

Cyberbullying in Rabat area Morocco: A Middle School Student Survey

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Abstract

Background:

Despite being a widely debated health issue in several countries around the globe, in Morocco there is still little research on this phenomenon of cyber bullying.

To examine the occurrence of cyber bullying among students in middle schools in Rabat area and to discover risk factors among students' cyberbullying profiles is the main purpose of the present study.

Methods:

The study that is a cross sectional one is based on a nameless self-report questionnaire about subjected cyber bullying in the course of the previous twelve months. Indeed, it was in 16 middle-schools in the urban areas of Rabat that data were collected. Aged 12 to 16 years, a number of 1914 students took part in the survey.

Seeking the interconnection between the cyber bullying groups and independent variables we used a Multinomial Logistic Regression.

Results:

Cyber bullying has been announced by 54,5% (n=1043) CI 95% (52,26-56,72) of the sample, of which 18,8% (n=360), being victims only, 11,7% (n=224) being perpetrators only, and 24,0% (n=459) being perpetrators/victims. But there wasn't any important difference to be mentioned in profile between genders. Text messages and exclusion from internet groups were the most common genre of cyber bullying behavior. Concerning traditional bullying, the prevalence were 35% (n=669) of whom 16,4% (n=313) victims only, 7,6% (n=145) perpetrators only and 11% (n=211) perpetrators/victims. Our research showed that traditional bullying was the basic risk factor of cyber bullying.

Conclusion:

In brief cyber bullying is one of the most widely spread phenomenon among adolescents in middle schools in Rabat area. Being involved in traditional bullying is the main risk. Consequently, urgent is the need to take actions against it either to eradicate violence in schools or at least reduce it.

Background

Nowadays, the excessive use of internet is widely spread among adolescents to the extent that it has dominated their daily lives. As a matter of fact, for them, internet is the only reliable source of data which amazingly replaces other means that access to knowledge. However, in their relationship with the virtual, adolescents can be either positively or negatively affected. Clearly stated, these technologies enable them not only to have easy access to learning, creativity and communication, but also to be exposed to new

risks including peer violence and Cyberbullying. The latter has emerged since the advent of information and communication technology (ICTs). It has grown to become a serious public health concern in several developed countries [1]. This phenomenon is still a major issue among researchers and educators given its severe effects and its strong negative influence on students [2, 3]. Depression [4], suicide or suicidal ideation [5], social anxiety, low self –esteem [6] addictive tendency and low academic achievement [7] are some of the most prominent negative effects of cyberbullying on adolescents' mental health.

Despite the various definitions of cyberbullying, no consensus up to date has been reached. Hinduja defines it as a «willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices» [8]. Other authors define it as «an aggressive, intentional act or behavior carried out by an individual or group of individuals repeatedly, using electronic devices against a victim who cannot easily defend himself or herself» [9]. This phenomenon is characterized by the anonymity of the perpetrator, the rapid diffusion of harmful messages, its persistence over time, the large size of the audience and the disinhibiting character of the exchanges [10].

On the other hand, the traditional bullying can be depicted by physical, verbal, relational and social aggressive behavior between peers. According to Olweus (2013), bullying is characterized by an aggressive repeated behavior and an imbalance of power [11]. In Morocco there is still little research on this phenomenon of cyber bullying.

The current study aims to investigate the prevalence of cyberbullying among middle-school students in Rabat area and to identify risk factors among students' cyberbullying profiles.

Methods

Study population

This is a cross sectional observational study. It was conducted from November 1st, 2017 to January 30th, 2018. Data were collected from a sample of students attending middle-school in the urban areas of Rabat. The study was carried out on 1914 participants aged 12 to 16 years old.

The inclusion criteria were students in middle school, aged from 12 to 16 years and had regular access to internet. The exclusion criteria were either student or parent's refusal to participate. Participant whom did not answers all questionnaires items.

Stages of the research

1st Step

The study protocol was approved by the Ethics Committee for Biomedical Research of Mohammed V University in Rabat (IORG0006594). Parents received a written letter of consent which included

information about the study, explanations about their child's participation and a reply coupon. The students were informed of the anonymous and confidential nature of the study because no investigation was done before getting students' verbal consent.

