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Sexting in young adults' social networks in Brazil: an exploratory study on the circulation of nudes

Jovens adultos usuários de redes sociais no Brasil: um estudo exploratório sobre a circulação de nudes

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Abstract

Objective

Investigate practices related to the circulation of nudes and potential suffering factors in connection with them, considering the Brazilian adult population between 18 and 26 years old.

Method

Exploratory research was performed using a mixed method of concomitant triangulation. Participants ($N = 94$) aged 18 to 26 years old were recruited on the Internet using the Snowball method. Calls were sent through social apps (i.e., Facebook, WhatsApp, Instagram, Grindr) and e-mail. Instruments were (a) online questionnaire and (b) Internet Addiction Test. Quantitative results were described and statistically correlated, while qualitative results were subjected to content analysis. Data was collected during the SARS-CoV-2 pandemic.

Results

A negative statistical correlation between Problematic Internet Use and body satisfaction was found, with 4 thematic categories emerging in qualitative data: (1) feeling of being pressured, (2) nudes as a condition for further social contact, (3) conformity to body standards and (4) fear of undue exposure and loss of control.

Conclusion

Two theme areas were discussed: (a) undue exposure, where the pressure of sending nudes and the possibility of exposure without consent are negatively perceived, and (b) relationship with body satisfaction, where sending nudes may maintain self-gratification dynamics. Undue exposure was found to be more frequent between non-heterosexual men, which may point to a body centrality in on-line sexual practices in this group. Implications with data security and privacy were discussed and suggestions for future investigations were provided.

Keywords: Privacy; Sexuality; Social media; Young adult.

Resumo

Objetivo

Investigar práticas relacionadas à circulação de nudes e potenciais fatores de sofrimento ligados a elas, considerando a população brasileira adulta entre 18 e 26 anos de idade.

Método

Foi realizada pesquisa exploratória mediante método misto de triangulação concomitante, com 94 participantes, entre 18 e 26 anos, recrutados pela Internet através de Bola de Neve. Chamadas foram feitas pelas redes sociais (Facebook, WhatsApp, Instagram e aplicativos de relacionamento, especialmente Grindr) e e-mail, utilizando um questionário on-line e Teste de Dependência de Internet. Resultados quantitativos foram descritos e correlacionados estatisticamente, ao passo que resultados qualitativos foram submetidos à análise de conteúdo. Os dados foram coletados durante a pandemia de SARS-CoV-2.

Resultados

Destaca-se correlação estatística negativa do Uso Problemático de Internet com satisfação corporal, emergindo 4 categorias temáticas nos dados qualitativos: (1) sensação de pressão, (2) envio de nudes como condição para contato social, (3) adequação a padrões corporais e (4) medo de exposição indevida e perda de controle.

Conclusão

Dois áreas temáticas foram encontradas: (a) exposição indevida, na qual a pressão para o envio de nudes e a possibilidade de exposição sem consentimento são percebidas de modo negativo, e (b) relação com satisfação corporal, em que o envio de nudes pode manter dinâmicas de autogratificação. Foi encontrada maior frequência de exposição indevida entre homens não-heterossexuais, o que pode apontar para uma centralidade do corpo em práticas sexuais on-line neste grupo. Foram discutidas implicações para segurança de dados e privacidade e apontadas direções para investigações futuras.

Palavras-chave: Privacidade; Sexualidade; Mídias sociais; Adulto jovem.

Sexting has been a focus of studies in cyberpsychology, which is defined as a transdisciplinary area that studies topics related to connected human behavior, including those related to the use of social networks (Ancis, 2020). In the area of cybersecurity, psychology has been recognized as a valuable contribution to mitigate the risks encountered in Internet use (Wiederhold, 2014). Although there are investigations that have mapped the practice of sexting around the world (Mori et al., 2020; Van Ouytsel et al., 2020), quantitative data have not yet been collected and few sexting qualitative data in the Brazilian population are available. This is an exploratory study that aims to investigate and map the circulation of nudes among young users of social networks in Brazil, measuring their association with potential suffering and Problematic Internet Use (PIU).

Definitions of sexting are not uniform in the research studies on the subject and such variability ends up harming comparability of results between different studies (Barrense-Dias et al., 2017; Van Ouytsel et al., 2020). Barrense-Dias et al. (2017) suggested that the definition of sexting be sought with the participants in experimental research as they see four important dimensions in understanding the different definitions used in the studies: (a) Type of media, considering text, images and video, without mentioning audio; a greater prevalence of text was found especially when compared to images; (b) Actions, defined in active forms (creating, showing, posting, sending or forwarding to third parties) and passive forms (requesting, being requested or receiving); (c) Transmission mode, generally an online, electronic or virtual activity using the Internet and/or mobile devices (smartphones, lap-tops, etc.), with a distinction in some studies between the content posted and content sent directly to the recipient; and (d) Sexual characteristics, involving terms such as sext, sexting, sexy, sexually explicit, sexually related, sexually suggestive and sexual content – and sometimes the terms nude or naked and almost or partially nude or naked. For the purposes of this study, nudes are understood as images transmitted within the practice of sexting.

