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Associations between Family Support and Online Sexual Abuse in Chilean Adolescents: The Mediatlional Role of Online Risk Behaviors

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ABSTRACT

This study evaluated the association between perceived family support, online risk behaviors, and online sexual abuse. This is a cross-sectional, quantitative study. The participants were 380 Chilean students aged 15 to 17 ($M = 16.12$, $SD = 0.59$, 49.7% female, 50.3% male) who answered self-report instruments. Females experienced more online sexual abuse; however, males engaged in more online risk behaviors. The results of the regression analysis suggested that online risk behaviors was a predictor for online sexual abuse in both males and females. However, high perceived family support was only a protective factor against online risk behaviors and online sexual abuse for females. In addition, online risk behaviors was found to partially mediate the relationship between perceived family support and online sexual abuse for females only. The results of this study highlight the importance of online risk behaviors in the process of online sexual abuse. Also, the results highlighted the importance of family support as a protective factor against online sexual abuse and online risk behaviors mainly in females. For that reason, we think it is necessary to consider the gender variables in the prevention and intervention programs to face the risk of the internet during the adolescence.

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Adolescents; online sexual abuse; online risk behavior; family support

In the new millennia, the Internet has become an arena for adolescents to socialize (Jonsson et al., 2015). Operating in parallel, the social sphere in which potential perpetrators of abuse engage has also shifted online (Tsitsika et al., 2015). In this scenario, Online Sexual Abuse (OSA) can be defined as an internet-initiated sexual action conducted generally by an adult against a victim, who generally is below the age of sexual consent or above if it contains coercion (Quayle et al., 2011).

OSA can be further divided into 5 submodules: sexual pressure, sexual coercion, online grooming, unwanted exposure to sexual content, and violation of privacy (Montiel et al., 2015). The most usual form leading to minors

engaging in sexual relationships with adults online is online grooming which consists of preparing the victim to be abused by establishing a relationship of trust and care (Craven et al., 2006; Wolak et al., 2004). OSA has similar negative consequences on the victims' psychosocial wellbeing as offline sexual abuse, including depression, self-blame, post-traumatic stress disorder, delinquent behavior, and substance use (Dahlqvist & Gådin, 2018; Hamilton-Giachritsis et al., 2017; Mitchell et al., 2007a; Say et al., 2015; Wells & Mitchell, 2007).

OSA is a global acute health problem. In Chile- the country in which this research was conducted- the prevalence estimates are between 8% and 20% (Arias -Cerón et al., 2018; Pinto-Cortez & Venegas-Sanhueza, 2015). Additionally, research concludes that females are more likely to be targeted and abused online than males (Baumgartner et al., 2010; Helweg-Larsen et al., 2012) especially during adolescence (Livingstone et al., 2011; H. C. Whittle et al., 2014).

Internet risks, family support, and online sexual abuse

Different authors argue that internet activity does not directly increase the overall likelihood of sexual abuse (Finkelhor, 2014; Livingstone & Smith, 2014). Staksrud (2013) argues that "the Internet does not make children more vulnerable but might make already vulnerable children more accessible" (p. 163). In this line, Whittle et al. (2013) argue that adolescents live in a converged environment with a non-existing distinction between online and offline worlds, thus the same offline vulnerability and protective factors could apply online.

As in the offline contexts, on the internet, adolescents can also act in risky ways: by being reckless or looking for affect (Livingstone & Smith, 2014). To Guerra et al. (2019) online risk behaviors (ORB) can be subdivided into direct contact risk (e.g., engaging in communication with unknown people online, sending pictures, giving out personal information) and into indirect risks that are associated with the platforms that facilitate the adult perpetrator contacting the adolescents (e.g., browsing adult websites, spending time in chat and game-websites). Furthermore, evidence shows that ORB is strongly correlated with OSA (Helweg-Larsen et al., 2012; Mitchell et al., 2007a; Noll et al., 2009; Whittle et al., 2013; Ybarra et al., 2007; Young et al., 2007). This is why it is important to explore what factors contribute to the decision of engaging in risk-promoting behaviors (Kotchick et al., 2001).

