

ARTIGO ORIGINAL

Empatia e impulsividade sexual entre estudantes de medicina que enviam imagens íntimas de parceiros

Empathy and Sexual Impulsiveness among Medical Students Who Admit to Sexting Partners' Intimate Images

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Resumo

Introdução: A prática de sexting entre estudantes de Medicina tem sido pouco estudada. Embora existam diversos tipos de comportamento envolvendo a troca de imagens sexuais, dois cenários serão examinados aqui: (a) a troca de imagens íntimas somente entre parceiros eróticos; e (b) o compartilhamento de imagens íntimas trocadas por parceiros para outras pessoas fora do relacionamento. O objetivo do estudo foi verificar diferenças empáticas entre aqueles que praticam sexting dentro de um relacionamento consensual e os que, de forma não consensual, disseminam imagens íntimas do(a) parceiro(a) para terceiros. Trata-se de um estudo transversal no qual os participantes responderam a um questionário auto-responsivo. Inventários para avaliação de empatia e impulsividade sexual, questionário sobre dados sociodemográficos e questões sobre a prática de sexting foram aplicados. Este estudo incluiu 202 estudantes de Medicina. O grupo que admitiu engajar-se em sexting, independentemente se consensualmente ou não, demonstrou maior impulsividade sexual e menor desconforto do que aqueles que negaram a prática. Apenas os estudantes que admitiram compartilhar imagens íntimas do(a) parceiro(a) mostraram menor preocupação empática (empatia afetiva) e tomada de perspectiva (empatia cognitiva) do que o grupo que negou praticar sexting. Os resultados deste estudo apoiam prévios achados em que pessoas engajadas em sexting demonstram menor desconforto pessoal com suas ações do que aqueles que não praticam. Apesar de conhecer as consequências legais de expor imagens íntimas de terceiros sem consentimento, alguns estudantes parecem preferir o risco.

Palavras-chave: sexting, estudantes universitários, empatia

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Síntese dos autores

Por que este estudo foi feito?

Nós tivemos como objetivo avaliar aspectos psicossociais de estudantes do curso de Medicina que se engajam em sexting, particularmente aqueles estudantes que já tem compartilhado imagens íntimas dos seus parceiros para terceiros. Diferentes métodos para perfilar praticantes de sexting têm sido utilizados, sejam baseados em fatores sócio-demográficos, traços de personalidade e níveis de impulsividade. Apesar disso, é inovador comparar pessoas engajadas em sexting que admitem o compartilhamento de imagens íntimas do parceiro com aqueles que negam este compartilhamento.

O que os pesquisadores fizeram e encontraram?

Estudantes de medicina com 18 anos de idade ou mais, cursando entre o primeiro e o sexto ano, foram randomicamente selecionados e contatados para participar deste estudo. Questões foram incluídas para investigar dados sócio-demográficos e fatores possivelmente relacionados com a prática de sexting, tais como o uso de álcool e outras substâncias, impulsividade sexual e empatia afetiva e cognitiva. Os participantes engajados na prática de sexting que admitiram compartilhar imagens íntimas dos seus parceiros demonstraram menores escores em empatia afetiva e cognitiva do que os outros participantes engajados em sexting.

O que essas descobertas significam?

Nosso estudo sugere que a carência de habilidades empáticas pode ser preocupante entre pessoas engajadas na prática de sexting que já têm compartilhado imagens íntimas dos seus parceiros. E, de fato, alarmante que cerca de 20% desta amostra possa padecer de déficits em empatia. Além disso, dentro do grupo de praticantes de sexting que têm já compartilhado imagens íntimas de parceiros, foram observados mais problemas com o sistema de justiça criminal.

INTRODUCTION

The widespread availability of digital photographic devices and the use of images as a form of communication rather than a repository of memories have increased the dissemination of sexualized images. Often this conduct assumes the form of sexting images, that is, the sending of sexualized images from one person to another, commonly in a context of mutual sexual interest¹. Although there are many types of sexting images, three basic scenarios can be identified: (a) exchange of images solely between two erotic partners; (b) exchange of intimate images between partners that are shared with others outside the relationship, and (c) exchanges between people who are not yet in a relationship². In other words, there are people who receive nude or intimate images but do not share them and others who receive these images and share them with others.

