Risk Factors Associated With Cyberbullying in University Students

Irma Ramos Rodríguez[1], Carolina Aranda Beltrán[2], Samantha López Ramos[1]

(1. Department of Molecular Biology and Genomics, University Center of Health Sciences, University of Guadalajara, México;

2. Department of Public Health, University Center of Health Sciences, University of Guadalajara, México)

Abstract: A cross-sectional and descriptive study was carried out in students of a public university in Mexico. The objetive was to analyze the presence of cyberbullying and the relationship with gender, age and the risk factors in university students. Method: Descriptive, cross-sectional, analytical study, a census was conducted on students attending the first semester of different careers, two instruments a socio-demographic data questionnaire and the Ombudsman's instrument on school violence were applied. Results: 1148 university students were studied, the prevalence of cyberbullying was 20.5%, the strategies used by the aggressors were different according to the gender of the victims, students over 20 years participated more actively as a victim, aggressor and victim-aggressor. Having few friends, not talking to anyone about the attacks, nobody intervenes during the harassment and other students join the aggressor, are risk factors for becoming victims of cyberbullying. Conclusions: One of every five university students is a victim of cyberbullying, the strategies used by the aggressors, are different according to the gender of the victims, the fact that the teacher aggregates a student, increases the risk that he is also attacked by his companions.

Key words: cyberbullying, risk factors, gender, age, university students

1. Introduction

In the last decade, connectivity between young people has improved significantly, thanks to the introduction of instant messaging and the creation of social networks (Valkenburg & Peter, 2007). According to the Mexican Internet Association (2018), 67% of the population over 6 years of age is an internet user, while the most used device for online browsing is the smartphone.

The use of internet in university students (98%) is greater than that of the general population (Garrote, Jiménez & Gómez, 2018), this mainly due to the fact that at this level of studies, it is practically essential to use this tool to perform different school activities such as information search, online classes, use of digital platforms, send homework, share information or communicate with teachers and classmates (Bello & Flores, 2016). Although digital devices are true, they are very useful for university students, they can also generate serious problems in schools, one of them is cyberbullying.

2. Literature Review

Cyberbullying is a condition in which a person is repeatedly and for a long time exposed to a series of negative actions through the use of electronic means such as cell phones and the internet, the aggressions that

---

Irma Ramos Rodríguez, University of Guadalajara; research area: education, mental health. E-mail: irmaimss8@hotmail.com.

victims are subjected can generate in them humiliation, suffering, fear and despair (Machackova & Pfetsch, 2016). The characteristics of this form of aggression are like those of traditional harassment, the difference is that this information travels at high speed, the number of witnesses is much higher, and the victims show serious difficulties in defending themselves (Smith, 2006).

The prevalence of cyberbullying varies significantly depending on where the study is conducted, the United States and Asia (55%) are two of the countries with the highest incidence of this problem, compared to other American countries (22%), Canada (25%) and Europe (30%) (Garaigordobil, 2011). According to data obtained by the Cyberbullying Module (MOCIBA, 2017) of INEGI, in Mexico 10.36 million internet users from 12 to 59 years of age have been victims of some type of cyberbullying.

Regarding gender and cyberbullying, there is no consensus among researchers while Ybarra, Diener-West and Leaf (2007), Ortega, Calmaestra and Mora-Merchán (2008), Buelga, Cava and Musitu (2010) and MOCIBA (2017) they point out that women exhibit higher figures of this problem, Alexy, Burgess, Baker and Smoyak (2005) and Li (2006), say that it is men who are most likely to become victims of cyberbullying, compared to women, or like Smith, Mahdavi, Carvalho, Fisher, Russel and Tippet (2008), Katzer, Fetchenhauer and Belschak (2009) and Buelga and Pons (2012) who do not find differences between them. On the other hand, there are some contrasts between the forms of aggression among men and women, according to data obtained by Morales and Serrano (2014) in a sample of 300 high school students, it was found that women prefer cyberbullying as a form of aggression, while men use traditional harassment to a greater extent.

About the age of the victims of cyberbullying previous studies (Slonje & Smith, 2008; Ybarra & Mitchell, 2004), they conclude that cyberbullying increases throughout adolescence and decreases as young people approach adulthood, More recent research (Kokkinos, Antoniadou & Markos, 2014; Schenk, Fremouw & Keelan, 2013) show cyberbullying prevalence of 10 to 35% in university students, these values are even higher than those observed in adolescents, this being an indication that the abuse through information technologies, far from diminishing during higher education, increases. In the same sense, Kraft and Wang (2010) add that being a victim of cyberbullying in secondary school increases the risk of being harassed again in later studies.

In cyberbullying, the number of victims is greater than that of aggressors, as in traditional harassment, in data obtained by León del Barco, Mira, Verdasca, Castaño and Gómez (2013), the proportion of victims was 18.1%, while that of aggressors was 9.1%. In most cases of cyberbullying, the identity of the aggressor remains hidden, this in addition to maintaining impunity for the latter, facilitates aggression against the victim and increases their vulnerability to this type of behavior (Monks, Smith, Naylor, Barter, Ireland & Coyne, 2009; Smith, 2006).

The majority of university students consider that harassment through mobile or internet, has more disastrous effects on the victim compared to traditional harassment (Rodríguez, 2018), because in this the victim does not have a single moment of rest or tranquility (Rivadulla & Rodríguez, 2019), because the communication channels through which abuse occurs are kept open 24 hours a day, images, videos or text messages spread very quickly among young people, on the other hand, the receivers of these contents can observe them again and again, reproduce them or forward them to other people, making it impossible to have control over the information, which circulates through the cell phone or social networks (Bickham & Rich, 2009; Huesmann, 2007).

