



**Carolina Licht Rocha Da Motta Teixeira**

**Early Experiences of Online Sexual Victimization and  
Psychopathological Symptoms in Adulthood**

**Dissertação de Mestrado**

Dissertation presented to the Programa de  
Pós-graduação em Psicologia of PUC-Rio  
in partial fulfillment of the requirements for  
the degree of Master em Psicologia.

Advisor: Prof. Breno Sanvicente Vieira

Rio de Janeiro,  
March 2022



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## Abstract

Licht-Teixeira, Carolina; Sanvicente-Vieira, Breno (advisor). **Early Experiences of Online Sexual Victimization and Psychopathological Symptoms in Adulthood**. Rio de Janeiro, 2022. 77p. Dissertação de Mestrado – Departamento de Psicologia, Pontifícia Universidade Católica do Rio de Janeiro.

Child sexual abuse can be considered a public health problem, since its repercussions throughout life are associated with a greater risk for the development of several psychopathological symptoms. With the increase in internet access in the last 15 years, especially among children and adolescents, the likelihood of opening up to new forms of sexual abuse becomes a concern. Online sexual victimization emerges in this context, bringing relevant evidence of associations with symptoms such as depression, anxiety, suicide and substance use. Therefore, this dissertation aims to investigate early online sexual victimization associated with the manifestation of psychopathological symptoms in adulthood. The dissertation was prepared in the form of articles, being divided into the following steps: an introductory chapter, two articles and a concluding chapter. ARTICLE 1 is a translation and adaptation of an online sexual victimization assessment tool. ARTICLE 2 is an online study to retrospectively investigate, in a sample of young adults and internet users since childhood, the different effects of online and non-online sexual abuse history on symptoms of mental disorders. In Article 1, after all the planned translation and adaptation steps had been successfully completed, confirmatory factor analyzes were performed to verify the reliability and validity indices of the construct. According to factor analysis, the OSV is a second-order factor composed of three first-order factors - insistence (4 items), threats (4 items) and dissemination (2 items). The second order model showed good to excellent model fit between the indices and all items presented significant factor loadings. Therefore, we present the translation, adaptation, as well as reliability and construct validity indices of the scale. In article 2, the results pointed to the effects of early sexual victimization online as risk factors for several psychopathological symptoms. We observed a high prevalence of early online sexual victimization reported by participants, showing that three out of four adults who grew up with internet access experienced online sexual victimization during childhood and/or adolescence. When comparing the control group and the group referring to online sexual victimization before the age

of 18, we noticed differences in the manifestations of psychopathological symptoms, indicating that such negative life events may be related to lasting effects on mental health. The data presented in this study suggest that early sexual victimization online is an emerging topic of concern as the internet becomes increasingly accessible to the general population. Our study found extremely relevant results, drawing attention to the importance of building stronger protective resources to prevent children and adolescents from being exposed to such stressful situations.

## **Keywords**

Sexual abuse, online sexual victimization, childhood, adolescence, psychopathological symptoms

## Resumo

Licht-Teixeira, Carolina; Sanvicente-Vieira, Breno. **Experiências Precoces de Vitimização Sexual Online e Sintomas Psicopatológicos na Vida Adulta**. Rio de Janeiro, 2022. 77p. Dissertação de Mestrado – Departamento de Psicologia, Pontifícia Universidade Católica do Rio de Janeiro.

O abuso sexual na infância e adolescência é um problema de saúde pública, possuindo possíveis repercussões ao longo da vida. Por exemplo, é associado a maior risco para o desenvolvimento de diversos sintomas psicopatológicos. Com o aumento do acesso à internet nos últimos 15 anos, principalmente entre crianças e adolescentes, a probabilidade de abertura a novas formas de abuso sexual torna-se uma preocupação. A vitimização sexual online surge nesse contexto. Já se sabe que durante as experiências de vitimização, há maior possibilidade de sintomas depressivos, ansiosos, ligados ao uso de substâncias e até ideação suicida, mas não se sabe exatamente o risco a médio-longo prazo. Assim, o objetivo desta dissertação foi investigar se a vitimização sexual online precoce (na infância e adolescência) tem associações com sintomas psicopatológicos na vida adulta. A dissertação foi elaborada na forma de artigos, sendo dividida nas seguintes etapas: um capítulo introdutório, dois artigos e um capítulo conclusivo. O ARTIGO 1 é uma tradução e adaptação de um instrumento de avaliação de vitimização sexual online (Online Sexual VictimizationScale). O ARTIGO 2 é um estudo online para investigar retrospectivamente, em uma amostra de adultos jovens e usuários de internet desde a infância, os diferentes efeitos da história de abuso sexual online e não online para sintomas de transtornos mentais. No Artigo 1, após todas as etapas de tradução e adaptação planejadas terem sido cumpridas com sucesso, foram realizadas análises fatoriais confirmatórias para verificar os índices de confiabilidade e validade do construto. De acordo com a análise fatorial, a escala possui modelo de dois fatores: com um fator geral de segunda ordem e três fatores de primeira ordem que correspondem a subescalas- insistência (4 itens), ameaças (4 itens) e disseminação (2 itens). O modelo de segunda ordem apresentou bom a excelente ajuste do modelo entre os índices e todos os itens apresentaram cargas fatoriais significativas. Tal modelo replica o proposto originalmente pelo autor. Portanto, apresentamos a tradução, adaptação, bem como índices de confiabilidade e validade de construto da escala.



