	0.78
Suicidal ideation	633	44	76	51.92	9.63	0.87
Valid N (listwise)	624					

Participants also responded to a demographic questionnaire that included items on gender, birth year, marital status, ethnicity, and sexual orientation. As sexual orientation is a major cause for bullying (Pollock, 2006; Cahill and Makadon, 2014), it was included in the background information.

Convenience sampling and purposive sampling were used for this study. Surveys with written instructions were administered in classrooms, libraries and online via Google Docs at the end of the semester.

The surveys were translated to Hebrew and back translated four times until sufficient translation was achieved. The research was approved by the Western Galilee College Research and Ethic Committee.

3. Results

A sizeable percentage, 57.4% (366), of the respondents reported being cyber bullied at least once and 3.4% (22) reported being cyber bullied at least once a week. The types of bullies can be seen in Fig. 1.

Three variables were found to have significant influences on the research variables: (1) gender (see Table 3); (2) religion (see Table 4); and (3) sexual preferences (see Table 5).

Independent t-tests between the CAS variables and gender show significant differences between females and males (see Table 3).

Independent t-tests between the CAS variables and level of religiosity show significant differences between secular and religious persons, i.e., observant believers (see Table 4).

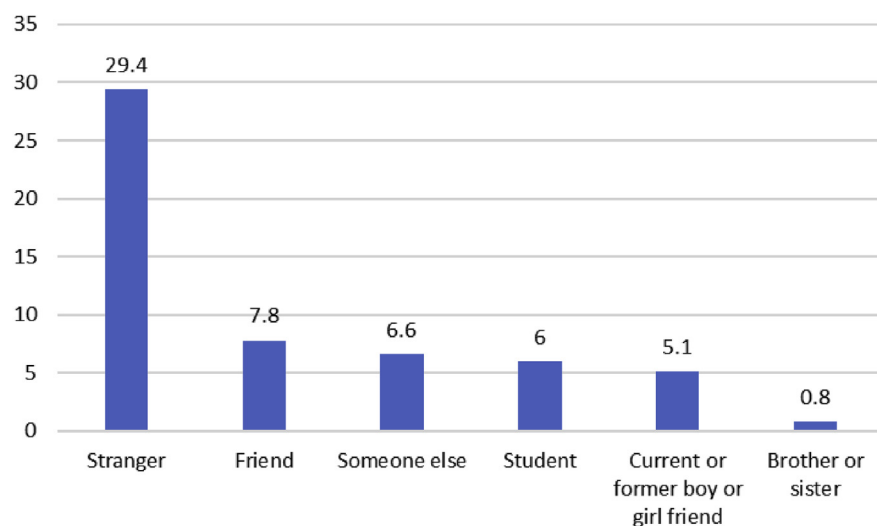


Fig. 1. Types of bullies.

Table 3. Results of independent t-tests for research variables by gender.

		M	SD	t
Depression	Male	51.82	8.08	1.99*
	Female	53.63	9.37	
Regular activities	Male	55.66	8.82	2.05*
	Female	57.47	8.77	
Self-esteem problems	Male	48.79	9.19	2.08*
	Female	50.68	9.16	
Suicidal ideation	Male	50.10	8.91	2.48*
	Female	52.34	9.74	

Note: $n_{\text{male}} = 127$, $n_{\text{female}} = 510$, * $p < .05$.

Table 4. Results of independent t-tests for research variables by level of religion.

		M	SD	T
Depression	Secular	52.07	8.97	3.08**
	Religious	54.30	9.17	
Family problemýs	Secular	43.60	11.16	2.09*
	Religious	45.46	11.16	
Interpersonal problems	Secular	51.77	8.80	2.04*
	Religious	53.14	7.97	
Suicidal ideation	Secular	50.13	8.85	4.42***
	Religious	53.44	10.00	

Note: $n_{\text{religious}} = 345$, $n_{\text{secular}} = 293$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5. Results of independent t-tests for research variables by sexual preference.