2nd Step

The study used a cyberbullying self-report questionnaire inspired from Hinduja one to which we added the item of using the cell phones. It also used the traditional bullying questionnaire inspired from Olweus one [5, 12]. Over all, the questionnaire consisted of 43 questions. including socio-demographics traits, ICTs use and the length of connection time, eight items about cyberbullying: The participants, during the last twelve months, were often asked if they committed or sustained any of these acts such as: unpleasant text messages, on-line release of personal embarrassing videos or photos without permission, access to personal information without permission and impersonating them or other person, access to their personal internet account, sharing personal data without permission, hacking personal data, personal insults in online conversations, online blocking or exclusion from groups and unpleasant phone calls. Furthermore, six items were used in traditional bullying as victim or perpetrator: Insulting, intimidating, threatening, physically assaulting, calling nicknames and excluding the victim from the group.

The students answered "yes" or "no" for any of the above cited types of bullying. The participants who answered "yes" had to specify how often it has had occurred. The choices for the frequency of bullying were "never happened", "once or twice", "two to three times a month", "once a week", "several times a week", "everyday". The questionnaire took 25 minutes to be completed.

We can't talk of cyberbullying unless the student was involved in this behavior twice or more.

The participants were divided into two groups: those involved in cyberbullying and those who were not. The first group was classified into three profiles: victims only, perpetrators only and perpetrator/victim. We proceeded in the same way concerning traditional bullying (Alpha coefficients for this scale were respectively 0,78 for cyberbullying and 0,88 for traditional bullying).

Statistical analysis

The data were analyzed using SPSS software version 13.0. Quantitative variables distribution was reported in average and standard deviation. The qualitative variables were described in percentage and compared by khi-deux test. The prevalence was calculated by dividing the number of students suffering from cyberbullying by the total number of eligible students and the confidence interval of 95% was estimated. Tests were considered statistically significant at 5%. The multinomial logistic regression has been chosen to determine the risk factors.

Results

Socio-demographic characteristics and use of ICTs

The study was carried out on 1914 participants of whom 51.8% were girls. The average age of the students was 13.6 ± 1.1 years, of which 74.9% were between 12 and 14 and 25% were between 15 and 16. This study showed that 67.7% of the participants had a mobile phone and 77.8 among them had been using internet from smartphones. In addition, data showed that 30,4% of the respondents have had access to internet several times a day. Moreover, almost the third of the participants spent more than 32 hours per week online while half of the participants spent more than 4 hours per week online. More than half of the participants.(68.9%) were chatting or communicating with their friends .(63.9%),were searching for information.(66%),were seeking online enjoyment and64,1% were using Facebook (see table 1).

Table 1
distribution of participants by
sociodemographic characteristics and
practices of ICTs

characteristics	N (%)
Age	13,6 ±1.1*
Gender	
Girls	991(51,8)
Boys	923(48,2)
Range of age	
12-14	1429(74,9)
15-16	478(25,1)
School type	
public	1598(83,5)
private	316(16,5)
Middle-school Level	
1 st	641(33,5)
2 nd	649(33,9)
3 rd	624(32,6)
Has a mobile phone	1295(67,7)
Has a computer at home	1146(59,9)
Internet connection	
By mobile phone	1490(77,8)
by computer	794(41,5)
Access to internet frequency	
Once a day	456(24,5)
Several times a day	581(30,4)
Once a week	269(14,1)
Several times a week	275(14,4)
Once a month	103(5,4)

Several times a month	181(9,5)
Duration per week	
< 4hour	16(0,9)
4-16 hour	978(55,3)
17-32hour	298(16,6)
>32hour	477(27,0)
*average and standard deviation	