No artigo 2, os resultados apontaram os efeitos da vitimização sexual online ocorridos precocemente como fatores de risco para diversos sintomas psicopatológicos. Além disso, observamos uma alta prevalência de vitimização sexual online durante a infância e adolescência, apresentada por três a cada quatro participantes. Para sustentar as experiências adversas como risco para sintomas, comparamos os grupos de participantes com e sem história de vitimização sexual online durante a infância e adolescência. Ao comparar o grupo controle e o grupo referente à vitimização sexual online antes dos 18 anos, notamos diferenças nas manifestações de sintomas psicopatológicos, indicando que tais eventos de vida negativos podem estar relacionados a efeitos duradouros na saúde mental. Os dados apresentados neste estudo sugerem que a vitimização sexual online de forma precoce é um tema emergente de preocupação à medida que a internet se torna cada vez mais acessível à população em geral. Surge então a necessidade de recursos de proteção mais fortes para evitar que crianças e adolescentes sejam expostos a tais situações estressantes.

## **Palavras-chaves**

Abuso sexual, vitimização sexual online, infância, adolescência, sintomas psicopatológicos

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## List of Abbreviations

**CSA** – Childhood Sexual Abuse

**OSV** – Online Sexual Victimization

**CB** – Cyberbullying

**OSV-BR** – Online Sexual Victimization Scale – Brazil

**CCSM** - Cross-Cutting Symptoms Measure of DSM-5

**MACE** - Maltreatment and Abuse Chronology of Exposure

**CTQ** - Childhood Trauma Questionnaire

**RMSEA** - Root Mean Square Error of Approximation

**CFI** - Comparative Fit Index

**CFA** – Confirmatory Factor Analysis

**TLI** - Tucker–Lewis Index

**WLSMV** - Weighted Least Squares

**FICT** - Free and Informed Consent Term

**LGPD** - General Data Protection Law

**SPSS** – Statistical Package for the Social Sciences

**FDR** – False Discovery Rate

**UNICEF** - United Nations International Children's Emergency Fund

**HIV** - Human Immunodeficiency Virus

**WHO** - World Health Organization

**US** – United States

**PUC-Rio** – Pontifícia Universidade Católica do Rio de Janeiro

## 1 About This Dissertation Thesis

This dissertation thesis is a work on online sexual victimization (OSV) occurring in the early stages of human development as a possible risk factor for psychological symptoms in adulthood. Along with the growing access to the internet, the number of online sexual victimization becomes more frequent, and it can also expand to children and adolescents, since the internet is part of the life of this age group. From this perspective, online sexual victimization becomes as worrisome as non-online child sexual abuse. Considering that child sexual abuse is a public health issue as it can cause several psychopathological symptoms throughout development and later in adulthood, it is also necessary to analyze the possible psychological consequences that early OSV can cause.

Therefore, this dissertation consists of an introduction that includes the perception of sexuality through the internet and the emergence of the practice of sexting as a recent phenomenon, mainly carried out by young adults and adolescents, in addition to other important concepts and constructs to support the central question. When surveying this new form of sexual interaction, we found that this behavior can present some risks, one of which is known as online sexual victimization. As exposed, to achieve our objective, two articles were produced. After the introduction, you can see ARTICLE 1 (submitted to *Revista de Psicologia Clínica*, *Pepsic*, PUC-Rio, online) dedicated to carrying out the translation and adaptation of an instrument, because when we reviewed the literature we did not find instruments in Portuguese from Brazil developed to assess online sexual victimization. This tool, in addition to helping us carry out the research for ARTICLE 2, may be available to future Brazilian researchers in order to contribute to scientific knowledge about online sexual victimization.