		M	SD	t
Anxiety	Heterosexual	50.92	9.63	2.41*
	Other	54.60	8.12	
Depression	Heterosexual	52.88	8.90	4.14***
	Other	58.86	10.59	
Family problems	Heterosexual	44.11	10.94	4.20***
	Other	51.52	12.42	
Interpersonal problems	Heterosexual	52.26	8.31	2.80**
	Other	56.00	8.80	
Self-esteem problems	Heterosexual	50.07	9.14	2.44*
	Other	53.64	9.28	
Substance abuse	Heterosexual	49.34	8.19	3.48***
	Other	54.98	10.27	
Suicidal ideation	Heterosexual	51.33	9.34	5.88***
	Other	60.14	9.89	

Note: $n_{\text{heterosexual}} = 596$, $n_{\text{other}} = 42$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Independent t-tests between the CAS variables and sexual preference show significant differences between heterosexual individuals and others (see Table 5).

The research population was divided into three age groups having five year intervals. One respondent who was 14 years old was removed from the population.

For the variable “career problems” it was found that there was a significant difference between the 26–30 year age group [$p < .05$, $F(2,5815) = 3.49$, $M = 56.55$] and the 31–35 ($M = 56.07$) as well as the 20–25 ($M = 54.58$) age groups.

For the variable “depression” it was found that there was a significant difference between the 20–25 year age group [$p < .05$, $F(2,5815) = 3.84$, $M = 54.56$] and the 31–35 ($M = 51.61$) as well as the 26–30 ($M = 52.83$) age groups.

For the variable “interpersonal problems” it was found that there was a significant difference between the 20–25 year age group [$p < .06$, $F(2,5815) = 3.84$, $M = 53.85$] and the 31–35 ($M = 51.29$) as well as the 26–30 ($M = 52.19$) age groups.

For the variable “suicidal ideation” it was found that there was a significant difference between the 20–25 year age group [$p < .06$, $F(2,5815) = 3.84$, $M = 55.45$] and the 31–35 ($M = 49.71$) as well as the 26–30 ($M = 50.13$) age groups (see Table 6).

To confirm that there was no effect among the independent variables, a Pearson correlation analysis of cyberbullying with CAS variables was run. As the correlations between the independent variables are weak, no multicollinearity between them was noted (see Table 7).

Regression analyses on the effect of the cyberbullying variables on the CAS variables (see Fig. 2) show that an increase in cyberbullying by social networking and IM increases the academic problems variable. The model explained 6.1% of the variance ($F_{(13,585)} = 2.94$, $p < .001$) and shows an increase in the suicidal ideation

Table 6. Results of one way Anova for research variables by age.

	Age Group	M	SD	F
Career problems	20–25	54.58	7.97	3.49*
	26–30	56.55	8.36	
	31–35	56.07	9.29	
Depression	20–25	54.56	10.08	3.84*
	26–30	52.83	8.62	
	31–35	51.61	8.14	
Interpersonal problems	20–25	53.58	8.23	2.87~
	26–30	52.19	8.42	
	31–35	51.29	8.06	
Suicidal ideation	20–25	55.45	10.48	22.79***
	26–30	50.13	8.67	
	31–35	49.71	8.58	

Note: $n_{20-25} = 216$, $n_{26-30} = 287$, $n_{31-35} = 82$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7. Pearson correlation of cyberbullying with CAS variables.

CAS Variables	Cyberbullying				
	Mail	IM	Chat	SMS	Social Network
Academic problems	0.018	0.196***	0.079	0.141***	0.189***
Anxiety	0.042	0.216***	0.080*	0.159***	0.194***
Career problems	-0.007	0.089	-0.08	0.079	0.057
Depression	0.064	0.210***	0.122**	0.102*	0.172***
Family problems	0.142***	0.227***	0.081*	0.132**	0.156***
Interpersonal problems	0.054	0.150***	0.094	0.040	0.110**
Regular activities	-0.121**	-0.014	0.005-	-0.015	0.003
Self-esteem	0.041	0.229***	0.124**	0.171***	0.208***
Substance abuse	0.150***	0.235***	0.184***	0.161***	0.174***
Suicidal ideation	0.130**	0.230***	0.148***	0.093*	0.130**

Note: $n = 638$, $\sim p < .06$, * $p < .05$, ** $p < .01$, *** $p < .001$.