As far as we have been able to investigate, there are no data on the frequency of sexting-related behaviors in Brazil. Comparatively, Mori et al. (2020) found in international research literature the following frequencies for adults between 18 and 29 years old ($M = 20.3$ years): sending sexts: 38.3%; receiving: 41.5%; sending and receiving: 47.7%; sharing with third parties in a non-consensual manner (without the third parties' consent for the sender's image): 15% and having their sexting shared in a non-consensual manner: 7.6%. Gender (women in general have more leaked sexts) and relationship status (single people have higher frequencies) were found as mediators of these frequencies; and, according to their estimates, the frequency of sexting has increased in recent years.

Cultural changes have been suggested to be the cause for this increase in frequency (Weisskirch et al., 2017). These changes were described by the authors as part of a cultural shift, when sexting, previously considered only in terms of its risks, became part of culture and relationships; we should also consider potential benefits of sexting, such as helping to maintain long-distance relationships, in the search for sexual and/or romantic partners, or as an erotic exploration of the body. This cultural change has added complexity to the research, in which four major themes have been discussed: (a) digital abuse potential, including undue exposure, (b) the relationship with risky behaviors, such as alcohol and other drug abuse, (c) the relationship with body image and satisfaction, and (d) issues related to gender and sexual orientation. In regard to the possibility of digital abuse, undue exposure has been highlighted as being the main concern (Cardoso et al., 2019a, 2019b).

Negative consequences for those who had their nudes shared without consent have been described. They include worse mental health indicators (Valiukas et al., 2019), higher levels of depression, anxiety, stress and lower self-esteem (Klettke et al., 2019), recent substance use, lower self-esteem and physical or sexual abuse (Souza & Lordello, 2020). The main risk factor for this exposure is the subject being pressured to send nudes (Klettke et al., 2019; Valiukas et al., 2019). Sending unsolicited nudes was considered a form of pressure since the nude receiver was expected to send nudes back, adding to other forms of pressure. In this case, the pressure to send unsolicited nudes is more frequent among women, which reveals an influence of gender, as well as culture (Liong & Cheng, 2019), in this on-line practice. Pressure is also related to an anxious attachment style and is considered a way of coping with stress and loneliness (Trub & Starks, 2017). Non-consensual sharing is also used for social recognition and maintenance of social bonds (Johansen et al., 2019).

Few studies have been conducted that consider the diversity of sexual orientations. In general, a higher frequency of behaviors related to sexting has been reported in the non-heterosexual population, which may also be related to the role that social networks have played in increasing this group visibility (Twist et al., 2017). In any case, a higher frequency in sending nudes implies a greater chance of abuse (Morelli et al., 2016). Relationship status is considered the main protective factor against undue exposure (Dekker & Koops, 2017), as is the quality of agreements made in the relationship (Valiukas et al., 2019). Among adults, concern about body image during sexual relations increases the chance of engaging in sexting under pressure (Howard et al., 2019). A correlation between body anxiety and PIU was found in adolescents (Ruiz et al., 2021). Other possible correlations between body image and distress factors in sexting have been little explored in adults.

An important aspect addressed in the literature is the study of the perceptions of risk and benefit in sexting. A positive perception about this practice has a positive influence on the motivation to continue practicing it (Hudson & Marshall, 2018), but also the fear among women of receiving a negative evaluation from their partner encourages those women to engage in sexting (Weisskirch et al., 2017). Social approval also appears as a stimulating factor for sexting, particularly in relation to nudes, when the nudes sent are evaluated positively (Howard et al., 2019). On the other hand,

there is an impact of negative consequences that reduce the frequency of these behaviors (Brodie et al., 2019; Clancy et al., 2019). However, specifically in the case of non-consensual nude sharing behavior, potential negative consequences, i.e., social/harassment from undue exposure do not reduce the frequency of this behavior, probably because they do not affect those who share it (Brodie et al., 2019).

Sexting is related to the broader context of Internet usage patterns. One topic that has been investigated when it comes to Internet usage refers to what is understood by Problematic Internet Use. PIU was first reported based on an observation by Young (1998) in 1997. The term originally coined by Young (1998) was Internet Addiction; since then, revisions have been made (Bickham, 2021; Fernandes et al., 2019; Wright et al., 2021). It is important to consider that a specific diagnostic figure related to Internet usage has not yet been acknowledged, precisely because of this difficulty in characterization. PIU is used in our study more as an indicator of distress factors related to sexting.

The research that gave rise to this article started from the question: "What are the practices of circulating nudes and what are the potential sufferings involved in this behavior, considering an age group of 18 to 26 years?". The general objective was to investigate practices related to the circulation of nudes and potential suffering factors in connection with them, considering the Brazilian adult population between 18 and 26 years old. The specific objectives were: (a) to map practices in the circulation of nudes and their motivations in a Brazilian sample of individuals aged 18 to 26 years, (b) to identify correlations with Problematic Internet Use, and (c) to identify potential suffering factors associated with sexting. It is important to emphasize that this investigation was carried out during a period in which Brazilian health authorities recommended physical distancing to avoid contamination and spread of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus, which causes Coronavirus Disease 2019 (COVID-19). Because of physical distancing, all online activities soared.