Continuing this work, we will present ARTICLE 2, an retrospective exploratory online study that aimed to investigate the relationship between online sexual victimization and psychopathological symptoms in adulthood. For this, we recruited young adults who had access to the internet since childhood. To carry out the evaluations, we used the instrument translated in ARTICLE 1,

however, with an additional scale for the participant to indicate how old (1 to 17) they experienced online sexual victimization, an instrument to measure the psychopathological symptoms present and an instrument to assess the occurrence of abuse sexual in childhood and adolescence. The sample was divided into two groups: those who had a history of early online sexual victimization and those who did not. The results indicated a high index for the presence of psychopathological symptoms in the group that had a history of online sexual victimization compared to the group that did not. Despite the data revealing the importance of concern about this topic, other studies still need to be carried out in order to contribute to the construction of more scientific knowledge about early online sexual victimization and future psychopathological symptoms.

The results found in this study make us realize the urgency of developing intervention and prevention programs for children and adolescents who use the internet, as they are at all times at risk of suffering online sexual victimization. Thus, the results were able to further confirm the relevance and concern with this issue.



## 2 Introduction

### 2.1 Sexuality via internet, children and adolescents

In recent times, technology development created a new phenomenon in human relationships. People now can interact via instant messages, videocalls, audiovoices and other online means in fast and dynamic ways (Silva et al., 2016). As sexuality is one part of human life that involves intimate contact, such advances also have impacted sexual interactions that can occur via online ways as well. People can send “dirty” messages, or say how they imagine others, or even send pictures, videos and express themselves sexuality using applications now available. It has become so common that sending, receiving or forwarding sexual explicit or suggestive messages, photos or videos to other people by electronic means received a name nowadays - sexting (Klettke et al., 2014). In fact, the speed with which the internet has been evolving provides greater visibility to this phenomenon, since its practice is increasingly accessible, enabling the sharing of images and videos through social networks and 4G internet. However, there are two discourses that dominate the debate in the academic literature about this phenomenon (although they are not excluding to each other): there is a lone author who classifies sexting as a normative behavior, as well as a healthy expression of sexuality (Parker et al., 2013), but there are those who frame sexting as a risky behavior (Kosenko et al., 2017).

The increasing use of smartphones by teenagers provides an opportunity for them to start practicing sexting. A longitudinal study carried out in the United States recorded that between 15% and 28% of adolescents practice sexting (Temple & Choi, 2014). Sexting is perceived by teenagers as a more attractive way of expressing themselves and relating sexually without having to have face-to-face interaction (Ševčíková, 2016). Since adolescence is a period of development and exploration of sexual identity (Van Ouytsel et al., 2018), the motivations that lead adolescents to sexting vary according to the context that encompasses this phase. However, it is not just teenagers who are sexting, a study of 1560 participants aged 10 to 17 years reported that 1% of children aged 10

to 11 years had already sexted (Mitchell et al., 2012), given the ease of internet access these days. However, sexting when practiced by teenagers, or even children, can be a reflection of impulsiveness, or even coercion (Temple & Choi, 2014).

## **2.2 Online sexual victimization (OSV)**

Regardless of the positive or negative nature of sexting per se, expressing sexuality through online methods makes it possible for people to use it for non-consensual behaviors as well. For example, when someone asks for a picture of someone else who, in fact, does not want to share that, or cases in which someone receives a picture with sexual content suddenly (Madigan et al., 2018). This possible abusive way in which sexting can occur raises the possibility of children and adolescents becoming victims of online sexual harassments. Studies have been carried out in order to investigate the relationship between the practice of sexting and the use of coercion and non-consent to send and receive messages, photos and/or videos of sexual content, known as online sexual victimization (OSV) (Gámez-Guadix et al., 2015; Howard, 2019; Kernsmith et al., 2018; Stanley et al., 2018). Online sexual victimization can be defined as any type of pressure via the internet or cell phones to obtain unwanted sexual contact, such as sharing sexual information, sending images, messages or videos with sexual content without the person's permission, or doing something against the person's will (Gámez-Guadix et al., 2015).

Online sexual victimization has been investigated in several studies, and some significant results showed that being pressured into sending an intimate image was reported by 70% of participants in a sample of college students (Englander, 2015), as well as having an intimate photo and/or video leaked on the internet as a form of revenge was mentioned by 10% of the participants (Branch et al., 2017). In the same vein, a study found that 1 out of 10 Australians has shared an intimate image of another person to third parties without the victim's consent (Henry et al., 2017).

Some characteristics of the virtual world end up providing variables that potentiate online sexual victimization, such as greater difficulty in finding space and time limits, the anonymity provided by the Internet and the possibility of making contact easily through the internet with unknown people (Gámez-Guadix et al., 2015), being even possible to use this medium to continue this form of abuse offline. Due to the fact that online sexual victimization is more likely to happen to those who practice sexting more often, along with the increasing number of children and adolescents using the internet, the probability of these age groups having a greater exposure to this risk makes this issue even more worrisome.