One of the most important factors associated with risk behaviors is the relationship between adolescents and their families, in particular their parents. On the one hand, the evidence shows that parental attempts to control the usage of the internet for the purpose of safeguarding adolescents have become un-effective and infeasible, partially due to the fact that the internet is now

largely accessible from personal mobile devices away from the control of the parents (Katzner et al., 2009; Livingstone & Smith, 2014). On the other hand, the evidence shows that the emotional support that the family gives to the adolescent is an important protective factor against OSA (Seeman, 2008). This mode of support does not refer to control, direct monitoring, or tangible quantities of involvement from the parent; instead, it refers to the adolescent's perception of the emotional help and assurances their family (mainly their parents) give, which in turn bolsters their self-worth and makes them feel loved and cared for (Seeman, 2008).

Some young people may be vulnerable to online grooming because, by seeking empathy, love, and attention online from an adult, they engage in ORB (Webster et al., 2012). Indeed, research has found that young people that are in conflict with their parents or have low family satisfaction, receive more online and offline sexual solicitations (Brå, 2007; Mitchell et al., 2007b). For adolescents that have a poor relationship with their parents, the perpetrator may be the only "trustworthy" adult in their life: a much-welcomed source of love and attention that is usually sorely lacking (Quayle & Ribisl, 2012).

A challenge for research in this area of study is its lack of a shared framework, definitions, and standardized measurements. This, in conjunction with its novel status and multidisciplinary nature, causes heterogeneity, and therefore difficulty, when comparing results or producing reliable estimates for prevalence (Livingstone & Smith, 2014). There is a paucity of research into the protective and risk factors of OSA (Whittle et al., 2014), and in defining the mechanisms of action to face the problem (Livingstone & Smith, 2014). In addition, there is a gap in studying the unique aspects of the victim, family, and community and their complex interplay (Kloess et al., 2014; Whittle et al., 2013; Whittle et al., 2014). It is not always possible to separate online and offline sexual abuse, as OSA often leads to offline sexual abuse, with the majority of victims agreeing to meet the perpetrator offline (Wolak et al., 2004). The main body of research on OSA has been conducted in Western countries, with little research available on OSA in more developing countries (Schuster et al., 2016). This does not reflect the burgeoning access to the internet within developing countries such as Chile, where the percentage of the population with access to the internet (85%) is on par with most of Europe and actually surpasses that of the US (75%) (World Bank, 2019).

For the reasons above, this research explored the relationship between perceived family support (PFS), ORB, and OSA in a sample of Chilean adolescents. To the best of the author's knowledge, no specific research yet exists that combines these three factors in a particular model, however. Based on previous research, this study has the hypothesis that there is an inverse relationship between PFS and OSA, and that the ORB is a mediator within this relationship (higher PFS, lower ORB, and by this way lower OSA). In addition, given that previous studies suggest variations based on

socio-demographic variables, this research also evaluated the relation between the study variables and: a) sex (female and male), b) age, and c) school-type, which in Chile represent socioeconomic level (Valenzuela et al., 2014).

Method

Participants

In this research, the authors analyzed data from 380 adolescents from Chile, aged 15 to 17 ($M = 16.12$, $SD = .59$), with the majority of the students being 16 years of age (71.8%). The gender frequencies were fairly equally distributed, with a slight majority of males (50.3%). The majority of students were from public schools (72.9%), in less frequency semi-private (16.8%) and private (10.3%).

Measures

The multidimensional scale of perceived social support (Zimet et al., 1988) version validated for Chile (Arechabala & Miranda, 2002)

The instrument consists of 3 factors (family, peers, another significant person), but for this study, only the factor Family Support, which consists of four items, was used. The scale is a 4-point Likert scale ranging from 1 (rarely) to 4 (almost always or always), with a minimum of 4 points and a maximum of 16. In this study, the internal reliability of Cronbach's alpha was $=.87$.

Brief questionnaire on risk behaviors on the Internet (Guerra et al., 2019)

This scale is written in Spanish which has two factors: Factor 1: reckless contact with strangers, and Factor 2: indirect risk behavior. In this research, just Factor 1 (reckless contact with strangers) was used to assess ORB. Factor 1 has six items (see [Appendix A](#)). The scale is a 4-point Likert scale ranging from 0 (never) to 3 (always/almost always). The total possible scores can be 0 to 18. In this study, the scale had good internal consistency ($\alpha = .79$).