The prevalence of sexting has been found to vary across studies. Chalfen (2009)³ points to a survey carried out by the National Campaign to Prevent Teen and Unplanned Pregnancy (USA), showing that about 71% of teen girls and 67% of teen boys reported sending or posting sexually suggestive image to a known or still unknown erotic partner. Strassberg *et al.* (2013)⁴ reported that about 20% of high school students have already sent a sexually explicit image of themselves via smartphone and nearly twice as many had received such an image. Among young adults aged 18 to 24, about 28% engaged in sexting by sending and receiving nude or semi-nude images or video of themselves or someone else and almost 13% had received such an image or video from someone else⁵. The reality is that many of these senders/sexters risk being ridiculed and even slut-shamed by their colleagues and family members if these images are shared by the sextee. In truth, young people may send nude or intimate images of themselves to friends or partners, trusting promises of confidentiality and respect.

In addition, some of these cases have come to public attention because of the tragic suicides that followed such humiliation and online bullying⁶.

People who send their intimate images may have a variety of motivations, such as the pressure of the partner, the desire to be fun or flirtatious, asking for feedback about their bodies, and to practice safer sex (sending nude images to avoid physical contact)³.

In addition, different profiling methods have been applied to characterize sexting-engaged people based on sociodemographic factors, personality traits, and impulsiveness levels. Some authors have contended that single white men are the group that most engages in sexting⁷. However, other studies have found that women engage the most in sexting behaviors⁸. The use of illicit drugs in the last month, specially cannabis, has also been associated with young adults engaging in sexting⁹. In addition, sexting has been associated with unprotected intercourse and pleasure in sex, suggesting that those engaged in sexting may have a propensity for risky and high intensity activities^{7,10}. Based on these data, we may posit that individuals high in sensation seeking, impulsiveness, and lack of self-control assume risky activities simply to have the experience^{11, 12}. In addition, people engaged in sexting have shown lower scores on Agreeableness and Conscientiousness^{11, 13, 14}.

There have been a number of studies of the psychosocial aspects of sexting among young people and of the psychological status of the victims whose images were exposed to others. However, there is less understanding of what factors motivate young people to share their partners' intimate images with others. As sharing partners' intimate images can be considered a type of cyberbullying, findings of studies of personality in cyberbullying situations may contribute to our research. Bullies tend to show low self-control, little empathy for their peers, high reactive aggressiveness, high emotional instability, high Machiavellianism, and high emotional callousness¹⁵⁻¹⁷, and to exhibit traits of narcissism¹⁸.

The aim of this study was to verify differences between consensual relationships through sexting and non-consensual distribution of intimate images. In other words, we should not confuse those receivers (sextees) who keep the images private with those who intentionally transmit them to others.

Based on studies of people engaged in sexting and in cyberbullying, we hypothesized that young people engaged in sexting in general will belong more frequently to the male gender and will show higher levels of sexual impulsiveness, more frequent illicit drug use, and lower discomfort or distress than those not engaged in sexting.

In addition, we also hypothesized that those who send partners' intimate images to others show lower cognitive and affective empathy.

METHODS

Procedure

This was a cross-sectional study in which participants provided information through a self-reported questionnaire. All interviews were conducted in a private room; each lasted between 40 and 60 minutes. Interviewers offered participants the opportunity to discuss the results of their assessment. Specially trained interviewers supervised by the first author of this manuscript conducted all interviews. This study was approved by the Ethics Committee of ABC Medical School, Santo André, São Paulo, Brazil. All participants provided informed consent.

Participants

From May 2017 to June 2019, a total of 213 medical students aged 18 and over who were attending the first through sixth year at ABC Medical School were randomly selected and contacted to join this study. Participants were assured that participation was voluntary, that only the researchers would see the data, and that all data would be kept confidential. No financial reward was provided because this is not allowed under Brazilian law. The participants were then divided into three groups: a) Those not engaged in sexting; b) those engaged in sexting but denying sharing partners' intimate images; and c) those participants engaged in sexting and admitting to sharing partners' intimate images.