Method

For this survey, a mixed methods approach of concomitant triangulation was used, in which the investigator collects quantitative and qualitative data simultaneously and then compares the two databases to determine whether there is convergence, differences, or some combination (Creswell & Clark, 2015). The results were then discussed as one set of data.

Participants

The study included a total of 94 participants ($N = 94$); 31 were men, 62 women, and one self-identified as non-binary; they were aged 18 to 26 years and reported exchanging nudes on the Internet. The inclusion criterion was that participants be between 18 and 26 years of age. No exclusion criteria were specified. Recruitment was performed using the snowball method, in which each participant indicates five prospects, and calls were sent through social networks (Facebook, WhatsApp, Instagram, among others) and email messages. Those who responded to this call were sent Google Forms, online, with a Consent Form, Questionnaire, and Internet Addiction Test.

Instruments

Quantitative and qualitative information were collected using a structured online questionnaire that considered four distinct behaviors (nudes sending, receiving, storing, and sharing

with or without consent). The Internet Addiction Test (Conti et al., 2012; Young, 1998) was also administered online. The following information was used:

a) Gender and sexual orientation: information obtained posing the questions “How do you currently define yourself... (a) Regarding gender, (b) Regarding sexual orientation?”, with closed answers, for (a), “Male” / “Female” and, for (b), “Heterosexual” / Homosexual / “Bisexual”, as well as the open answer “Other” in both questions.

b) Relationship status: informed by answering the questions (a) “Are you currently in a relationship?”, with the closed answer “Yes/No”, and (b) “How long have you been in your current relationship?”, with the closed answer “Less than 3 months” / “From 3 to 6 months” / “From 6 to 12 months” / “From 1 to 2 years” / “More than 2 years”.

c) Frequency: in the case of sending, receiving, storing one’s own or third-party’s nudes and sharing nudes, a closed Yes/No response could be given for the questions “Have you ever [sent your nudes to other people] / [received nudes from other people] / [saved your nudes] / [saved nudes from other people] / [shared other people’s nudes]?”, asked in two stages, one demanding a general response and the other specifically considering the frequency during the last thirty days; in the case of sharing in groups behavior, determined in a closed Yes/No response or “I participate in group(s) that do not have this purpose, but where this type of sharing occasionally occurs”, for the question “Do you participate in group(s) on the Internet with the purpose of sharing your own or third-party nudes?”.

d) Feelings of pressure: measured in a closed Yes/No response to the questions (a) “Have you ever felt pressured to send your nudes?”, and (b) “Have you ever felt pressured to send your nude(s) back when you received nude(s)?”.

e) Perceptions of risk and benefit: measured on a 5-point Likert-type scale, where 1 represents “none” and 5 represents “a lot”, for the questions “Do you believe there is any [risk] / [benefit] in [sending your nudes to other people] / [saving your nude(s)] / [saving nudes of (an) other person(s)] / [sharing nudes of third parties]?”

f) Circulation networks: answering the questions “Considering the last 30 days... [To whom did you send nudes]?”, for sending, “[From whom did you receive these nudes]”, for receiving, “[From whom were the nudes you saved]”, for storing, and “[With whom did you share the nudes] / [From whom were the nudes you shared]”; in the case of sharing nudes, the closed response was “Romantic partner”, “casual partner”, “unknown”, complemented by the open response “Other(s)”.

g) Applications: informed by answering the questions “In the last 30 days... Which applications have you used to [send nudes] / [receive nudes] / [share that nude] / [share those nudes]?” and “On which apps have you received unsolicited nudes?”; in the case of receiving unsolicited nudes, the information was provided with a closed answer: “WhatsApp / Facebook / Instagram / Snapchat / Twitter / Tinder / Happn / Grindr / Scruff / Her”, complemented by an open answer “Others”.

h) Frequency of alcohol and other drugs use: measured by the answer to the question “How often do you use alcohol or other drugs before or during such encounters?” on a 5-point Likert-type scale, where 1 represents “Never” and 5 represents “Always”.

i) Access to pornography: assessed by the question “Do you access pornography?”, with a closed Yes/No answer.

j) Problematic Internet Use: measured by the Internet Addiction Test or IAT (Young, 1998), which assesses behaviors related to FoMo (Fear of Missing Out), in its online version in Portuguese (Conti et al., 2012), authorized for use in our investigation via electronic message and evaluated according to Conti et al. (2012) standards.

Qualitative data were collected regarding the motivations for sending, receiving, storing, and sharing nudes, in open-ended responses to the questions “If yes, why?”, referring to the frequency of these behaviors, and “If yes, what made you feel pressured?”, referring to the feeling of being pressured.