Brief questionnaire of online sexual victimization experiences (Guerra et al., 2020)

This scale has 12 items – written in Spanish – grouped in a single factor of online sexual victimization during the last year (see [Appendix B](#)). The scale is a 4-point Likert scale ranging from 0 (never) to 3 (always/almost always). The total possible scores can be 0 to 36. Internal reliability Cronbach's alpha coefficients were $= .87$.

Procedure

This study employed the use of secondary cross-sectional data given by adolescent students, collected in Chile during 2018. For that reason, the project was approved, first by the ethics committee of the Universidad Santo Tomas zona Centro Norte in Chile, and subsequently by The University of Edinburgh's School of Health in Social Science ethics committee.

To recruit the sample, authorization was first requested from the directors of educational establishments in the Valparaíso Region, Chile. Then, according to Chilean regulation, informed consent was requested from both the parents and guardians of the adolescents and the adolescents themselves. The application was made inside the schools by undergraduates in psychology trained in the use of the instruments. Correctly answered instruments were anonymized and entered into a database for later analysis. In coordination with the schools that participated, an action protocol was created to manage situations of disclosure to traumatic events, in addition, phones numbers and e-mails addresses from institutions that support victims were given to teenagers. After the study, a report including the main results was sent to each establishment so that they could take additional actions aimed at preventing, detecting, and supporting the victims.

Statistical analysis

Quantitative data analyses were conducted using IBM SPSS version 22 (IBM Corporation, 2012) with macro extension Process version 3.3 (Hayes, 2012). Preliminary analyses were conducted to look for accuracy, missing data, outliers (Mahalanobis Distance, Cooks distance, and Centered Leverage value), normality of distribution (skewness, kurtosis, Kolmogorov Smirnov test), and descriptive analysis (mean, standard deviation). The researchers evaluated possible sex differences in the study variables (Mann–Whitney U test), differences associated with the type of school (Kruskal–Wallis test), and correlations between the variables (rho spearman). After having checked the assumptions for regression analysis, and given that the data were non-normally distributed, robust non-parametric tests were used to evaluate the effect of PFS and ORB on OSA (ML with bootstrapping with 1000 iterations to generate confidence intervals; Kenny, 2018). Considering there were differences associated with sex, the analysis was differentiated for males and females.

Results

Descriptive and preliminary analysis

Table 1 outlines the mean, standard deviation, and range of each of the variables (OSA, PFS, and ORB). The mean is reported for both the full sample

Table 1. Descriptive statistics for the variables in the total sample ($n = 380$) and by gender (males, $n = 191$; females, $n = 189$).

	Mean (SD) Total	Total range	Mean (SD) Male	Mean (SD) Female	Gender Differences	School type differences
PFS	11.99 (3.59)	4–16	12.35 (3.44)	11.62 (3.71)	$U = 16,072$	$H_{(2)} = 2.19$
ORB	3.68 (3.33)	0–18	4.29 (3.51)	3.05 (3.02)	$U = 12,563^{**}$	$H_{(2)} = 2.80$
OSA	2.21 (3.70)	0–26	1.34 (2.83)	3.08 (4.23)	$U = 13,861^{**}$	$H_{(2)} = 2.40$

** $p < .01$.

and the sample differentiated by gender. The differences between gender and school type between each variable are also reported. The frequency analysis shows that 85.3% of participants experienced at least one ORB, and 53.5% reported at least one experience of OSA in the last 12 months.

As Table 1 shows, there are no differences associated with gender and type of school in the scores of PFS. In regard to ORB, a gender difference was noted. Mann–Whitney U-test results indicated that male participants have significantly higher scores on ORB than females, which is consistent with the fact that in this sample 90.1% of males and 80.4% of females reported at least one ORB in the last year. Gender differences were also found in OSA but in the opposite direction. Females reported more experiences of OSA. The analysis of frequencies shows that 65.5% of females and 40.8% of males had reported experiencing at least one kind of OSA during the last year.

Table 2 presents the correlations between the study variables for the whole sample. As expected, PFS is inversely related both with ORB and OSA. Also, the results show a direct relationship between ORB and OSA. Finally, none of the variables under study are related to the age of the participants.

Given that the previous analysis indicated gender differences in ORB and OSA, the following analysis was computed separately for males and females.