In traditional harassment a student is mistreated in the presence of other classmates, who can intervene to stop the aggressor and prevent further damage to the victim, in cyberbullying little or nothing can be done to prevent the aggressor from continuing to upload information to the network or remove from cyberspace the

material with which damage occurs (Lucio, 2009).

Victims of cyberbullying can have serious physical problems (headaches, migraine, nausea, skin rashes, increased blood pressure), mental (low self-esteem, feelings of guilt, helplessness and hopelessness, lack of self-confidence, feelings of anger, frustration, helplessness, nervousness, irritability, social isolation, depression, anxiety, rage, anxiety, panic attacks, sleep and eating disorders, drug or alcohol abuse) and school problems (poor academic performance, absenteeism, school dropout) (Hernández & Solano, 2007).

The aggressors as well as the victims can also result in sequelae as a result of exposure to cyberbullying behaviors, so we observe that these people are at greater risk of moral disconnection, lack of empathy, difficulty in complying with the rules, problems by their aggressive behavior , criminal behavior, alcohol and drug intake (Garaigordobil, 2011), psychotic symptoms, malaise, depression, hostility, anxiety, paranoia, low self-esteem, poor motivation, fear of rejection, need for confirmation by others (Patchin, Hinduja, 2010; Schenk, 2013).

According to different authors (Arıcak, 2009; Nahar, Li, Zhang & Pang, 2014; Wegge, Vandebosch, Eggermont, Van Rossem & Walravel, 2016), people with feelings of inferiority and anguish in interpersonal relationships are exposed with less frequently to cyberbullying, due to the distrust and caution with which they handle their information and interactions in cyberspace.

Most studies related to cyberbullying have focused on high school students (Avilés, 2009; Wang, Ionnotti, & Nansel, 2009; Tokunaga, 2010; Olweus & Limber, 2010), research in university students is poor, reason why is the objective of this work, to analyze the presence of cyberbullying, its relationship with gender, age and the associated risk factors in university students of a University Center of Health Sciences, which will allow to expand knowledge about the issue in this population.

3. Methodology

3.1 Design of the Research and Study Population

A cross-sectional and descriptive study was carried out in students of a public university in Mexico. This work included a census of students attending the first semester of the careers taught at a University Center for Health Sciences in Mexico.

3.2 Procedure

After the acceptance of the study, the classrooms were visited to explain the objective of the research, what was their participation, they were also explained that if they did not agree to participate in the study their right would be respected. Finally, they were assured that the information provided by them would be handled confidentially and anonymously, the doubts that arose about the study were clarified at the time, the students who agreed to participate in the investigation signed an informed consent.

3.3 Instrument

The collection of the information was through the application of two questionnaires, the first one was a Socio-demographic data questionnaire, prepared to obtain information related to gender, age, career, if the student lives with his parents or other people, if have a job, among other variables.

The other questionnaire was a validated instrument that deals with School Violence, prepared in 2000 by the Autonomous University of Madrid, for the National Report of the Ombudsman (Ombudsman, 2000). This document consists of 19 items, each item is answered in three sections, the first identifies the witnesses of the

abuse, the second gives an account of the victims and the third provides information about the aggressors. The respondent can mark more than one of the options presented to him, because it is possible that he may play different roles at the same time (witness, victim, aggressor), finally they are examined on the frequency with which aggressions occur, counting on the following options: "Never", "Sometimes", "Often" and "Always".

Initially this instrument was prepared for the National Report of the Ombudsman (2000), later it was adapted to the Colombian school context, using the focus group technique, finally it was adapted to the language of the university context and its reliability was tested, obtaining an alpha of Cronbach of 0.801 (Hoyos, Aparicio & Córdoba, 2005).

Cyberbullying was determined with the presence of at least one form of aggression against the student, with a frequency "Often" or "Always", these two options determine the permanence of these behaviors over time and constitute one of the characteristics of cyberbullying

The strategies that were evaluated in this study to determine the presence of cyberbullying are the following: they record or take pictures without your consent, they have excluded you from a social network or group of friends, they harass you in the messenger or a program similarly, they circulate recordings of you without you consent, they harass you in the chats or when you communicate on the internet, you receive messages or offensive calls on the cell phone, you receive offensive messages by email, they create offensive web pages or they post information about you that don't want to see there.

3.4 Data Analysis

The information collected was captured in an Excel program database, the data analysis included descriptive statistics, absolute and relative frequencies were calculated for categorical variables, central tendency measures and dispersion measures for numerical variables, some were recoded variables to make associations with Chi-square contingency tables, odds ratio (Odds Ratio) and 95% confidence intervals (CI), of the SPSS statistical program for Social Sciences version 20.0

This research is classified as category 1 without risk for participants, in accordance with the Regulations of the General Health Law on health research, Title Two, Chapter I in Mexico. On the ethical aspects of research in human beings Article 17 (1984). The handling of the information was confidential and anonymous, the participation of the students was voluntary, after signing an informed consent.

4. Results

1148 students were studied, of which 415 (36.1%) were men and 734 (63.9%) women, with a mean age of 19.64±3.35 years. Most of the participants lived with their parents 928 (80.8%), their marital status was single 1122 (97.7%) and 253 (22%) had a job.

The prevalence of cyberbullying in university students was 20.5%, the most used tools to attack students were: the use of social networks 190 (16.5%) and the cellphone 163 (14.1%). For the strategies most commonly used by aggressors, to harm university students were: make videos or take pictures of them, exclude them from a social network or group of friends who communicate online, harass them through the chat or a similar program and circulate recordings of them (Table 1).

The strategies used by the aggressors to harm university students were different according to their gender, the men obtained higher figures in which they take videos or photos, circulate recordings of them, send them offensive messages by the cellphone. On the other hand, women scored higher on being excluded from a social

network or a group that communicates on the internet, being harassed through chat, messenger or a similar program and receiving offensive calls (Table 2).