variable. There is also a marginal effect of cyberbullying by SMS on suicidal ideation, revealing that an increase in cyberbullying by SMS causes a decrease in suicidal ideation. The explained variance of the model is 24.8% ($F_{(11,584)} = 14.80$, $p < .001$). Higher cyberbullying by social networking results in an increase in the anxiety variable. The explained variance of the model is 8.8% ($F_{(13,584)} = 4.32$, $p < .001$). An increase in cyberbullying by chat and IM shows an increase in the substance abuse variable. The model explains 13% of the variance ($F_{(13,584)} = 6.71$, $p < .001$). Increasing cyberbullying by social networking and IM increases the self-esteem problems variable. The explained variance of the model is 9% ($F_{(13,584)} = 4.43$, $p < .001$). An increase of cyberbullying by email increases the problems students have with regular activities. The explained variance of the model is 5.2% ($F_{(13,575)} = 2.44$, $p < .01$). Heightened cyberbullying by social networking and IM increases students' interpersonal problems. There is also an effect of cyberbullying by IM on suicidal ideation, such that an increase in cyberbullying by IM causes a decrease in interpersonal problems. The explained variance of the model is 8% ($F_{(13,584)} = 3.89$, $p < .001$). An increase in cyberbullying by SMS decreases the family problems variable. The explained variance of the model is 11.4% ($F_{(13,584)} = 5.76$, $p < .001$). And finally, heightened cyberbullying by IM and social networking decreases the depression variable. The variance explained by the model is 11.9% ($F_{(13,584)} = 6.04$, $p < .001$).

4. Discussion

The objective of this study was to fill an existing gap in the literature regarding the influence of cyberbullying on the academic, social, and emotional development of undergraduate students.