Regression and mediational model analysis

Following the suggestions of Baron and Kenny (1986), path analysis was used to evaluate the relationship between PFS and OSA and the mediator role of ORB (see Table 3). In the case of females, as expected, there was an inverse relation between PFS and OSA (lower levels of PFS predicted higher levels of OSA). That relationship was partially mediated by ORB (lower levels of PFS predicted higher levels of ORB, and higher levels of ORB predicted higher

Table 2. Correlations among the study variables (rho Spearman) in the total sample ($n = 380$).

	ORB	OSA	Age
PFS	-.11*	-.11*	-.06
ORB		.26**	.05
OSA			.08

** $p < .01$, * $p < .05$

Table 3. Regression coefficients in the model.

	Females (n = 189)				Males (n = 191)			
	B	β	R ²	95% CI	B	β	R ²	95% CI
OSA								
PFS	-.17*	-.15*	.04	-.38,-.05	-.01	-.01	.00	-.13,.11
ORB	.33**	.24**	.09	.13,.53	.29**	.36**	.13	.18,.40
ORB								
PFS	-.12*	-.15*	.02	-.24,-.01	-.08	-.08	.01	-.23, .07

B = unstandardized beta weight; β = standardized beta weight; CI = confidence interval. * $p < .05$; ** $p < .01$.

levels of OSA). This mediation was small but statistically significant (β Indirect effect = $-.04$, $p < .05$, 95% CI $[-.090, -.001]$). This model explains 13% of the variance of OSA and 2% of the variance in ORB.

In the case of males, contrary to the hypothesis, PFS did not predict OSA or ORB. The only variable associated with OSA for males was ORB (higher levels of ORB predicted higher levels of OSA). The model explains 13% of variance of OSA. **Figure 1** shows the standardized regression coefficients statistically significant for females and males.

Discussion

The purpose of this research was to evaluate the relationships between perceived family support, online risk behavior, and online sexual abuse. Previous studies have explored the role of the family and ORB on OSA (Catanzaro & Laurent, 2004; Livingstone & Smith, 2014), but these factors had not yet been tested in the same model. For this reason, the researchers tested the relationship between these variables in a single model. Based on previous evidence it was hypothesized that PFS would have a preventive effect on OSA, but that part of the effect would be mediated by ORB. The importance of this study lies in the need to understand the interactions among these variables in order to design more complete and effective interventions to safeguard young people.

The severity of the phenomenon can be seen by considering the percentage of the sample that has engaged in at least one ORB or has suffered at least one OSA experience in the last year (85.3% and 53.5%, respectively). This is

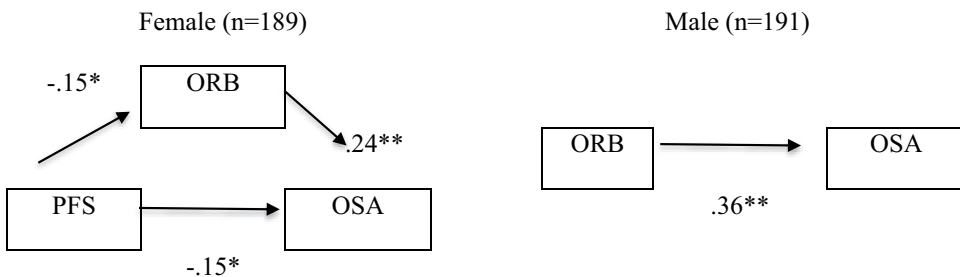


Figure 1. Path diagram of predictive relations. * $p < .05$; ** $p < .01$.

worrisome given the negative consequences that such experiences have on children and adolescents (Hamilton-Giachritsis et al., 2017; Say et al., 2015; Wells & Mitchell, 2007). For this reason, it is necessary to better understand the factors associated with OSA, which would allow the development of prevention strategies.