Prevalence of cyberbullying and traditional bullying

Prevalence of cyberbullying were 54,5%(n=1043) CI 95% (52,26-56,72). The participants were categorized into three profiles: victims only 18.8% (n=360), perpetrators only 11,7% (n=224), and perpetrator/victims 24,0% (n=459). But there wasn't a significant difference in profile between genders. Concerning cyberbullying acts, our study has found out that boys were more likely to send unpleasant messages, show embarrassing videos and photos of their chosen victim without the permission of the latter, and make unpleasant phone calls than girls (table 2). Also, the participants between 12-14 years old (18,3%) were more likely to be victims only and those between 15-16 years old (35,4%) were more probably to be perpetrator/victims. As for traditional bullying the prevalences were 35% (n=669) with 16,4% (n=313) were victims only, 7,6% (n=145) were perpetrators only and 11%(n=211) were perpetrator/victims. There is a significant gender difference in profile of traditional bullying. Indeed, girls were more likely to be victims than boys (17,1% vs15,6%). Whereas, boys were more likely to be perpetrator/victims than girls (14,4% vs7,9%) p<0,001.

Table 2
Distribution of different acts of cyberbullying by gender.

behavior	perpetration			victimization		
	Boys n=384	Girls n=353	χ^2 p^a -value	Boys n=398	Girls n=421	χ^2 p^a -value
Sending unpleasant text messages	42,2%	25,2%	24,97***	59,3%	54,6%	1,81
Showing embarrassing videos and photos of the victim without asking for his/her permission	19,0%	10,5%	10,53**	15,2%	16,8%	0,40
Logging in to someone's IM account without his/her permission and pretending to be him/her	—	—	—	22,9%	29,5%	4,58*
Taking someone's personal mail without permission and sharing it	14,6%	10,5%	2,80	20,9%	19,5%	0,24
Hacking someone's personal data	31,5%	28,6%	0,73	29,6%	34,4%	2,15
Insulting someone online	33,6%	28,9%	1,88	32,2%	40,6%	6,31*
Blocking and excluding the victim from the online group	54,7%	57,5%	10,37**	33,2%	39,2%	3,21
Connecting to the IM account of a friend without his /her consent and claiming to be him/her	31,3%	31,2%	0,59	—	—	—
Making unpleasant phone calls	25,5%	15,9%	0,001	24,6%	24,5%	0,003

Note: ^aP-value by χ^2 test, *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Risk factors of cyberbullying:

Multinomial logistic regression showed that twelve out of the fifteen predictors effectively predicted cyberperpetrator/cybervictims profile. The latter was correctly identified in 62 % of instances while victims only were identified in 8,9 % of instances only. The pseudo- r^2 (Nagelkerke) was 0,32 indicating a moderate fit between the model and the data.

The main cyberperpetrator/cybervictims risk factors were being traditional bully/victim OR 9,85 $p < 0,001$, weekly duration spent online exceeds 32 hour OR= 9,63 $p < 0,05$, talking about cyberbullying OR

3,41 $p < 0,001$, parental conflict OR 2,59, $p < 0,001$. Regarding victims only the main risk factors were: talking about cyberbullying OR 3,03 $p < 0,001$, being a traditional bully/victim OR 2,91 $p < 0,001$ and parental conflict OR 2,16 $p < 0,001$. The weekly Duration spent online was also a main risk factor OR 8,06, but it was statistically insignificant (table 3).

Table 3
Multinomial regression analysis of risks of cyberbullying

Adjusted OR CI 95%			
(n=1914, Nagelkerke R²= 0,32, p< 0.001)			
variables	Victim only	Perpetrator only	Perpetrator/victim
Sociodemographic characteristics			
age 12-14 (yes)	0,77(0,55-1,06)	0,73(0,50-1,06)	0,52***(0,38-0,72)
Private school (yes)	0,56**(0,37-0,85)	0,39***(0,23-0,64)	0,41***(0,26-0,63)
Traditional bullying			
victim	1,85**(1,26-2,72)	1,44(0,89-2,32)	3,88***(2,68-5,64)
bully	1,62(0,94-2,80)	1,97*(1,08-3,58)	3,03***(1,81-5,06)
Bully/victms	2,91***(1,68-5,03)	3,31***(1,81-6,07)	9,85***(6,01-16,15)
Technology used			
Access to a computer (yes)	0,98(0,71-1,34)	1,31(0,92-1,98)	1,57**(1,15-2,14)
Weekly duration spent online			
>32 hour	8,06(0,99-65,65)	4,44(0,53-36,66)	9,63*(1,08-85,90)
17-32 hour	6,02(0,73-49,29)	3,53(0,42-29,36)	7,46(0,83-66,94)
4-16 hour	3,66(0,45-29,37)	2,31(0,28-18,70)	3,18(0,36-28,07)
searching for information(yes)	0,59**(0,44-0,79)	0,59**(0,42-0,84)	0,41***(0,30-0,55)
Sharing blogs (yes)	1,30(0,94-1,79)	1,04(0,71-1,52)	1,75**(1,27-2,40)
Snapshat usage (yes)	0,86(0,59-1,26)	1,61*(1,07-2,42)	0,99(0,68-1,45)
Facebook usage (yes)	1,10(0,81-1,49)	1,29(0,89-	1,67**(1,20-2,33)