Table 1 Strategies Used By Aggressors to Harm University Students

	n	%
Videos or photos are taken without your consent	134	11.7
You are excluded from a social network	75	6.5
You are harassed by chat	39	3.4
They circulate recordings of you without your consent	36	3.1
You are harassed in the messenger or a similar program	30	2.6
You receive offensive messages on the cell phone	24	2.1
They send you offensive messages via email	6	0.5
They make you offensive calls	5	0.4
They create offensive web pages from you or hang up information that you wouldn't want to see there	4	0.3

Table 2 Strategies Used By Aggressors to Harm University Students According to Their Gender

	Man	Woman
	n (%)	n (%)
They take videos or photos without your consent	57 (13.7)	77 (10.5)
They circulate recordings of you without your consent	20 (4.8)	16 (2.2)
You receive offensive messages on the cell phone	16 (3.9)	8 (1.1)
You are excluded from a social network	23 (5.5)	52 (7.1)
You are harassed via chat	12 (2.9)	27 (3.7)
You are harassed in the messenger or a similar program	8 (1.9)	22 (3.0)
They send you offensive messages via email	3 (0.7)	3 (0.4)
They create offensive web pages from you or hang up information that you wouldn't want to see there	2 (0.5)	2 (0.3)
They make you offensive calls	1 (0.2)	4 (0.5)

Regarding the risk factors according to gender, it was found that men are at greater risk of receiving offensive messages on the cell phone and that they circulate recordings of them without wishing to, compared to women. Regarding age, students over 20 years showed a higher risk of receiving offensive messages on the cell phone and being excluded from a social network or a group of friends who communicates online, compared with students under 20 of age (Table 3).

Table 3 Risk Factors for Becoming A Victim of Cyberbullying According to the Gender and Age of University Students

		n (%)	p	IC (al 95%)
You receive offensive messages by cell phone	Male	16 (3.9)	0.002	3.63 (1.54-8.57)
	Female	20 (4.8)		
They make recordings of you without your consent	Male	20 (4.8)	0.014	2.27 (1.16-4.43)
	Female	16 (2.2)		
You receive offensive messages by cell phone	> 20 years < 20 years	11 (3.7) 13 (1.5)	0.025	2.46 (1.09-5.55)
You are excluded from a social network or group that communicates online	> 20 years < 20 years	27 (9.0) 48 (5.6)	0.042	1.65 (1.01-2.71)

The victims of cyberbullying were 222 (19.3%), aggressors 94 (8.2%) and victim/aggressor 17 (1.5%). The numbers of victims and victim/aggressor were higher in men compared to women, while the proportion of aggressors (8.2%) was identical for both men and women. Regarding age, participants over 20 years of age exhibited higher scores as victim, aggressor and victim/aggressor, compared to those under 20 years. Young people over 20 years of age were at greater risk of presenting mixed behavior (victim/aggressor) (Table 4).

Table 4   Role of Students in Cyberbullying According to the Gender and Age of University Students

Gender	Male n (%)	Female n (%)	P	CI (al 95%)
Victim	92 (22.2)	130 (17.7)	0.066	
Aggressor	34 (8.2)	60 (8.2)	0.991	
Victim/Aggressor	9 (2.2)	8 (1.1)	0.146	
Age	> 20 years n (%)	< 20 years n (%)	P	CI (al 95%)
Victim	66 (22.1)	156 (18.4)	0.161	
Aggressor	30 (10.0)	64 (7.5)	0.174	
Victim/Aggressor	9 (3.0)	8 (0.9)	0.011	3.26 (1.24–8.54)

Some of the risk factors that were associated with being a victim of harassment were: having few friends, not talking to anyone about the aggressions, that nobody intervenes during the same or that other students join with the aggressor, to harm the victim. In the same way, victims are at greater risk of being afraid of going to school and fearing a teacher. On the other hand, there is a greater risk that the aggressor will be male and that he will attend the same semester as the victim (Table 5).

Table 5   Risk Factors to Become A Victim or Aggressor of Cyberbullying in University Students

Victim of cyberbullying	p	CI (at 95%)
Having few friends	0.008	1.70 (1.14–2.53)
Do not talk to anyone about the attacks	0.017	1.73 (1.09–2.73)
No one intervenes during the attacks	0.000	2.40 (1.62–3.54)
You have joined with someone to harm a partner	0.010	2.12 (1.18–3.80)
Be afraid of a teacher	0.003	2.09 (1.26–3.45)
Be afraid to go to school	0.008	1.50 (1.11–2.04)
Behavior as aggressor		
The aggressor is male	0.000	2.42 (1.47–4.01)
Aggressor is in the same semester as the victim	0.010	1.71 (1.13–2.59)

The analysis of the different variables showed that the fact that nobody intervenes when a student is attacked is a risk factor so that he or she receives offensive messages on the cellphone, videos or photos are taken without permission of him, or her being excluded from a social network or a group that communicates online. In the same sense, not talking to anyone about the attacks is a risk factor for students to receive offensive messages by cell phone or by email. The fact that other students join the aggressor to harm a classmate increases the risk that he will receive offensive messages on the cell phone and circulate recordings of him without wishing to (Table 6).

In case a teacher does nothing to stop the aggressions it becomes a risk factor, so that a student is harassed by the messenger or a similar program. Likewise, if a teacher mistreats a student is a risk factor, so that their peers exclude them from a social network or group that communicates via the Internet (Table 6).