Procedures

Quantitative and qualitative data were collected using the questionnaire and the Internet Addiction Test, during the period of physical distancing due to the SARS-CoV-2 virus. To analyze the quantitative data, a statistical correlation of relevant data was performed considering the result of the Internet Addiction Test as the independent variable. The quantitative data were analyzed using the IBM®SPSS® (version 25). Categorical variables were presented as frequency and rates, while numerical variables were presented as mean and standard deviation. Spearman’s correlation analysis was performed between numerical or ordinal variables, adopting a significance level of $\alpha = 0.05$. For the interpretation of the effect size, we followed Evans’ (1996) guidelines: very weak (from 0.00 to 0.19); weak (from 0.20 to 0.39); moderate (from 0.40 to 0.59); strong (from 0.60 to 0.79) and very strong (from 0.80 to 0.99). Regarding the analysis of qualitative information, the responses to open-ended questions in the questionnaire were categorized according to Bardin (2011).

The survey was carried out in accordance with the ethical requirements for human research as recommended by Resolution CONEP 466/2012 of the National Health Council, by Resolution CNS/MS 510/2016 and by the Regulations of the Research Ethics Committees. The online recruitment part was based on Resolutions no. 466 and no. 510. The investigation was approved by *Plataforma Brasil* under CAAE No. 37145820.3.0000.5482.

Results

Considering the categories proposed by Barrense-Dias et al. (2017), participants comprehensively define nudes: (1) in terms of the media, such as photos, images, GIFs or videos, (2) in terms of content, as sensual or explicit, and (3) in terms of purpose, as sex (i.e., for a sexual encounter or self-stimulation) or intimacy (i.e., for the feeling of strengthening a romantic bond). Most participants in our study understand nudes as photos or images with sensual content, as opposed to sexual content (Table 1).

Table 1
Sociodemographic characterization of the sample

Variable	Result (N = 94)
Age [M (SD)]	22.9 (2.4 years)
Education [n (%)]	
Completed high school	57 (60.6)
Completed higher education	31 (33.0)
Completed postgraduate studies	6 (6.4)
Gender [n (%)]	
Female	62 (66.0)
Male	31 (33.0)
Non-binary	1 (1.0)

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Table 1
Sociodemographic characterization of the sample

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Variable	Result (N = 94)
Sexual orientation [n (%)]	
Bisexual	31 (33.0)
Heterosexual	37 (39.3)
Homosexual	19 (20.1)
Other	7 (7.6)
In a love relationship [n (%)]	44 (46.8)
Duration of relationship [n (%)]	
Up to 12 months	8 (8.5)
1 to 2 years	12 (12.8)
More than 2 years	24 (25.5)

The three most used applications for sending nudes in the last 30 days included WhatsApp ($n = 39.36\%$), Instagram ($n = 23, 21\%$) and Grindr ($n = 14, 13\%$); to receive nudes: WhatsApp ($n = 45, 48\%$), Instagram ($n = 28, 30\%$) and Grindr ($n = 14, 15\%$); receiving unsolicited nudes: Instagram ($n = 16.17\%$), Grindr ($n = 15, 16\%$) and WhatsApp ($n = 11, 12\%$); sharing nudes with third parties: WhatsApp ($n = 13, 14\%$), Grindr ($n = 3, 3\%$) and Instagram ($n = 2, 2\%$); and, sharing nudes in groups: WhatsApp ($n = 5, 5\%$), Facebook ($n = 2, 2\%$) and Telegram ($n = 2, 2\%$) (Table 2).

Table 2
Nude sending (S), receiving (R), storing (OS/TS) and sharing (ST/SG) among the survey participants

Rates	Sending		Storing		Sharing	
	S	R	OS	TS	ST	SG
%	89.4	87.2	71.3	48.9	17.0	11.7
% (30 days)	47.9	59.6	-	-	10.7	6.4

Note: Rates [%] calculated based on total study participants (N = 94). OS: Own image storing; R: Receiving; S: Sending; SG: Sharing in groups; ST: Sharing with third parties; TS: Third-party image storing.

Regarding the nude circulation networks, the following rates were found: for romantic partners, sending, 31.9%, receiving, 35%, storing, 18.0%, and sharing, 2.0%; for casual partners, sending, 21.3%, receiving, 33.0%, storing, 11.0%, and sharing, 2.0%; for strangers, sending, 16.0%, receiving, 25.0%, storing, 11.0%, and sharing, 2.0%; finally, for friends, sending, 2.1%, receiving, 5.0%, storing, 2.0%, and sharing, 11.0%. There was a higher frequency of sending, receiving, and storing nudes among casual partners, romantic partners, and strangers, and higher frequencies of sharing among friends.

Regarding perceptions of risk and benefit, there is a relationship in which a higher frequency of a set behavior generally causes a lower risk perception and a greater benefit perception. This relationship suggests that perceptions of risk and benefit influence the variation in the frequency of these behaviors and that an assessment of risk and benefit probably occurs concomitantly with the practice of circulating nudes. Still on the subject of sharing nudes, it was reported that out of the total number of participants (N = 94), 10 (10.6%) had their nudes shared with third parties without their consent, a frequency above that reported in international studies included in the literature review by Mori et al. (2020). A total of 49 (59.1%) participants felt pressured to send nudes, 40 (42.6%) felt pressured to send nudes back when receiving nudes, 3 (3.2%) felt pressured to share with third parties the nudes they received and 36 (38.3%) sent nudes without being asked (Table 3).