			1,87)
Family			
Parental Conflict (yes)	2,16***(1,59-2,94)	1,35(0,92-1,98)	2,59***(1,90-3,54)
Students' reaction to cyberbullying			
Talking about cyberbullying (yes)	3,03***(2,22-4,14)	1,88**(1,28-2,74)	3,41***(2,49-4,68)
Communicating with their friends (yes)	1,51*(1,08-2,11)	1,61*(1,08-2,40)	1,45*(1,03-2,05)
The reference group was the group of participants who were not involved in cyberbullying			
Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.			

Discussion

In Morocco, information and communication technologies are increasingly used in social life. Morocco has 23.7 million Internet users (according to December 2019) [13]. However, there is a lack of data about cyberbullying in middle school in our country. To our knowledge, this is the first large study about cyberbullying among middle-school students in Morocco. This study showed that the prevalence of cyberbullying was considerably important; more than half of the participants were involved in cyberbullying. All over the world, adolescents are the most involved in this phenomenon. Worldwide, prevalence of cyberbullying among adolescents ranges from 2.3–72%, with an average of 21% of victims at some point in their lives [9]. Prevalence of Cyberbullying varies from one country to another, and differences could be substantial [14]. Indeed Kowalski and Limber, in a 2007 study on 3,700 middle-school students in the United States found out, during a period of two months, a prevalence of 11% of victims, 4% of perpetrators and 7% of perpetrators-victims [15].

Mishna, in a 2012 study conducted on a sample of 2186 middle-school students in Canada, showed that more than 50% of students were involved in Cyberbullying during the last three months, 23.8% of them were victims, 8% perpetrators and 25.7% perpetrators-victims [16].

Smith and Mahdavi, in a 2008 study conducted in England on students aged 11–16 years, found out a 6,6% cyberbullying prevalence during the last couple of months [10].

A study performed in Germany in 2018 conducted on a sample of 9512 students with an average age of 14.9 years found out a prevalence of 26,7% of students involved in at least one act of online psychological aggression during the last six months [17].

In Turkey in 2008, a study on a sample of 269 secondary school students found out a prevalence of 35.7% of students who were perpetrators, 23.8% of perpetrator-victims and 5.9% of victims [18].

In Korea in 2014 on a sample of 2000 middle-school students, the prevalence of Cyberbullying during the last six months was 34.5%, of which 18.5% were perpetrators, 36.2% were victims and 41.6% were perpetrator-victim [19].

A study performed in Greece in 2013 conducted on a sample of 666 students with an average age of 14.2 years found that 62.2% of the participants had an experience of at least one event of cyberbullying by any electronic means [20].

This prevalence variability may be influenced by the difference in measurement tools, definitions used, the duration of the study, age, cultural context or internet access in each country [21, 22].

Our results indicated also that gender was not significantly associated with different profiles of cyberbullying. These data were in line with the previous studies. For some studies there were no gender differences [23]. For others, cyberbullying has a gender and profile dimension. Some authors suggested that girls were more often victims [15], while others suggested they were more often perpetrator/victims [24]. Furthermore Boys were more likely than girls to be perpetrators [18, 25]. By sharp contrast, this survey documented that the predominant cyber perpetration behavior experienced by boys was sending unpleasant text messages and excluding the other from the group online. The most frequent act of cyber victimization received by both boys and girls was receiving unpleasant text messages online. These results were consistent with the previous studies [26]. These text messages that are privileged by the adolescents could be seen as a means of liberation allowing them to let out their aggressive behavior.