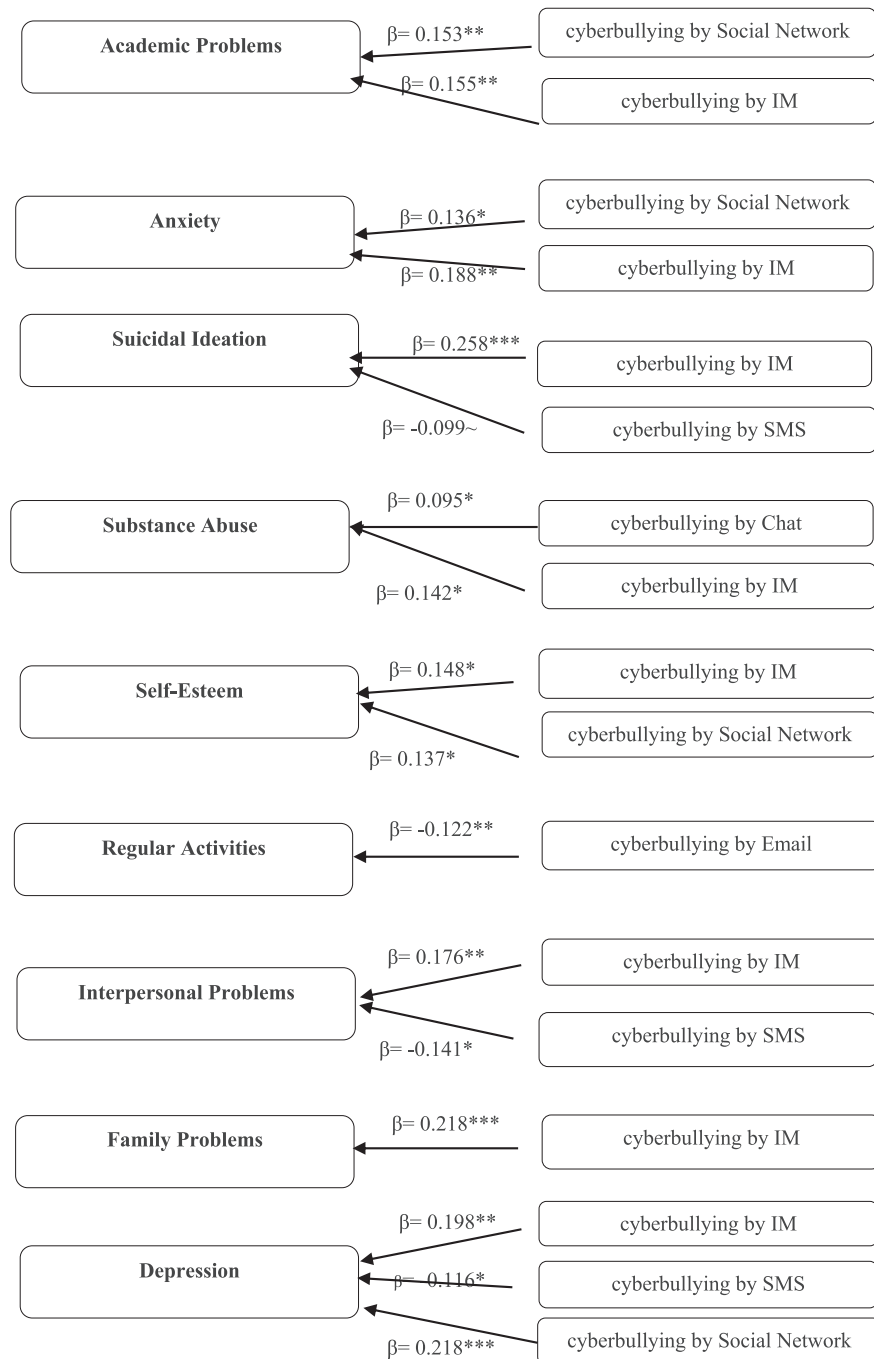


Fig. 2. The influence of academic cyberbullying variables on the CAS variables.

As has been presented, cyberbullying continues to be a disturbing trend not only among adolescents but also undergraduate students. Cyberbullying exists in colleges and universities, and it has an influence on the development of students. Fifty seven percent of the undergraduate students who participated in this study had experienced cyberbullying at least once during their time in college. As previous studies have

found that cyberbullying incidents among college students can range from 9% to 50% (Baldasare et al., 2012; Beebe, 2010) it seems that 57% is high. Considering the effect of smartphone abundance on one hand and on the other the increasing use of online services and activities by young-adults can explain that percentage.

Considering the effect of such an encounter on the academic, social and emotional development of undergraduate students, policy makers face a formidable task to address the relevant issues and to take corrective action as Myers and Cowie (2017) point out that due to the fact that universities are in the business of education, it is a fine balancing act between addressing the problem, in this case cyberbullying, and maintaining a duty of care to both the victim and the perpetrator to ensure they get their degrees. There is a clear tension for university authorities between acknowledging that university students are independent young adults, each responsible for his or her own actions, on one hand, and providing supervision and monitoring to ensure students' safety in educational and leisure contexts.

Although there are increasing reports on connections between cyberbullying and social-networks (see: Gahagan et al., 2016), sending SMS or MMS messages through Internet gateways ensures anonymity, thus indirectly supporting cyberbullying. A lot of websites require only login or a phone number that can also be made up (Gálik et al., 2018) which can explain the fact that instant-messaging (IM) was found to be the most common means of cyberbullying among undergraduate students with a negative influence on academic, family, and emotional development (depression, anxiety, and suicidal ideation). A possible interpretation of the higher frequency of cyberbullying through IM may be that young adults have a need to be connected.

This medium allows for being online in 'real time' with many peers or groups. With the possibility of remaining anonymous (by creating an avatar — a fake profile) and the possibility of exposing private information that remains recorded, students who use instant messaging become easy targets for cyberbullying. IM apps such as WhatsApp are extremely popular as they allow messages, photos, videos, and recordings to be shared and spread widely and in real time.

Students use the Internet as a medium and use it with great frequency in their everyday lives. As more aspects of students' lives and daily affairs are conducted online, coupled with the fact that excessive use may have consequences, it is important for researchers and academic policy makers to study the phenomenon of cyberbullying more deeply.

Sexual orientation is also a significant factor that increases the risk of victimization. Similarly, Rivers (2016) documented the rising incidence of homophobic and transphobic bullying at university and argues strongly for universities to be more active in promoting tolerance and inclusion on campus. It is worth noting that relationships

and sexual orientation probably play a huge role in bullying among university students due to their age and the fact that the majority of students are away from home and experiencing different forms of relationships for the first time. [Faucher et al. \(2014\)](#) actually found that same sex cyberbullying was more common at university level than at school. Nonetheless, the research is just not there yet to make firm conclusions.

Finally, cyberbullying is not only an adolescent issue. Although its existence has been proven, studies of cyberbullying among undergraduate students have not been fully developed. This particular population needs special attention in future research.

The results of this study indicate that cyberbullying has an influence on the academic, social, and emotional development of undergraduate students.