Table 3*Responses about the perception of risk and benefit in sending, receiving, storing, and sharing nudes*

Answers	Sending		Storing		Sharing	
	S	R	OS	TS	ST	SG
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Risk	3.85 (1.28)	-	-	3.53 (1.59)	4.63 (0.85)	3.21 (1.65)
Benefit	3.11 (1.31)	-	-	2.50 (1.55)	1.47 (1.11)	2.26 (1.45)

Note: Calculation basis on a 5-point Likert-type scale. OS: Own image storing; R: Receiving; S: Sending; SG: Sharing in groups; ST: Sharing with third parties; TS: Third-party image storing.

Considering a section of gender and sexual orientation in the rate of inappropriate exposure, some results were quite enlightening, especially in relation to the phenomenon of inappropriate exposure: 3.3% of heterosexual women knew that a nude photo of theirs had been shared without their consent; this rate increases to 10.0% in non-heterosexual women and to 26.1% in non-heterosexual men. Comparatively, considering the same subgroups, the frequency of the behavior of sending nudes (S), sharing nudes with third parties (ST) and sharing nudes in groups (SG) was, in heterosexual women, 30.0% (S) / 3.3% (ST) / 0.0% (SG); in non-heterosexual women, 46.2% (S) / 6.6% (ST) / 3.3% (SG); and, in non-heterosexual men, 78.3% (S) / 26.1% (ST) / 21.7% (SG). Thus, considering the three groups, the rate of undue exposure is higher in non-heterosexual men, and, comparatively, the frequencies of sending (S), sharing with third parties (ST) and sharing nudes in groups (SG) were also higher, within the sample of our investigation.

When considering the same cut-off point, regarding risk and benefit perceptions, there is greater variation in the behavior of sharing nudes in groups (SG): with mean and standard deviation [*M (SD)*], risk / benefit scores were in heterosexual women of 5.00 (0.00) / 1.00 (0.00); in non-heterosexual women, of 3.40 (1.67) / 2.80 (1.48); and, in non-heterosexual men, 2.4 (1.43) / 2.5 (1.51). A lower perception of risk is noted in sharing nudes in groups among non-heterosexual men, which suggests an inverse relationship between frequency of this behavior and risk perception, in which the frequency of sharing nudes in groups increases as risk perception decreases; in addition, there is also a less linear relationship between the decrease in risk perception and the increase in benefit perception in which a high score in risk perception entails a low score in benefit perception, which could be related to the cultural contexts.

There is a weaker relationship in the behavior of storing nudes received from third parties (TS, third parties image storing), whose mean and standard deviation [*M (SD)*], in heterosexual women, was 4.09 (1.22) / 1.91 (1.45); in non-heterosexual women, 4.06 (0.9) / 2.88 (1.36); and, in non-heterosexual men, 3.17 (1.58) / 2.33 (1.53), while the frequency of this behavior was 6.6% in heterosexual women, 20.0% in non-heterosexual women and 52.2% in non-heterosexual men. Although the perception of risk is similar for heterosexual and non-heterosexual women, the perception of benefit is greater for non-heterosexual women, who have a higher frequency, and the perception of risk is lower for non-heterosexual men, who exhibit the highest frequency among the three groups. These were the most relevant findings, considering the gender and sexual orientation section.

Satisfaction with nudes in the sample had an average of 3.63 (*SD* = 1.00), considering a 5-point Likert-type scale, and the result of the Internet Addiction Test was, on average, 42.5 (*SD* 10.9), considering a scale of 0-100 points, in which a score greater than 50 represents lack of control in Internet use. A negative correlation, relatively weak, but significant ($p = -0.26$), was found between the result of the Internet Addiction Test and satisfaction with one's own nudes. It can be

inferred that body dissatisfaction tends to create conditions for problematic Internet use in behaviors related to nudes, that is, those with a higher result on the Internet Addiction Test are less satisfied with their own nudes. Conversely, satisfaction with one's own nudes is related to a higher frequency of sending ($p = 0.24$), greater perception of benefit ($p = 0.37$) and lower perception of risk ($p = -0.35$).

Two important correlations were found between the frequency of sending and perceptions of risk ($p = -0.25$) and benefit ($p = 0.22$), as expected based on the results of other studies, and between the frequency of sending nudes and the frequency of receiving unsolicited nudes ($p = 0.66$). There was an unexpected correlation between access to pornography during the last 30 days and the use of alcohol and other drugs before or during encounters ($p = 0.22$). Association between the practices of accessing pornography and the use of alcohol and other drugs may suggest the existence of specific practices related to pornography and drugs that occur within the circulation of nudes (i.e., *chemsex*, which can be described as the practice of having sex under the influence of drugs that, according to its users, could enhance their sexual experience). This hypothesis may be the subject of future studies. It is noteworthy that a potential dynamic between the variables of access to pornography and use of alcohol and drugs was not clarified, although potential sexual objectification might be hypothesized as common ground for these practices.