Measures

The participants provided information through a questionnaire. We included questions to determine sociodemographic factors and factors possibly associated with sexting behaviors, such as use of alcohol and other drugs, as well as two validated instruments.

The instruments Interpersonal Reactivity Index (IRI)^{19,20} and Sexual Addiction Screening Test (SAST)^{21,22}, and questions about sexting behavior were thus the study instruments.

Interpersonal Reactivity Index (IRI)^{19,20}

The IRI was developed to address the limitations of a variety of other empathy measures. It is a 28-item questionnaire measured on a 5-point Likert-type scale ranging from 0 (does not describe me well) to 4 (describes me well). This questionnaire is divided into four subscales - Perspective Taking, Fantasy, Empathic Concern, and Personal Distress - of seven items each.

These subscales describe aspects of the affective and cognitive empathy:

Perspective Taking: shows the tendency to spontaneously accept the psychological point of view of others.

Fantasy: represents the tendency to put one self into the feelings and actions of fictitious characters in books, movies, and plays;

Empathic Concern: assesses feelings of sympathy

and concern for unfortunate others;

Personal Distress: measures feelings of personal anxiety and unease in tense interpersonal settings²³.

The Sexual Addiction Screening Test (SAST)^{21,22}

This test assesses sexually compulsive or addictive behavior. Designed through cooperation with hospitals, treatment programs, private therapists, and community groups, the SAST provides a profile of responses that discriminate between sexually addictive and non-addictive behaviors. It contains 25 yes/no questions, and a cutoff score of 6 or more (score range: 0–25) that indicates a probable addiction to sex.

Sexting behaviors

This study has also measured respondents' engagement in a range of sexting-related behaviors using categorical answers. Questions concern the amount of pornography consumption, participation in sexual communication virtual environments, problems with the criminal justice system due to sexting activities, and whether the students have already been victims of sexting.

Analyses

Categorical variables were compared with the χ^2 test or the Fisher's exact test. Parametric one-way analysis of variance (ANOVA) was used to analyze continuous data. Post-hoc comparisons of each group were performed if there were significant statistically differences among the groups.

Multinomial logistic regression analysis was constructed to adjust the associations of the empathy-related factors and sexual impulsiveness with the three groups of participants (those not engaged in sexting, those engaged in sexting but denying sharing partners' intimate images, and those engaged in sexting and admitting to sharing partners' intimate images). Only the independent variables with significance levels below 0.10 in univariate analyses were retained in this model²⁴. Statistical analyses were performed with SPSS for Windows, version 22.0 (SPSS, Chicago, IL, USA). For all statistical tests, differences among groups were accepted as significant if they achieved a 0.05 level with 2-tailed tests.

RESULTS

Sociodemographic Features

Of the questionnaires applied, 11 (5.16%) were discarded due to incomplete or incongruent answers, leaving 202 participants. The overall mean age was 21.05 (SD = 2.25) years old. Three groups were identified: (a) students not engaged in sexting (62; 30.69%), (b) students engaged in sexting but denying sending partners' intimate images (98; 48.51%), and (c) students engaged in sexting and admitting to having already sent partners' intimate images (42; 20.80%). The variables were tested for outliers and for normality.

As shown in Table 1, there were no significant differences among the groups in terms of age, race, marital status, alcohol use, first-degree parents with alcohol or

Tabela 1: Psychosocial features between University Students engaged and non-engaged in sexting