Contrary to what has been shown by some studies that girls were more victimized while boys were more perpetrators in both traditional bullying and cyberbullying [27], our study showed that there is no gender difference in cyberbullying since girls were more likely to be victims and boys were more likely to be perpetrators in traditional bullying. This result agrees with the previous studies, some of whom postulate that girls are more interested in social networking through which cyberbullying is more common [28]. This finding can be probably explained by the fact that the girls who cannot be melted face to face fall to do it behind the screen and usually anonymously or with a pseudo name.

Our results showed that prevalence of cyberbullying was higher than traditional bullying. This finding was different from that of the previous studies [29]. This conflicting result should take into account the Moroccan context. Perhaps in our country adolescents hidden behind the screen prefer to use cyberbullying more than the traditional bullying so as to take revenge.

Considering risk factors of cyberbullying, this study showed that the main one was being involved in traditional bullying as bully/victim. This finding mirrors the results of previous studies [26, 16]. The perpetration of aggressive acting online seems to be a more acquired behavior. In fact, it may be an extension of traditional school bullying.

Our results revealed that spending more time online and talking frequently about cyberbullying increase the odds of being perpetrators/victims. This finding was in line with previous researches' [26, 16, 17]. This result also showed that the adolescents must have knowledge of the risk of using ICTs. High internet use increases probability of becoming involved in cyberbullying. Moreover, the more talking about it the more usual it becomes. Perhaps those involved in cyberbullying are encouraged by wrong crowd. Consequently, adolescents should be sensitized of the risks of using ICTs.

In addition, parents' conflict was associated with the risk of cyberbullying. This is consistent with previous studies. The family conflict has a major impact on adolescents' behavior. Indeed, in Morocco, Boughima et al in 2017 showed that 74.8% of women experienced violence at home. Adolescents who happened to witness violence on their mothers in 93% of the cases and were beaten with their mothers in 66.5% of the cases [30]. Such violence may be transmitted to youths and expressed through cyberbullying. The adolescents prioritize parental tyranny and become tyrant themselves. That's why parents should care more about the stability of the couple and its consequences on the future behavior of their children

[29, 31].

Although the sample was large enough, this study has a limitation: The prevalence was limited only to the region of Rabat. Therefore, we cannot generalize the results to all Moroccans. More extensive researches across the country are needed to access other risk factors and to identify students at risk early and determine the impact of Cyberbullying

Conclusions

To sum up, our finding has important implications. In fact, cyberbullying is a real social phenomenon in middle-schools. More than half of the participants were involved. The most important risk factors were: traditional bullying, time spent on internet, family conflicts, or talking about cyberbullying. Hence, parents, educators together with health professionals should be aware of these risk factors. In this respect, sensitizing parents about the importance of the above mentioned issue and organizing awareness campaigns against the serious dangers of cyber bullying can reduce or even contribute to the eradication of violence in schools.

Key Messages

What is Already Known:

Cyberbullying is a serious public health

What this Study Adds:

Cyberbullying is a real phenomenon in middle-schools, with several risk factors.

List Of Abbreviations

Information and communication technology: (ICTs)

Declarations

- **Ethics approval and consent to participate:**

Ethics approval and consent to participate were obtained before starting the study.

The procedure was carried out in accordance with the recommendations of the Internal Ethics Committee of the Center for Doctoral Studies, Faculty of Medicine and Pharmacy, Mohammed V University, Rabat, Morocco. This procedure was examined and approved by the Committee (number: IORG0006594).

Written informed consent was obtained from the participants' parents.

- **Consent for publication:**

Not Applicable in this section

- **Availability of data and materials:**

All data generated or analysed during this study are included in this published article [and its supplementary information files].

- **Competing interests**

The authors declare that they have no competing interests

- **Funding:**

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- **Authors' contributions:**

All authors read and approved the final manuscript.

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