In the last 30 days, 21 (22.3%) participants reported access to pornography 1 to 5 times, 12 participants (12.8%) 10 to 20 times, 11 (11.7%) 40 times or more, 9 (9.6%) 5 to 10 times, and 7 (7.4%) 20 to 40 times. During this period of physical distancing, participants reported that access to pornography had increased very slightly compared to the previous period ($M = 3.27$, $SD = 1.51$). The same was true for the exchange of nudes ($M = 3.35$, $SD = 1.55$). Both averages are reported on a 5-point Likert-type scale, where 1 represents a significant decrease and 5 represents a significant increase. It is also important to emphasize that the term "pornography" was defined according to the subjective perception of the participants. Finally, considering other correlations found in the questionnaire, the frequency of encounters stands out, which increases when there is a lower perception of risk in sending nudes.

The main personal reward for sending (S), receiving (R) and storing one's own nudes (OS, own image storing) or of third parties' (TS), is the validation of body standards ($S = 21.3\%$, $R = 20.2\%$, $OS = 35.1\%$, $TS = 11.7\%$), understood as body approval according to social standards. Sexual self-stimulation corresponds to a small portion of responses ($S = 5.3\%$, $R = 6.4\%$). The main motivations related to social reward for sending and receiving nudes concern maintaining the partner's sexual interest ($S = 31.9\%$, $R = 35.1\%$), together with flirting ($S = 36.2\%$, $R = 26.6\%$) and followed by the search for a sexual partner ($S = 16\%$, $R = 25.5\%$); third-party sharing (ST) of nudes involves gaining social status, receiving peer approval for potential emotional or sexual partnerships ($ST = 11.7\%$), consensual exposure, i.e., consensually sharing nudes of other people to increase the reach of these nudes ($ST = 3.2\%$) and organizing a polygamous encounter, when the nude serves the purpose of organizing a sexual and/or emotional encounter between three or more people ($ST = 2.1\%$). As for the feeling of being pressured, it was broken down into direct pressure from the partner (E), and the feeling of being pressured to return, for an unsolicited nude received, another nude; the main reason for the feeling of being pressured is the partner's insistence ($S = 27.7\%$, $R = 11.7\%$) and an implicit agreement ($R = 18.1\%$), understood by the participants as a kind of rule in the online environment ("Netiquette") that when receiving nudes, one must send nudes back; there are reports of some difficulty in breaking this expectation. Social approval ($S = 9.6\%$, $R = 3.2\%$), accumulation of nudes ($ST = 1.1\%$), maintenance of bond ($S = 2.1\%$, $R = 6.4\%$) and sexual arousal ($R = 1.1\%$) are reasons less frequently reported in the participants' responses. With respect to storing, the need for protection arises in case one's own nudes have been shared without consent ($OS = 2.1\%$, $TS = 2.1\%$), a discreet result, but important to highlight.

Among the perceived risks, undue exposure, albeit frequently not knowing clearly how it can occur (E = 61.7%, TS = 9.6%), represents the risks arising from: exposure by third parties who may have access to the nudes (E = 22.3%, TS = 35.1%), whether through sharing on websites, groups, or through the commercialization of nudes without consent; possibility of exposure by the partner (E = 18.1%, TS = 4.3%), in which the recipient of the nude shares it with third parties without consent; and possibility of exposure due to technical error (S = 2.1%), which includes viewing images by third parties on electronic devices, access to devices by hackers, and sharing someone else's nudes by mistake. Among the risks of moral and social harm, social harassment is the main one (E = 16%, TS = 3.2%), followed by mentions of slut-shaming or sharing nudes with the intention of defamation (E = 4.3%), sextortion or the use of nudes for online sexual extortion (E = 5.3%) and the possibility of commercializing nudes on websites (E = 4.3%). The legal consequences linked to these practices are rarely mentioned (TS = 2.1%).

The main benefits of expressing sexuality are the formation and maintenance of bonds (E = 30.9%, TS = 2.1%) and erotic satisfaction (E = 21.3%, TS = 3.2%, SG = 1.1%, the latter referring to sharing in groups). Sexual self-stimulation (TS = 7.4%, ST = 1.1%) and the personal accumulation of nudes received in groups (SG=2.1%) were seldom mentioned.

Finally, mention is made of the organization of polygamous encounters (TS = 1.1%), in which nudes are circulated for the purpose of organizing sexual or emotional encounters between three or more people. Also, the main benefits which were considered as related to the category of expressing feelings are the validation of self-image (E = 17%) and emotional remembrance (TS = 16%). Flirting (ST = 4.3%) and the formation and maintenance of emotional bonds (SG = 4.3%) are rarely mentioned. Finally, as a benefit related to information security, protection against the possibility of leaks (TS = 4.3%) appears, in which the nudes received are stored for the purpose of being used to protect against non-consensual sharing of the nudes forwarded.