Table 6   Risk Factors Associated With the Presence of Cyberbullying in University Students

	p	CI (at 95%)
You receive offensive messages on the cell phone		
Do not talk to anyone about the aggressions	0.005	3.53 (1.37-9.11)
No one intervenes during the attacks	0.001	3.86 (1.62-9.19)
You have joined with someone to harm a partner	0.006	4.21 (1.38-12.77)
Make videos or take pictures of yourself without your consent		
No one intervenes	0.001	2.19 (1.38-3.48)
They circulate recordings of you without your consent		
No one intervenes	0.000	3.95 (1.92-8.09)
You have joined someone to harm a partner	0.009	3.42 (1.27-9.19)
You receive offensive messages by email		
You don't talk to anyone	0.000	10.43 (2.078-52.35)
You are harassed in the messenger or a similar program		
Teachers do nothing	0.004	3.17 (1.38-7.29)
You are excluded from a social network		
No one intervenes	0.003	2.33 (1.31-4.13)
Who attacks the student is a teacher	0.032	2.58 (1.05-6.34)

5. Discussion

The prevalence of cyberbullying in university students of Health Sciences was 20.5%, this figure is similar to that obtained by other authors (Redondo, Luzardo & Rangel, 2016; García, Muela & Espinosa, 2018; Dobarro, Tuero, Bernardo, Herrero & Álvarez, 2018; Redondo, Luzardo, García & Inglés, 2017; Méndez, Ruiz, Martínez & Cerezo, 2019), who report cyberbullying values of 22.1 to 27.5% in similar populations, however, in other studies figures have been found well above these is the case of Musharraf and Anís (2018) of 67% and Kokkinos (2014) of 58%.

The main cyberbullying strategies used by aggressors to harm their victims are to spread gossip or rumors about them (Serrano, Zarza, Serrano, 2014; Torres, Valdés & Urías, 2018; Rivadulla, 2019; Méndez, 2019), insult them (Serrano , 2014; Prieto, Carrillo, Lucio, 2015; Rivadulla, 2019), send them offensive messages (Ortega, Calmaestra and Mora-Merchán, 2008; Serrano, 2014; López, 2017; Torres, 2018; Méndez, 2019), ridicule them through from the network (Prieto, 2015; Torres, 2018), exclude them from a social network or a group that communicates online (Serrano, 2014; Rivadulla, 2019). In our study the main strategies used by the aggressors were: take photos, make videos and recordings of the students, and then publish them on social networks or circulate them through the mobile phone.

In traditional harassment, the aggressor uses all the means at his disposal to keep the victim isolated, preventing the victim from communicating or sympathizing with his companions and they can help him during the attacks (Castro, 2011), in cyberbullying Something similar happens, it's very common that some of the students are excluded from a social network or a group of friends who communicate online, as happened in our study where this strategy took second place, according to the frequency with which It was used by the aggressors.

Regarding the strategies used by the aggressors according to the gender of the victims, in a study carried out in 864 students from six universities in the Northwest of Spain, it was found that the strategy most commonly used by both men and women, was to send Text messages to insult, offend and threaten victims, also another of

the conclusions of this study, was that the spread of rumors and social isolation was more used by women, while men made greater use of exclusion in social networks (Rivadulla, 2019). In our study the strategies used by the aggressors, were different according to the gender of the victims, in men it was more common to take photos and videos, make recordings and send offensive messages on the cell phone, while in Women were more frequent to use the exclusion of a social network or a group that communicates through the internet, harassment through chat, messenger or a similar program and offensive calls on the cell phone.

According to certain authors (Álvarez, Núñez, Álvarez, Dobarro, Rodríguez & González, 2011; Sentse, Kretschmer & Salmivalli, 2015), there is no relationship between cyberbullying and the gender of the victims. On other studies such as those carried out by Durán and Martínez (2015) and Navarro, Larrañaga and Yubero (2016), they point out that men are more involved in cyberbullying, compared to women. Finally, a third group of researchers (Patchin & Hinduja, 2012; Schneider, O'Donnell, Stueve & Coulter, 2012; Méndez, 2019; Buelga, 2010; Rodríguez Correa, 2018; Méndez, 2019), ensures that women are more victims of cyberbullying compared to men, our results are consistent with the data obtained by Durán (2015) and Navarro (2016), about the fact that males obtained higher scores as victims of cyberbullying, in addition to presenting a higher risk of receiving offensive messages by the cell phone and recordings of them were circulated without wishing to, compared to women.

In our study, the proportion of cyberbullying victims was 19.3%, a value similar to that obtained by other authors such as León del Barco (2013) of 18.1%, Musharraf (2018) of 25% and Méndez (2019) of 27.5%, with Regarding the aggressors in our study, a value of 8.2% was found, similar to that of León del Barco (2013) of 9.1%, lower than that of Méndez (2019) of 26.5%, but greater than that of Musharraf (2018) of 4% .

About the gender of the victims, it was found that the proportion of male victims was 22.2%, higher than those found in MOCIBA (2017) of 16%, Rodríguez and Rivadulla (2018) of 8.5% and Rivadulla (2019) of 14.3% the proportion of female victims was 17.7%, this figure was identical to that found in MOCIBA (2017), although above that found by Rivadulla (2019) of 15.2% and lower than that of Rodríguez (2018) of 21.64%. In our study, both men and women, behaved as aggressors (8.2%), meanwhile Rodríguez (2018) found a greater proportion of women aggressors 10.8% vs. 4.5% in men, while Akcan (2017) reports that males are more aggressors 6.6% than females 4.5%. The proportion of students with victim/aggressor behavior in our study was 1.5%, lower than that reported in other investigations (Méndez, 2019; Dorantes, 2017; López, 2017; Musharraf, 2018).

Regarding age, some authors (Rodríguez, 2018; Méndez, 2019), point out that the highest number of victims is in young people between 18 and 20 years old, in our study it was observed that students over 20 years of age, they participate more actively in cyberbullying behaviors either as victims, aggressors or victim/aggressor, these results are consistent with those reported in the Cyberbullying Module (2017) of INEGI, it was also found that students over 20 years of age are at greater risk of presenting a behavior as a victim/aggressor, compared to those under 20 years of age.