In terms of demographic variables, only gender was shown to be a factor that affected the likelihood of ORB and OSA. While males are the ones who engage in the riskiest use of the Internet – relating recklessly with strangers – paradoxically females are the ones who report the greatest OSA. The greater proportion of adolescent males with risky online behaviors is consistent with previous studies that show greater risk behaviors in men, both online (Baumgartner et al., 2010) and offline (Byrnes et al., 1999; Gullone & Moore, 2000). While the reasons for this – in online domains – are not entirely clear, classic authors have conjectured some possible explanations in the offline world, such as males having a higher tendency for sensation seeking (Zuckerman & Neeb, 1979), or greater societal acceptance of risk-taking (Kelling et al., 1976). These conjectures should be considered in future studies aimed at delimiting the role of gender in ORB.

On the other hand, the frequency of OSA was significantly higher in females than in males, which is congruent with previous literature (Baumgartner et al., 2010; Mitchell et al., 2007b; Wolak et al., 2008). Although male adolescents execute the riskiest behaviors, females would suffer more OSA, perhaps because they are the preferred targets of the perpetrators of OSA, the vast majority being men (Baumgartner et al., 2010; Finkelhor et al., 2005; Helweg-Larsen et al., 2012). A possible alternative explanation, which should be tested in future studies, surrounds the difficulty that adolescent males might have to recognize OSA due to cultural factors. Previous studies have shown that factors such as stigmatization and shame prevent the recognition and disclosure of offline sexual abuse in men in macho cultures such as within Chile (Arredondo et al., 2016), which could also be applied in the online context.

Regarding the relation between ORB and OSA, as expected and in line with previous research, the findings revealed that higher levels of ORB are associated with higher levels of OSA for both female and male adolescents (Helweg-Larsen et al., 2012; Mitchell et al., 2007b; Noll et al., 2009; H. Whittle et al., 2013; Ybarra et al., 2007; Young et al., 2007). In fact, ORB explains by itself a significant amount of OSA variance (9% in females and 13% in males). These results support the idea that adolescents who engage in the riskiest use of the internet – relating recklessly with strangers – regarding most exposed to OSA, so prevention programs should consider reducing risk behaviors on the internet (Livingstone & Smith, 2014).

The question remains: what factors make minors more likely to engage in risky behaviors? In addition to the gender factors already discussed, this study highlights the role of family support, but only in the case of females. In females, more PFS is related to less ORB, but this explains only 2% of the variance.

The results of this study suggest there are different patterns for PFS for females and males. For females, higher PFS was significantly associated with both lower levels of ORB, and with lower levels of OSA. PFS is a protective factor against OSA and has both a direct effect in OSA (higher PFS is associated with lower OSA), and an indirect effect, mediated by ORB (higher PFS, lower ORB and by this way lower OSA). This is in line with previous literature that highlights the importance of the emotional support given by the adolescent's family to develop resources to cope with the risks – both in online and offline environments – and in this case, prevent OSA (Seeman, 2008).

Contrary to the author's expectations, for male participants, there was no significant relationship detected between PFS and ORB, nor between PFS and OSA. This highlights the importance of gender in studying the risks and protective factors in the use of the internet. Research findings suggest that female and male adolescents may receive different types of family support: with females receiving more emotional support, while males would receive more direction, and advice about what is right and wrong (Cross et al., 2018). Previous studies have already shown that family support focused on control is not effective in preventing OSA (Katzner et al., 2009; Livingstone & Smith, 2014). It could then be that family support received by the Chilean females in this sample (emotional) is more effective than that received by the males (control) in the prevention of OSA. This seems consistent with the style of socialization in a patriarchal cultural context such as Chile's (Arredondo et al., 2016). These possible explanations should be tested in future studies, in addition to incorporating other sources of relevant social support in adolescence such as peer support (Priebe & Svedin, 2008).

The evidence of this study suggests that OSA prevention programs should consider as the main objective the reduction of the risk behaviors in adolescents of both genders and consider – in a differentiated way for females and males – the level of family support.

Limitations and future research

Despite the strengths of this study, there are certain limitations. First, the sample size is fairly small; thus, the results are not representative of the Chilean adolescent population. Second, this study considered gender only in binary terms, nor did the data contain information of sexual orientation, and in doing so, excluded the population of LGBTQ adolescents, who have themselves been identified as a population with a high risk for OSA (Wolak et al., 2008). Third, the distribution of the data was non-normal, with a bias to the lower ORB and OSB. This could be associated with the sampling process in which the more victimized adolescents chose not to be involved in the study. Fourth, the cross-sectional design employed does not guarantee the causality of the proposed relationships (Kenny, 2018). Fifth, the instrument for ORB measured only direct risk, and risk with strangers.