Variables	Not engaged in sexting (n = 62)	Engaged in sexting (n = 140)		p
	(A)	Deny sending partners' intimate images (n = 98) (B)	Have already sent partners' intimate images (n = 42) (C)	
Age, mean (SD)	21.40 (2.24)	20.96 (2.15)	20.74 (2.45)	F(2, 199) = 1.26, p = 0.29
Sex, n (%)				
Male	8 (12.90)	44 (44.90)	21 (50)	$\chi^2(2) = 21.60, p < 0.01^{**}$
Female	54 (87.10)	54 (55.10)	21 (50)	
				A ≠ B, $\chi^2(1) = 16.29, p < 0.01^{**}$
				A ≠ C, $\chi^2(1) = 15.34, p < 0.01^{**}$
Race, n (%)				
White	51 (82.26)	91 (92.96)	38 (90.48)	$\chi^2(2) = 4.49, p = 0.11$
Non-white	11 (17.74)	7 (7.14)	4 (9.52)	
Marital status, n(%)				
Married	5 (8.06)	5 (5.10)	1 (2.38)	$\chi^2(2) = 1.61, p = 0.45$
Single	57 (91.94)	93 (94.90)	41 (97.62)	
Alcohol use, n(%)	53 (85.48)	76 (77.56)	38 (90.48)	$\chi^2(2) = 3.92, p = 0.14$
Illicit drug use, n (%)	17 (27.42)	48 (48.98)	22 (52.38)	$\chi^2(2) = 9.07, p = 0.01^*$
				A ≠ B, $\chi^2(1) = 6.45, p = 0.01^*$
				A ≠ C, $\chi^2(1) = 5.63, p = 0.02^*$
First-degree relatives with alcohol use problems, n (%)	6 (9.68)	17 (17.35)	4 (9.52)	$\chi^2(2) = 2.61, p = 0.27$
First-degree relatives with illicit drug use problems, n (%)	0	5 (5.10)	1 (2.38)	$\chi^2(2) = 3.50, p = 0.17$
Sexual orientation, n (%)				
Heteronormative	61 (98.39)	86 (87.76)	38 (90.48)	$\chi^2(2) = 5.65, p = 0.06$

* p < 0.05; ** p < 0.01

illicit drug use problems, and sexual orientation. However, there were significant differences between the groups in terms of biological sex and illicit drug use. Post hoc tests with linear correction indicated that, regarding the variables of sex and drug use, the two groups of students engaged in sexting were more frequently male and used illicit drugs more frequently than the students who denied any engagement in sexting. It is important to emphasize that cannabis was the illicit drug used most.

Psychometric Measures

After performing a test of homogeneity of variance (Kolmogorov-Smirnov Z), the SAST variable showed a non-normal distribution; log-transformation allowed SAST to be analyzed with ANOVA. As shown in Table 2, only the variable Fantasy was not statistically different among the three groups. However, with respect to the other empathy-related factors, there was no significant difference between

the sexting and non-sexting groups according to a post hoc testing using the Bonferroni-adjustment method. We thus conducted multinomial logistic regression to control and adjust for the effects of all psychometric variables on the groups. In this analysis, the group of students who denied any engagement in sexting was used as the reference group.

As shown in Table 3, the groups of students engaged in sexting (with or without the sharing of partners' intimate images) demonstrated higher sexual impulsiveness and lower personal distress than the reference group. Only the group of students who admitted to sharing partners' intimate images showed lower empathic concern and perspective taking than the reference group. For this analysis, the test of the model with all predictors against a constant was statistically significant ($\chi^2(8) = 108.17, p < 0.01$), with Nagelkerke R² of 0.47. About 70% of the total sample was correctly classified.

Tabela 2: Personality traits and sexual impulsiveness between University Students engaged and non-engaged in sexting

Variables	Not engaged in sexting (n = 62)	Engaged in sexting (n = 140)		p
	(A)	Deny sending partners' intimate images (n = 98) (B)	Have already sent partners' intimate images (n = 42) (C)	
Perspective-taking, mean (SD)	15.53 (2.77)	14.16 (2.78)	12.21 (4.32)	F(2, 199) = 13.81, p < 0.01** A > B (SE = 0.51, p = 0.03*) A > C (SE = 0.63, p < 0.01**) B > C (SE = 0.58, p < 0.01**)
Fantasy, mean (SD)	13.59 (3.58)	12.86 (3.72)	12.26 (3.39)	F(2, 199) = 1.79, p = 0.17
Empathic concern, mean (SD)	10.48 (2.26)	10.33 (2.57)	7.62 (2.73)	F(2, 199) = 20.26, p < 0.01** A > C (SE = 0.51, p < 0.01**) B > C (SE = 0.46, p < 0.01**)
Personal distress, mean (SD)	15.84 (2.29)	14.36 (3.34)	12.71 (4.28)	F (2, 199) = 11.44, p < 0.01** A > B (SE = 0.66, p < 0.01**) A > C (SE = 0.53, p = 0.02*) B > C (SE = 0.60, p = 0.02*)
SAST, mean (SD)	1.52 (2.29)	3.88 (3.35)	6.36 (4.42)	F(2, 199) = 26.87, p < 0.01** A < B (SE = 0.54, p < 0.01**) A < C (SE = 0.66, p < 0.01**) B < C (SE = 0.61, p < 0.01**)