Some authors (Lucio, 2009; Prieto, 2015; Rodríguez, 2018), point out that the cellphone is the most used tool to generate cyberbullying in university students, while Ortega (2008), García and Jiménez (2010), Buelga (2010) , García, Joffre, Martínez and Llanes (2011), Torres (2018), on the contrary, identify social networks as the main means through which students are victimized. In our study the use of the internet (16.5%), was slightly higher than the cell phone (14.1%).

García-Bacete, Sureda and Monjas (2010), point out that cyberbullying victims lack effective interpersonal skills, which negatively affects their personal, school and social adjustment and increases their vulnerability to

cyberbullying (Rodríguez, Ortega & Zych, 2014; Navarro, Ruiz-Oliva, Larrañaga & Yubero, 2015). In our study, having few friends, not commenting with anyone about the aggressions, that no one intervenes during them, or that other students join with the aggressor, increases the risk of becoming a victim of cyberbullying.

According to different authors (Hoyos, Llanos & Valega, 2011; Martínez, Henao & Velasco, 2016; Ríos, Romero & Olivo, 2013; Millán, Barrera & Ospina, 2015), it is more common for students to be attacked in the classroom class and that the aggressors, attend the same semester as the victims (Hoyos, 2011; Guevara & Botero, 2011; Martínez, 2016), the results of our study agree with these authors, this is to some extent logical, the fact that students share so much time together allows some of them to dedicate themselves to recording or taking photos of their classmates, in shameful, uncomfortable or compromising situations, which they then circulate via cellphone or internet, sometimes to hang out or with the intention of discrediting them, ridiculing them and making them feel bad.

According to Ramos and Vázquez (2011), 21.1% of students report having been mistreated by their teachers, in our study this situation proved to be a risk factor for students to be excluded from a social network or a group of students who communicates online, perhaps the mistreatment that a teacher exerts on a student, encourages or encourages his classmates to also be taught with him. Likewise, the fact that a teacher does not intervene to stop the aggressions is a risk factor for students to be victims of cyberbullying. In the same sense, suffering from cyberbullying is a risk factor for students to be afraid to go to school, as has been pointed out by other authors (Muñoz, 2016; Rivadulla, 2019), probably because they know perfectly well that in this place they will be harmed.

6. Study Limitations

One of the limitations of this study was that only students who were in the first semester of the different courses taught at this university center were included, therefore, the results cannot be extrapolated to students from other semesters. It is suggested that future research includes students from more advanced semesters, including those who are doing professional practices and/or social service, which would yield data on this problem in other contexts. In addition to the variables included in this study, some others could be explored such as socioeconomic status, ethnicity, religion, academic performance, on the other hand, students with low academic performance, those who do not attend school regularly or who leave the race, to establish possible relationships between harassment and these variables.

7. Conclusions

One in five university students is harassed through different information and communication technologies. The main strategies used by the aggressors were to take photos and videos of the students and exclude them from a social network or a group of friends who communicate online. The strategies used by the aggressors vary according to the gender of the victims. The risk factors for becoming victims of cyberbullying were: not talking to anyone about the attacks, that nobody intervenes during them, that other classmates join the aggressor to attack a classmate, the teacher does not intervene to stop the attacks or failing that this person is the one who exercises abuse against the student.

References

Akcan G. and Ozturk E. (2017). "The investigation of predictors of ciberbullying and ciber victimization in university students", *Forensic Research & Criminology International Journal*, Vol. 4, No. 5, 00128, doi: https://doi.org/1010.15406/frcij.2017.04.00128.

Alexy E. M., Burgess A. W., Baker T. and Smoyak S. A. (2005). "Perceptions of cyberstalking among college students", *Brief Treatment and Crisis Intervention*, Vol. 5, No. 3, pp. 279–289, doi: https://doi.org/10.1093/brief-treatment/mhi020.

Álvarez D., Núñez J. C., Álvarez L., Dobarro A., Rodríguez C. and González P. (2011). "Violencia a través de las tecnologías de la información y la comunicación en estudiantes de secundaria", *Anales de Psicología*, Vol. 27, No. 1, pp. 221–231, available online at: https://www.researchgate.net/publication/235447422.

Arıcak O. T. (2009). "Psychiatric symptomatology as a predictor of cyberbullying among university students", *Eurasian Journal of Educational Research*, Vol. 34, pp. 167–184.

Asociación Mexicana de Internet (2018). Estudio sobre los Hábitos de los usuarios de Internet en México.

Avilés J. M. (2009). "Ciberbullying: Diferencias entre el alumnado de secundaria", *Boletín de Psicología*, Vol. 96, pp. 79–96, available online at: https://www.uv.es/seoane/boletin/previos/N96-6.pdf.

Bello L. and Flores J. G. (2016). "Memorias Reacciones ante el ciberbullying en estudiantes universitarios", in: *4° Encuentro de Jóvenes Investigadores – CONACYT 11° Coloquio de Jóvenes Talentos en la Investigación Acapulco*, Guerrero 21, 22 y 23 de septiembre 2016, *Tlamati Sabiduría*, Vol. 7, No. 2, available onlien at: http://tlamati.uagro.mx/t7e2/214.pdf.

Bickham D. S. and Rich M. (2009). "Global assessment of online threats and intervention opportunities for adolescents", *Journal of Adolescent Health*, Vol. 44, No. 2, Supplement 1, pp. S18–S19, doi: https://doi.org/10.1016/j.jadohealth.2008.10.053.

Buelga S., Cava M. and Musitu G. (2010). "Cyberbullying: victimización entre adolescentes a través del teléfono móvil y de Internet", *Psicothema*, Vol. 22, No. 4, pp. 784–789, vailable online at: http://www.psicothema.com/pdf/3802.pdf.

Buelga S. and Pons J. (2012). "Agresiones entre adolescentes a través del teléfono móvil y de internet", *Psychosocial Intervention*, Vol. 21, No. 1, pp. 91–101, doi: https://doi.org/10.5093/in2012v21n1a2.