Four categories of responses with indications of suffering related to the circulation of nudes were assessed: (1) Feeling of being pressured, with the inclusion of situations in which the approval of others, explicit or subliminal, is obtained by sending nudes; (2) Sending nudes as a condition for further social contact, with situations in which sending nudes is seen as a condition for continuing social contact, whether online or offline; (3) Conformity to body standards, with situations in which the person seeks to be confident about the adequacy of their body; and (4) Fear of undue exposure and loss of control, with situations in which there is fear of eventual undue exposure or the possibility of losing control of the person receiving the nudes (Table 4).

Table 4

Factors of suffering related to the circulation of nudes

Category	Example of participant response
Feeling of being pressured	"When someone sends you something, especially without being asked, it's as if you have an obligation to join the conversation [...]"
	"There is a culture within the nude theme. If you receive, you reciprocate. [...] this culture ends up creating a feeling of 'pressure' [...]"
	"If I didn't send it, he would get angry. It was an attempt to avoid this behavior."
Sending nudes as a condition to further social contact	"Those who don't send nudes have little chance of progressing to a date, whether with sex or not"
	"When I was younger, I thought that nudes were mandatory in a successful seduction dialogue"
Conformity to body standards	"[...] there is a body standard that people expect to have, there is insecurity in suddenly scheduling a date and the person disliking the shape of your genitals or about some defect that you may have and sets you outside the standards, etc."
Fear of undue exposure and loss of control	"If her face or an association with her name appears, the risk is that this person will be exposed and suffer losses as a result, in the personal sphere, in her close relationships and in the moral judgments, or professionally, if it gets to that point"
	"The nude was sent to me, in a 1:1 relationship of trust, when I pass it on to a third party, I completely lose control of things, and they can do whatever they want, so I never pass it on"

Discussion

Our study highlighted aspects of the circulation of nudes, exploring factors that can cause suffering arising from this practice, which is generally stimulating and satisfying. Motivations and perceptions of risk and benefit were investigated, as well as possible relationships with Problematic Internet Use. The proposed method allowed an analysis that highlighted the participants' discourses, elucidating some important subjects, which can be listed as: (1) the erotic function of nudes, (2) the phenomenon of undue exposure, (3) feeling of being pressured and its relationship with bodily satisfaction, (4) suffering when the circulation of nudes is seen as a condition for further social contact and (5) specific issues in terms of gender and sexual orientation.

The erotic and bonding function of nudes was highlighted in our study; self-stimulation also emerged but to a lesser extent, which may take the form of an objectification of the other (Liong and Cheng, 2019). Body satisfaction emerges as an important dimension, especially considering the possibility that sending nudes maintains self-gratification dynamics, in which, by receiving approval for the nudes forwarded, users are motivated to send more nudes; however, this may create a continuous need to receive approval, a finding described by Howard et al. (2019). There is also a concern about conforming to idealized standards; however, this study did not find the correlation found by Howard et al. (2021) between concerns with body image and sending under pressure. However, a correlation was found between the perception of risk and benefit and the frequency of these behaviors, corroborating the findings of Hudson and Marshall (2018). Regarding the negative correlation between body satisfaction and the Internet Addiction Test – in which the greater the satisfaction with nudes, the lower the PIU –, we ought to verify the relationship between both conditions, i.e., whether body dissatisfaction predisposes to PIU, whether there is a dynamic relationship between both conditions, or whether it results from a specific condition among young people, as suggested by the study by Ruiz et al. (2021), which associates PIU with body anxiety in adolescents.

There is a dynamic between the feeling of anonymity and the possibility of undue exposure in sexting that is reflected in the way agreements are made to protect information. There are implicit agreements in the exchange of nudes, such as when receiving a nude requires the return of another nude, or under which conditions the sending of a nude would require new sharing. The feeling of anonymity offers the possibility of exposing nudity in a way that protects privacy. However, agreements based solely on trust are not always sufficient. When undue exposure occurs, social harassment occurs when one's privacy is exposed publicly. For some users, storing nudes would be a strategy to protect against the possibility of undue exposure; however, this emphasis on implicit agreements as the main strategy for protecting information is what leaves the user vulnerable. Although sending nudes decreases with the occasional negative experience, as pointed out in the studies by Brodie et al. (2019) and Clancy et al. (2019), undue exposure can have negative consequences. Furthermore, participants report unplanned risks for storing nudes, such as data leaks by hackers or non-consensual access to the user's data by third parties.

This fear of undue exposure and loss of control, reported as a concern among adolescents and their parents (Cardoso et al., 2019a, 2019b), refloats among adults in the present investigation. The use of data protection strategies based mostly on implicit agreements indicates that more reliable strategies to protect against undue exposure ought to be developed. In addition to the features of social media applications used to circulate nudes, such as time limits for viewing or control of stored images, the way in which users personally assess the risk of the situation plays

an important role in these practices. One protection strategy against non-consensual sharing suggested in the literature is being in a relationship (Dekker & Koops, 2017); however, we found that the relationship status has a positive influence only when there is consistency in the agreements made, yet, as seen in the responses, a breach of the agreement may occur, which corroborates the findings of Valiukas et al. (2019).