In the academic field, findings revealed a statistically significant correlation between cyberbullying perpetrated by email and academic problems. Relationships between academic problems and cyberbullying perpetrated by other media were not found. This suggests that cyberbullying through instant messaging, chat room, text messaging, and social networking sites, have not influenced academic abilities, motivation to learn, and general satisfaction with the academic environment. However, cyberbullying perpetrated by email has an influence on academics, perhaps because of the high use of this medium among undergraduate students.

With regard to career problems, correlations with cyberbullying were not found. This indicates that cyberbullying has no influence on career problems, perhaps because these kinds of problems are related to future career inspirations, and not to the day-to-day aspects of a student's life.

In the social field, it was found that interpersonal problems such as integration into the social environment, forming a support network, and managing new social freedoms, were related to cyberbullying via social networking sites. This finding is consistent with the high use of social networking sites, the purpose of the medium, and the reported episodes of cyberbullying in that medium.

Family problems were also related to cyberbullying perpetrated by all kinds of media. This may indicate that as cyberbullying through the use of email, instant messaging, chat rooms, text messaging, and social networking sites increases, so do family problems. This could be due to the strong influence that cyberbullying generates in all the frameworks of students, including their families.

Finally, in the emotional field, correlations between cyberbullying perpetrated by all kinds of media and substance abuse were found. This may indicate that as cyberbullying through the use of email, instant messaging, chat rooms, text messaging, and social networking sites increases, so does substance abuse. This is important because cyberbullying may be another risk factor for increasing the probability of substance abuse.

Depression and suicidal ideation were significantly related to the same media – email instant messaging and chat cyberbullying – suggesting that depression may lead to a decision of suicide as a solution to the problem. Previous findings support the above that being an undergraduate student – a victim of cyberbullying emerges as an additional risk factor for the development of depressive symptoms (Myers and Cowie, 2017). Also Selkie et al. (2015) reported among 265 female college students, being engaged in cyberbullying as bullies, victims, or both led to higher rates of depression and alcohol use.

Relationships between anxiety and cyberbullying, through all the media, were not found although Schenk and Fremouw (2012) found that college student victims of cyberbullying scored higher than matched controls on measures of depression, anxiety, phobic anxiety, and paranoia. This may be because it was demonstrated that anxiety is one of the most common reported mental health problems in all undergraduate students, cyberbullied or not.

Self-esteem problems were significantly related to cyberbullying via instant messaging, social networking sites, and text messaging. This may suggest that as cyberbullying through instant messaging, social networking sites, and text messaging increases, so do self-esteem problems. This is an important finding, given that these were the media with more reported episodes of cyberbullying.

5. Conclusions

This findings of this study revealed that cyberbullying exists in colleges and universities, and it has an influence on the academic, social, and emotional development of undergraduate students.

It was shown that cyberbullying is perpetrated through multiple electronic media such as email, instant messaging, chat rooms, text messaging, and social networking sites. Also, it was demonstrated that students exposed to cyberbullying experience academic problems, interpersonal problems, family problems, depression, substance abuse, suicidal ideation, and self-esteem problems.

Students have exhibited clear preferences towards using the Internet as a medium and utilize it with great frequency in their everyday lives. As more and more aspects of students' lives are conducted online, and with the knowledge that excessive use may have consequences for them, it is important to study the phenomenon of cyberbullying more deeply.

Because college students are preparing to enter the workforce, and several studies have indicated a trend of cyberbullying behavior and victimization throughout a person's lifetime (Watts et al., 2017), the concern is these young adults are bringing these attitudes into the workplace.

Finally, cyberbullying is not only an adolescent issue. Given that studies of cyberbullying among undergraduate students are not fully developed, although existence of the phenomenon is proven, we conclude that the college and university population needs special attention in future areas of research. As it has been indicated by Peled et al. (2012) that firm policy in regard to academic cheating reduces its occurrence, colleges should draw clear guidelines to deal with the problem of cyberbullying, part of it should be a safe and if needed anonymous report system as well as clear punishing policy for perpetrators.

As there's very little research on the effect of cyberbullying on undergraduates students, especially in light of the availability of hand held devices (mainly smart-phones) and the dependence on the internet for basically every and any activity, the additional data provided in this research adds to the understanding of the effect of cyberbullying on the welfare of undergraduate students.

Declarations

Author contribution statement

Yehuda Peled: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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