Castro J. (2011). "Acoso escolar", *Revista de Neuro-Psiquiatría*, Vol. 74, No. 2, pp. 242–249, doi: https://doi.org/10.20453/rnp.v74i2.1681.

Defensor del Pueblo (2000). *Informe sobre violencia escolar: el maltrato entre iguales en la educación secundaria obligatoria*, Madrid: Publicaciones de la Oficina del Defensor del Pueblo.

Dobarro A., Tuero E., Bernardo A. B., Herrero F. J. and Álvarez D. (2018). "Un estudio innovador sobre acoso on-line en estudiantes universitarios", *Revista de Innovación Docente Universitaria*, Vol. 10, pp. 131–142, doi: https://doi.org/10.1344/RIDU2018.10.12

Dorantes C. J. J. (2017). "Las representaciones sociales de los estudiantes sobre la violencia. Caso Universidad Veracruzana", in: Ruíz Libreros M. E. (2017), *Complejidad, innovación y sustentabilidad: Experiencias educativas*, Universidad Veracruzana, Xalapa- Veracruz: CODICE/Taller editorial, pp. 163–179.

Durán M. and Martínez R. (2015). "Ciberacoso mediante teléfono móvil e Internet en las relaciones de noviazgo entre jóvenes", *Revista Comunicar*, Vol. 44, No. 22, pp. 159–167, doi: https://doi.org/10.3916/C44-2015-17.

Garaigordobil M. (2011). "Prevalencia y consecuencias del cyberbullying: una revisión", *International Journal of Psychology and Psychological Therapy*, Vol. 11, No. 2, pp. 233–254, available online at: https://www.researchgate.net/publication/268810981.

García A. and Jiménez A. (2010). "Estudio exploratorio y descriptivo del cyberbullying en escolares de secundaria", *Revista Qurriculum*, Vol. 23, pp. 155–164, doi: https://doi.org/10272/11307.

García-Bacete F. J., Sureda I. and Monjas M. I. (2010). "El rechazo entre iguales en la educación primaria: una panorámica general", *Anales de Psicología*, Vol. 26, No. 1, pp. 123–136, available online at: http://hdl.handle.net/10234/30210.

García G., Joffre V. M., Martínez G. J. and Llanes A. (2011). "Ciberbullying: forma virtual de intimidación escolar", *Revista Colombiana de Psiquiatría*, Vol. 40, No. 1, pp. 115–130, doi: https://doi.org/10.1016/S0034-7450(14)60108-6.

García L. J., Muela J. A. and Espinosa L. (2018). "Elaboración de un informe de diagnóstico sobre la incidencia del 'sexting' y ciberacoso entre los miembros de la comunidad universitaria Autores", Profesores Titulares del Área de Personalidad, Evaluación y Tratamiento Psicológico del Departamento de Psicología en la Universidad de Jaén, noviembre de 2018.

Garrote D., Jiménez S. and Gómez I. M. (2018). "Problemas Derivados del Uso de Internet y el Teléfono Móvil en Estudiantes Universitarios", *Formación Universitaria*, Vol. 11, No. 2), pp. 99–108, doi: https://doi.org/10.4067/S0718-50062018000200099.

Guevara C. A. and Botero S. (2011). "Prevalencia de abuso y factores asociados en una escuela de medicina colombiana", *Colombia Medica*, Vol. 42, pp. 490–500, doi: https://doi.org/10.2510/colomb.

Hernández M. A. and Solano I. M. (2007). "Ciberbullying, un problema de acoso escolar", *Revista Iberoamericana de Educación a Distancia*, Vol. 10, No. 1, pp. 17–36, doi: https://doi.org/10.5944/ried.1.10.1011.

Hoyos O., Aparicio J. and Córdoba P. (2005). "Caracterización del maltrato entre iguales en una muestra de colegios de Barranquilla (Colombia)", *Psicología desde el Caribe*, Vol. 16, pp. 1–28, oai: clacso:co/co-015:21301601oai.

Hoyos O. L., Llanos M. and Valega S. J. (2011). "El maltrato entre iguales por abuso de poder en el contexto universitario: incidencia, manifestaciones y estrategias de solución", *Universitas Psychologica*, Vol. 11, No. 3, pp. 793–802, doi: https://doi.org/10.11144/javeriana.upsy11-3.miap.

Huesmann L. R. (2007). "The impact of electronic media violence: Scientific theory and research", *Journal of Adolescent Health*, Vol. 41, No. 6, Supp. 1, pp. S6–S13, doi: https://doi.org/10.1016/j.jadohealth.2007.09.005.

INEGI, Módulo sobre Ciberacoso (MOCIBA) (2017). Nota Técnica, Comunicado de prensa. 185/19, 10 de abril 2019.

Katzer C., Fetchenhauer D. and Belschak F. (2009). "Cyberbullying: Who are the victims? A comparison of victimization in Internet chatrooms and victimization in school", *Journal of Media Psychology*, Vol. 21, No. 1, pp. 25–36, doi: https://doi.org/10.1027/1864-1105.21.1.25

Kokkinos C. M., Antoniadou N. and Markos A. (2014). "Cyber-bullying: An investigation of the psychological profile of university student participants", *Journal of Applied Developmental Psychology*, Vol. 35, pp. 204–214, doi: https://doi.org/10.1016/j.appdev.2014.04.0010193-39.

Kraft E. M. and Wang J. (2010). "An exploratory study of the cyberbullying and cyberstalking experiences and factors related to victimization of students at a public liberal arts college", *International Journal of Technoethics*, Vol. 1, No. 4, pp. 74–91, doi: https://doi.org/10.4018/jte.2010100106.