Regarding the sharing of nudes in groups, these not only have a negative role in amplifying the reach of non-consensual sharing, but can also have a positive impact, i.e., in the search for non-monogamous partners, or maintenance of sexual interest between partners. Three different situations were reported: non-consensual sharing, consensual sharing, and sending to people with whom users have different relationships (i.e., romance, friendship). Johansen et al. (2019) point out that non-consensual sharing often has a social commentary function, which may also be a plausible hypothesis for this study. The risk of emotional harm lies in social harassment, when this non-consensual sharing leads to practices such as slut-shaming, i.e., the exposure of the victim with the intention of creating a negative image of her, or sextortion, i.e., the use of images to extort money and favors that may also involve the use of the nudes themselves to make demands or even to further demand more nudes. However, the fact that some people allow their own nudes to be shared suggests that this sharing is intended to increase the reach or circulation of the images and facilitate encounters with potential partners. Finally, sharing behavior in groups was reported in a framework of seeking non-monogamous partnerships, which indicates that this sharing is specifically intended to seek a type of partnership. It is important to emphasize that the circulation of nudes in groups increases the reach of these images on the Internet, increasing, in this case, the risk of possible social harassment. Even in the case of consensual sharing, the lack of protection strategies can make the nude available on the network and, if its author, even after some time, no longer consents to this sharing, a new sharing may eventually occur that is beyond their control.

The pressure feeling, although not reported as a motivation for sending nudes, emerges as a factor of suffering; this suggests the influence of social expectations surrounding the sending of nudes on the formation and maintenance of bonds on the Internet. This feeling may arise from the need to belong, in which the behavior of sending nudes is acknowledged as an integral part of relationships, which according to Weisskirch et al. (2017), would be seen as a means of building a possibility of bonding with the other. The study by Trub and Starks (2017) points to the same direction; it associates the feeling of being pressured in women with feelings of loneliness, stress, and anxious attachment. The adaptation of the body to standards also emerged as a factor of suffering among the participants, constituting the only factor related to Problematic Internet Use; although the correlation was weak, which suggests that the social expectations placed on nudes may have an impact on the users' body perception. Further investigations on these relationships with the body ought to be carried out to clarify the dynamics involved.

The data collected in relation to gender and sexual orientation demonstrate the importance of considering specific population groups in sexting research. In this connection, we found in our study significant variations, especially among non-heterosexual men. Liang and Cheg (2019) recognize women as being more frequently victims of undue exposure; however, in our study, non-heterosexual men experienced the highest rates of undue exposure. It was not possible to determine which factors influence this high rate; however, higher frequencies of sharing in groups were also noted in this group, raising the hypothesis that non-consensual sharing of nudes with third parties might be related to higher rates of undue exposure. This finding suggests a distinct use of social networks for the practice of sexting among non-heterosexual men. The frequency of

sending nudes is also higher in this group, which is in line with the hypothesis of Twist et al. (2017) that social networks play a role in increasing LGBTQI+ visibility.

Some hypotheses found in the literature could also be tested in future studies that take into account gender and sexual orientation: (a) the impact of a higher frequency in sending nudes on a higher risk of undue exposure (Morelli et al., 2016), (b) the use of non-consensual sharing for recognition and maintenance of social bonds (Johansen et al., 2019), and (c) engagement in sexting as a way of coping with stress and loneliness (Trub & Starks, 2017). The hypothesis that could be raised in the present study is that, if, according to Twist et al. (2017), the Internet has a role in increasing LGBTQI+ visibility among cis and non-heterosexual men; if sexting has an erotic function, enabling an erotic exploration of one's body and relationships, a greater frequency in sending and receiving nudes could also point to a body centrality in on-line relationships between non-heterosexual men. This would mean that body eroticism is culturally relevant in the establishment of sexual-affective bonds between non-heterosexual men, having a central role in the on-line search for affective and sexual partnerships.

Conclusion

This study has some limitations: (a) it did not clearly define the participants' notion of pornography in relation to nudes, and (b) it was an exploratory study, with no basis for comparison in the Brazilian population.

The relationship between body satisfaction and Problematic Internet Use in nudes points to the need for further research on the relationship between the body and the use of technology. The importance of developing strategies with users to protect against undue exposure of their information on the Internet was observed, since protecting data with implicit agreements leaves the user more vulnerable if the agreements are broken; in this regard, promoting psychoeducational interventions for young people on available digital security resources and how to use them is essential to protect young Internet users.

New investigations could consider the sensitive nature of the topic for a more comprehensive survey. There are topics that could be better explored, including: relationship between sexting and pornography; body perception of young people who exchange nudes; the impact of recording the evolution of the body by storing nudes at different ages; deeper exploration of gender and sexual orientation differences; interventions for risks related to the circulation of nudes; vulnerabilities of specific population groups, especially the LGBTQI+ population.

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