* p < 0.05; ** p < 0.01; SAST, Sexual Addiction Screening Test

Tabela 3: Personality traits and sexual impulsiveness between University Students engaged and non-engaged in sexting

Variables	SE	Wald ^a χ^2	df	p	Adjusted OR	CI (95%)
Denied sending partners' images						
Perspective taking	0.07	3.56	1	0.06	0.87	0.76-1.01
Empathic concern	0.07	1.52	1	0.22	0.91	0.79-1.05
Personal distress	0.07	4.91	1	0.03*	0.85	0.74-0.98
SAST	0.09	15.38	1	< 0.01**	1.47	1.21-1.78
Constant	1.72	8.07	1	< 0.01**		
Have already sent partners' images						
Perspective taking	0.09	6.58	1	0.01*	0.79	0.67-0.94
Empathic concern	0.12	21.19	1	< 0.01**	0.58	0.46-0.73
Personal distress	0.09	5.06	1	0.02*	0.82	0.69-0.97
SAST	0.11	25.43	1	< 0.01**	1.73	1.40-2.14
Constant	2.01	20.61	1	< 0.01**		

* p < 0.05; ** p < 0.01 . SAST, Sexual Addiction Screening Test

Sexting Behaviors

As shown in Table 4, among only the participants engaged in sexting, there were no significant differences in Internet use, amount of pornography consumption, participation in pornographic virtual environments, main

device used for sexting, or the fact of being a victim of sexting. However, the group that admitted to sharing partners' intimate images showed more frequent problems with the criminal justice system than their counterparts.

Table 4: Sexual behaviours among university students who engaged in sexting

Variables	Denied sending partners' images (n = 98)	Have already sent partners' images (n = 42)	p
Amount of internet-use, n (%)			
How often do you see internet outside of school ?			$\chi^2 (3) = 5.28, p = 0.15$
Daily	27 (27.55)	14 (33.33)	
Weekly	67 (68.37)	23 (54.76)	
Monthly	1 (1.02)	3 (7.15)	
More rarely	3 (3.06)	2 (4.76)	
Amount of pornography consumption, n (%)			
How often do you watch pictures or videos in which naked men or women are depicted ?			$\chi^2 (3) = 1.06, p = 0.79$
Daily	9 (9.18)	6 (14.29)	
Weekly	45 (45.92)	20 (47.62)	
Monthly	20 (20.41)	7 (16.66)	
More rarely	24 (24.49)	9 (21.43)	
Participation in pornographic virtual environments, n (%)			
Have you participated in a social group aiming to share pornographic material ?			$\chi^2 (1) = 5.36, p = 0.02^*$
Yes	9 (9.18)	10 (23.81)	
Justice Problems, n (%)			
Have you had any problems with the criminal justice system due to sexting behaviours ?			$\chi^2 (1) = 7.15, p < 0.01^{**}$
Yes	0	3 (7.14)	
Devices, n (%)			
What is the main device you have used to share (to send or to receive) pornographic material ?			$\chi^2 (2) = 2.92, p = 0.23$
Smartphones	91 (92.86)	40 (95.24)	
Computers	2 (2.04)	2 (4.76)	
Other	5 (5.10)	0	
Victim of sexting, n (%)			
Have you already been victim of sexting ?	3 (3.06)	3 (7.14)	$\chi^2 (1) = 1.19, p = 0.29$

* p < 0.05; ** p < 0.01

DISCUSSION

The results of this study support previous findings that individuals engaged in sexting have significant problems with drug use (particularly cannabis), belong more frequently to the male gender, show higher sexual impulsiveness, and demonstrate lower personal discomfort with their actions than people not engaged in sexting. In addition, our results also are in line with the findings of studies of cyberbullies. Those participants engaged in sexting who admitted to sending partners' intimate images also showed lower empathic concern and greater difficulty spontaneously adopting the psychological point of view of their victims, that is, affective and cognitive empathy.