León del Barco B., Mira A. R., Verdasca J. L., Castaño E. F. and Gómez T. (2013). "Cyberbullying en centros de enseñanza básica y secundaria del Alentejo (Portugal)". *Educaçao. Temas e Problemas*, Vol. 12–13, pp. 239–251.

Li Q. (2006). "Cyberbullying in schools: A research of gender differences", *School Psychology International*, Vol. 27, pp. 157–170, doi: https://doi.org//10.1177/0143034306064547.

López M. (2017). "Acoso escolar y cibernético en estudiantes universitarios", *Revista de Investigación en Educación*, Vol. 15, No. 1, pp. 11–26.

Lucio L. A. (2009). "El Cyberbullying en estudiantes del nivel medio superior en México", in: *Memorias del X Congreso Nacional de Investigación Educativa*, Veracruz, MX: COMIE, pp. 1–11, vailable online at: http://hdl.handle.net/20.500.11799/49383.

Machackova H. and Pfetsch J. (2016). „Bystanders' responses to offline bullying and cyberbullying: The role of empathy and normative beliefs about aggression", *Scand J. Psychol*, Vol. 57, pp. 169–176, doi: https://doi.org/10.1111/sjop.12277.

Martínez C., Henao D. A. and Velasco C. A. (2016). "Bullying en estudiantes de medicina de una universidad pública de Cali, Colombia 2012–2013", *Rev Gastrohnup*, Vol. 18, No. 3, pp. 1–13, doi: https://doi.org/10.13140/RG.2.1.1142.2566.

Méndez I., Ruiz C., Martínez J. P. and Cerezo F. (2019). "Ciberacoso según características sociodemográficas y académicas en estudiantes universitarios", *Revista Española de Pedagogía*, Vol. 77, No. 273, pp. 261–276, doi: https://doi.org/10.22550/REP77-2-2019-06.

Millán L. C., Barrera L. F. and Ospina J. M. (2015). "Caracterización del bullying en estudiantes de medicina de Tunja, Boyacá", *Revista Virtual Universidad Católica del Norte*, Vol. 45, pp. 101–112, available online at: http://revistavirtual.ucn.edu.co/index.php/RevistaUCN/article/ view/659/1191.

Monks C. P., Smith P. K., Naylor P., Barter C., Ireland J. L. and Coyne I. (2009). "Bullying in different contexts: Commonalities, differences and the role of theory", *Aggression and Violent Behavior*, Vol. 14, No. 2, pp. 1359–1789, doi: https://doi.org/10.1016/j.avb.2009.01.004.

Morales T. and Serrano C. (2014). "Manifestaciones del ciberbullying: por género entre los estudiantes de bachillerato", *Ra Ximhaai*, Vol. 10, No. 2, pp. 235–261, available online at: http://hdl.handle.net/20.500.11799/39300.

Muñoz J. (2016). "Factores de riesgo en el acoso escolar y el ciberacoso: implicaciones educativas y respuesta penal en el ordenamiento jurídico español", *Revista Criminalidad*, Vol. 58, No. 3, pp. 71–86.

Musharraf S. and Anís-ul-Haque M. (2018). "Impact of ciber aggression and ciber victimization on mental health and well-being of Pakistani young adults: The moderating role of gender", *Journal of Aggression, Maltreatment & Trauma*, Vol. 27, No. 9, pp. 942–958, doi: https://doi.org/10.1080/10926771.2017.1422838.

Nahar V., Li X., Zhang H. L. and Pang C. (2014). "Detecting cyberbullying in social networks using multi-agent system", *Web Intelligence and Agent Systems: An International Journal*, Vol. 12, pp. 375–388, doi: https://doi.org/10.3233/WIA-140301.

Navarro R., Ruiz-Oliva R., Larrañaga E. and Yubero S. (2015). "The impact of cyberbullying and social bullying on optimism, global and school-related happiness and life satisfaction among 10-12-year-old schoolchildren", *Applied Research in Quality of Life*, Vol. 10, No. 1, pp. 15–36, doi: https://doi.org/10.1007/s11482-013-9292-0.

Navarro R., Larrañaga E. and Yubero S. (2016). "Gender identity, gender-typed personality traits and school bullying: Victims, bullies and bully-victims", *Child Indicators Research*, Vol. 9, No. 1, pp. 1–20, doi: https://doi.org/ 10.1007/s12187-015-9300-z.

Olweus D. and Limber S. (2010). "Bullying in school: Evaluation and dissemination of the Olweus Bullying Prevention Program", *American Journal of Orthopsychiatry*, Vol. 80, pp. 124–134, doi: https://doi.org/10.1111/j.1939-0025.2010.01015.

Ortega R., Calmaestra J. and Mora J. A. (2007). "Cuestionario cyberbullying", available online at: https://www.uco.es/laecovi/img/recursos/ RFUY4MDDVCZWHkm.pdf.

Ortega R., Calmaestra J. and Mora J. (2008). "Cyberbullying", *International Journal of Psychology and Psychological Therapy*, Vol. 8, No. 2, pp. 183–192.

Patchin J. W. and Hinduja S. (2010). "Cyberbullying and self-esteem", *Journal of School Health*, Vol. 80, pp. 614–621, doi: https://doi.org/10.1111/j.1746-1561.2010.00548.

Patchin J. W. and Hinduja S. (2012). "Cyberbullying. An update and synthesis of the research", in: J. W. Patchin & S. Hinduja (Eds.), *Cyberbullying Prevention and Response: Expert Perspectives*, New York: Routledge, pp. 13–35.

Prieto M. T., Carrillo J. C. and Lucio L. A. (2015). "Violencia virtual y acoso escolar entre estudiantes universitarios: el lado oscuro de las redes sociales", *Innovación Educativa*, Vol. 15, No. 68, pp. 33–47.

Ramos M. and Vázquez R. (2011). "Bullying en el nivel superior", *Memorias del XI Congreso Nacional de Investigación Educativa*, Guadalajara, México, available online at: http://www.comie.org.mx.