Future studies should endeavor to measure indirect forms of risk, and risk related to known adults as well, as research shows that in some cases of OSA the perpetrator is someone already known to the victim offline (Livingstone & Smith, 2014). Finally, in addition to the small sample size, this study only includes one type of ORB behavior and one source of social support, leaving out other important factors such as internet browsing habits and the evaluation of sources of social support other than the family. As such, there were not sufficient degrees of freedom to conduct RMSEA analysis as the goodness-of-fit model would likely produce false poor-fitness results (Kenny et al., 2014).

Future research should try to work with more representative samples, which include participants of non-binary gender and with greater variability in online sexual abuse levels (e.g., studying clinical samples). It is advisable to vary the designs of future research. Conducting longitudinal studies would ensure the causal relationships between these variables (Cole & Maxwell, 2003) and studies that include a greater number of predictors would explain a greater percentage of variability between ORB and OSA (e.g., peer support, self-esteem, offline risk behaviors, and internalizing and externalizing symptoms). In addition, it may be advisable to carry out qualitative studies for a better understanding of the phenomenon from the point of view the adolescents, beyond the limitations of standardized instruments.

Conclusion

This study met the objective of evaluating how PFS, ORB, and OSA interact within the adolescent population, both separately, and within a mediation model. In this regard, the results have added to the research base by increasing our knowledge of the process by which ORB can render adolescents vulnerable to OSA. This research highlighted how certain risk and protective factors do not interact in the same manner for males and females, particularly with regard to PFS, while also crucially informing us about the protective capacity of family support in mitigating OSA within the adolescent female population. Future prospective research is encouraged to explore in more detail risk factors and gender differences in OSA so that intervention and prevention programs are designed to accurately fight this important problem. Consequently, it can be hoped that interventions become more efficient and effective in preventing adolescents experiencing OSA and the subsequent negative psychological consequences of such an event.

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Disclosure of Interest

The authors declare no conflict of interest.

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Ethical Standards and Informed Consent

All procedures followed were in accordance with Chilean ethical standard and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all participants for being included in the study.

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Appendices

Appendix A.

Factor 1: Reckless Contact with Strangers from the Brief Questionnaire on Risk Behaviors on the Internet (Guerra et al., 2019).

Please tell us how often you have done the following activities on the internet during the last 12 months:

	Never	Few times	Many times	Always,almost always
Find new people to flirt.	0	1	2	3
Accept private chats from unknown people.	0	1	2	3
Accept friend requests in my social network from people I don't know in person.	0	1	2	3
Provide personal information -name, phone, address, images or videos, etc.- to someone I have met online.	0	1	2	3
Agree to meet in person with someone I've met online.	0	1	2	3
I have met in person with someone I have met online.	0	1	2	3

Appendix B.

Brief Questionnaire of Online Sexual Victimization Experiences (Guerra et al., 2020).

Please tell us how often you have experienced the following situations on the internet during the last 12 months

Never Few times Many times Always, almost always
 I have been receiving messages – to the cell phone, social network, MSN, etc.- unknown adults to flirt with me.0123
 An adult has pretended to be a minor to flirt with me.0123
 An adult has used the Internet to try to seduce me with compliments and beautiful words.0123
 An adult has used the Internet to try to seduce me with material gifts -cell phone recharges, concert tickets, etc.0123
 An adult has sexually harassed me through messages, calls, e-mails, etc.0123
 Someone has pressed me -repeated insistence- to send or show images or videos of myself in the webcam in a sexy or provocative attitude.0123
 Someone has pressured me -repeated insistence- to send or show through the webcam images/videos of myself showing some intimate part of my body.0123
 Someone has pressured me -repeated insistence- to talk about sex on the Internet.0123
 Someone has threatened or blackmailed me to send or show to them on the webcam images/videos of myself in a sexy or provocative attitude.0123
 Someone has threatened or blackmailed me to send or show to them images/videos of myself showing some intimate part of my body.0123
 Someone has threatened or blackmailed me to talk about sex on the Internet.0123
 Someone has threatened me to spread compromising images/videos of me -in provocative attitude or showing some intimate part of my body- to get something, e.g., money.0123