Empathy commonly requires good self-regulation skills and moderate levels of arousal such that the individual can understand the needs and emotions of others. This seems to be somewhat contrary to the idea of emotional instability. Those with high scores for emotional instability tend to exhibit intense affective reactions and show a proneness to aggressive and antisocial behaviors²⁵. On the other hand, empathic concern seems to be particularly and positively correlated with Agreeableness and Conscientiousness, insofar as these factors of personality reflect the desire to help others in need and a feeling of responsibility for the well-being of another^{26, 27}. In short, other studies have already shown that people engaged in sexting present high emotional instability, low Conscientiousness and low Agreeableness, all of which have already been positively associated with empathy. In addition, lack of empathy has long been correlated with narcissistic and Machiavellian personality traits²⁸⁻³⁰.

Our study also suggests that the lack of empathy can be even more disturbing among people engaged in sexting who share their partners' intimate images. This is an alarming finding that an evident empathy deficit seems to affect about 20% of medical students. In addition, more people within the group that share partners' intimate images have already had problems with the criminal justice system due to sexting. It is important to note here that the non-consensual distribution of intimate images has been widely criminalized by numerous countries, including Brazil. In fact, the line between jokes and harmful online postings that can lead to arrest must be widely understood, and psychosocial factors associated with sexting behaviors should be rigorously considered.

Besides being medical students, whose empathy capabilities need to be continuously improved, some of the subjects might constitute subgroups to whom educators need to pay more attention. Given the potential

psychological and legal risks related to sexting, it is fundamental for college administrators, parents, and even legislators and law enforcement to understand this phenomenon and the associated psychosocial factors better. However, it is also important to note that, despite knowing the legal consequences of exposing intimate images from partners or colleagues, some students seem to prefer taking this risk⁴.

That said, it is fundamental that medical students receive support in reflecting on their activities, behaviors, and motivations. Professors and preceptors must reflect on their communications with students, their teaching behavior, and their function as role models³¹.

Aggressors and victims need to receive adequate support, given the distinctive psychosocial problems from which each may suffer. Therefore, identifying those students at higher risk through role-playing activities, communication strategies, and closer attention from empathic professors may be healthy practices to encourage.

It is important to note that this study has some limitations. First, self-reported data were used to measure outcomes and may not be totally reliable. Second, the study's cross-sectional design precludes causal inferences and only provides information about population frequency and characteristics at the time of data collection. Third, our sample involved medical students from only one Medical University Center in Brazil. A multicenter study considering cultural variables is recommendable.

Declarations

Ethics approval and consent to participate: This study was approved by the Ethics Committee of ABC Medical School. All participants provided written consent.

Consent for publication: Participants were assured that participation was voluntary, that only the researchers would see the data, and that the scientific publications derived from the data collection would not identify their identities.

Availability of data and material: Database is under the guard and protection of the first author

Competing interests: There are any competing interests.

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Abbreviations

Not applicable

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Abstract

Introduction: Sexting behaviors among medical students have scarcely been researched. Although there are diverse types of sexting involving the exchange of different sexual content, two scenarios will be examined here: (a) the exchange of intimate images solely between two partners; and (b) sharing intimate images exchanged between partners with others outside the relationship. **Objective:** The aim of this study was to verify empathy-related differences between sexting within consensual relationships and non-consensual distribution of intimate images. **Methods:** This was a cross-sectional study in which participants provided information through a self-reported questionnaire. Inventories for empathy and sexual impulsiveness and measures of sociodemographic features and sexting behaviors were applied. **Results:** This study included 202 medical students. The groups of students engaged in sexting (with or without sharing partners' intimate images) demonstrated higher sexual impulsiveness and lower personal distress than the reference group. Only the students who admitted to sharing partners' intimate images showed lower empathic concern and perspective taking than the reference group (affective and cognitive empathy, respectively). Overall, the results of this study support previous findings that individuals engaged in sexting demonstrate lower personal discomfort with their actions than people not engaged in sexting. **Conclusion:** Despite knowing the legal consequences of the exposure of intimate images from partners or colleagues, some students seem to prefer taking this risk.

Keywords: sexting, university students, empathy.

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