Redondo J., Luzardo M. and Rangel K. (2016). "Ciberagresión: un estudio sobre la prevalencia en estudiantes universitarios colombianos", *Informes Psicológicos*, Vol. 16, No. 1, pp. 85–99, doi: https://doi.org/10.18566/ infpsicv16n1a05.

Redondo J., Luzardo M., García K. L. and Inglés C. J. (2017). "Impacto psicológico del ciberbullying en estudiantes universitarios: un estudio exploratorio", *Revista Colombiana de Ciencias Sociales*, Vol. 8, No. 2, pp. 458–478, doi: https://doi.org/10.21501/22161201.2061.

Reglamento de la Ley General de Salud en materia de investigación para la salud, Disponible en: http://www.salud.gob.mx/unidades/cdi/nom/compi/rlgsmis.html.

Ríos B., Romero S. L. and Olivo J. R. (2013). "La percepción del maltrato de las y los estudiantes nayaritas en las carreras universitarias de medicina y enfermería. Un primer acercamiento", *Waxapa*, Vol. 9, pp. 20–30, http://dspace.uan.mx:8080/jspui/handle/123456789/936.

Rivadulla J. C. and Rodríguez M. (2019). "Ciberacoso escolar: experiencias y propuestas de jóvenes universitarios", *Revista Iberoamericana de Educación a Distancia*, Vol. 22, No. 2, pp. 179–201, doi: https://doi.org/10.5944/ried.22.2.23541.

Rodríguez A., Ortega R. and Zych I. (2014). "Victimización étnico-cultural entre iguales: Autoestima y relaciones en la escuela entre diferentes grupos culturales de estudiantes en Andalucía (España)", *Revista de Psicodidáctica*, Vol. 19, No. 1, pp. 191–210, doi: https://doi.org/10.1387/RevPsicodidact.7909.

Rodríguez M. and Rivadulla J. C. (2018). "Percepción y experiencias sobre el ciberbullying en estudiantes universitarios", *Revista d'innovació Educativa*, Vol. 21, pp. 10–22, doi: https://doi. org/10.7203/attic.21.12956.

Schenk A. M., Fremouw W. J. and Keelan C. M. (2013). "Characteristics of college cyberbullies", *Computers in Human Behavior*, Vol. 29, pp. 2320-2327.

Sentse M., Kretschmer T. and Salmivalli C. (2015). „The longitudinal interplay between bullying, victimization, and social status: Age-related and gender differences", *Social Development*, Vol. 24, No. 3, pp. 659–677, doi: https://doi.org/10.1111/sode.12115.

Serrano H., Zarza P. and Serrano C. (2014). *Violencia de género en el Estado de México*, Toluca: UAE Mex.

Slonje R. and Smith P. K. (2008). "Cyberbullying: Another main type of bullying?", *Scandinavian Journal of Psychology*, Vol. 49, No. 2, pp. 147–154, doi: https://doi.org/10.1111/j.1467-9450.2007.00611.

Smith P. M. (2006). *Unit of School and Family Studies*, Goldsmith College: University of London.

Smith P. K., Mahdavi J., Carvalho C., Fisher S., Russell S. and Tippett N. (2008). "Cyberbullying: its nature and impact in secondary school pupils", *Journal of Child Psychology and Psychiatry*, Vol. 49, No. 4, pp. 376–385, doi: https://doi.org/10.1111/j.1469-7610.2007.01846.x.

Schneider S. K., O'Donnell L., Stueve A. and Coulter R. W. S. (2012). "Cyberbullying, school bullying, and psychological distress: A regional census of high school students", *American Journal of Public Health*, Vol. 102, No. 1, pp. 171–177, doi: https://doi.org/10.2105/AJPH.2011.300308.

Tokunaga R. (2010). "Following you home from school: A critical review and synthesis of research on cyberbullying victimization", *Computers in Human Behavior*, Vol. 26, pp. 277–287, doi: https://doi.org/10.1016/j.chb.2009.11.014.

Torres G. M., Valdés A. A. and Urías M. (2018). "Manifestaciones de violencia digital: el ciberbullying en universitarios y su afrontamiento", in: *II Congreso Virtual Internacional de Psicología*, available online at: http://congresopsicologia.psiquiatria.com.

Valkenburg P. M. and Peter J. (2007). "Preadolescents' and Adoles-cents' online communication and their closeness to friends", *Developmental Psychology*, Vol. 43, No. 2, pp. 267–277, doi: https://doi.org/10.1037/0012-1649.43.2.267.

Wegge D., Vandebosch H., Eggermont S., Van Rossem R. and Walravel M. (2016). "Divergent perspectives: Exploring a multiple informant approach to cyberbullying victimization and perpetration", *European Journal on Criminal Policy and Research*, Vol. 22, No. 2, pp. 235–251, doi: https://doi.org/10.1007/s10610-015-9287-5.

Ybarra M. L. and Mitchell K. J. (2004). "Online aggressor/targets, aggressors, and targets: A comparison of associated youth characteristics", *Journal of Child Psychology and Psychiatry*, Vol. 45, No. 7, pp. 1308-1316, doi: https://doi.org/10.1111/j.1469-7610.2004.00328.x.

Ybarra M. L., Diener-West M. and Leaf P. J. (2007). "Examining the overlap in internet harassment and school bullying: Implications for school intervention", *Journal of Adolescent Health*, Vol. 41, No. 6, pp. 42–50, doi: https://doi.org/10.1016/j.jadohealth.2007.09.004.

Wang J., Ionnotti R. and Nansel T. (2009). "School bullying among adolescents in the United States: Physical, verbal, relational, and cyber", *Journal of Adolescent Health*, Vol. 45, pp. 368–375, doi: https://doi.org/10.1016/j.jadohealth.2009.03.021.