### **2.3 Early online sexual victimization**

The concern with online sexual victimization becomes even greater when it comes to children and adolescents, since these age groups are in psychological, biological and interpersonal development (Steinberg, 2008). Due to this phase of change, adolescents are naturally more curious and impulsive, especially with regard to sexuality, however, many of them end up putting themselves in different risk situations (Burén & Lunde, 2018). The vulnerability present in these age groups derives from some specific behaviors that can increase the probability of suffering an online sexual victimization, such as, for example, meeting people on the internet, talking about sex with people they have only met on the internet, sending a photo and/or video to someone unknown via the internet (Mitchell, Finkelhor, et al., 2007). Another recent study went deeper and indicated that in addition to these behaviors increasing the chances of being an online sexual victim, they also increased the symptoms of depression and suicidal ideation (Medrano et al., 2018). Another variable that can influence the increase in the exposure to this type of risk is the fact that adolescents and children are heavier users of the internet and use this medium for leisure activities if compared to adult users (Livingstone & Haddon, 2008).

The use of the internet for interaction within these groups leads to online sexual victimization being caused by another teenager, or someone close in age, however, when the adult is the aggressor, online sexual victimization becomes

even more worrisome, since in addition to sexual experiences being different between adults and minors, children and adolescents do not yet have the capacity to consent to an adult, especially with regard to sexual matters (Ybarra et al, 2008).

More concrete data on the prevalence of online sexual victimization were reported a study carried out with 27% of adolescents , in more detail, the most frequent types of victimization were sharing intimate messages for 9% of boys and 15% of girls and unwanted sexual solicitation for 5% of boys and 16% of girls (Helweg-Larsen et al., 2012). It is noticeable that the ways in which online sexual victimization may occur vary between genders. For example, girls more often feel coerced into uploading an intimate photo and/or video, while boys feel more pressured by other boys to view and share images of sexual content (Titchen et al., 2019; Van Ouytsel et al., 2017). As can be seen, the prevalence of online sexual victimization is analyzed in several foreign studies, however, it is not possible to find instruments in Portuguese to assess OSV in Brazil.

## **2.4 Early online sexual victimization as a form of early sexual abuse**

Early online sexual victimization can potentially be seen as analogous to sexual abuse in childhood and adolescence. Although sexual abuse during development can receive numerous definitions (Mathews & Collin-Vézina, 2019), it is consensual that it is a complex phenomenon that can occur in an inter-family way, by people close or unknown, by people of the same age, at home, in institutions and communities. In this dissertation thesis, child and adolescent sexual abuse will be defined as any involvement of a child/adolescent in sexual activity to which there is no full understanding or ability to consent, since the child/adolescent does not have the psychological, emotional and cognitive resources to give such consent, or that is against the laws and social taboos. Similarly, we include as forms of sexual victimization the use of encouragement or coercion for a child/adolescent to engage in any illegal sexual activity, the exploitation of a child/adolescent in prostitution and the exhibition of pornographic presentations and materials to a child/adolescent (WHO 2006).

Such definition follows others established by other studies (Mathews & Collin-Vézina, 2019; Wekerle et al., 2017).

Studies consolidate that sexual abuse in childhood and adolescence is an early experience of stress with numerous observable repercussions throughout development (Adams et al., 2018; Choi et al., 2017; Fergusson et al., 1996; Lee et al., 2017). Therefore, we will call here child and adolescent sexual abuse as early sexual abuse. We know that early sexual abuse is a public health issue all over the world, and can lead to various symptoms such as depression and anxiety (Cougle et al., 2010; Gallo et al., 2018; Leeb et al., 2011; Rohde et al., 2008), substance use (Cicchetti & Handley, 2019; Mersky et al., 2013), suicide (Maniglio, 2011) and personality disorder (de Aquino Ferreira et al., 2018; Hecht et al., 2014) throughout development and later into adulthood. Since early sexual abuse, like other maltreatment experiences, is recognized as an epigenetic risk factor for different mental health conditions, assuming early online sexual victimization as an early life stress event (similar to early sexual abuse) it would be reasonable to hold that early online sexual victimization may have long lasting consequences as a risk factor for psychopathological symptoms.

## **2.5 Online sexual victimization associated with psychopathological symptoms**

Such hypothesis is close to that hold into the field of study of other form of online victimization, which is cyberbullying. There are already studies relating it to the development of psychopathological symptoms throughout life (Hellfeldt & Laura, 2019; Kumar & Goldstein, 2020; Nixon, 2014). For some years now, online sexual victimization has been the focus of studies, mainly with regard to the causes of psychopathologies (Festl et al., 2019; Gámez-Guadix et al., 2015; Gassó et al., 2020; Maas et al., 2019; Mitchell, Ybarra, et al., 2007), but its effects as risk factor for latter symptoms were object of no study yet, to the best of our knowledge.

It is necessary to emphasize that online sexual victimization can be considered a risk factor for the development of several psychopathological

symptoms (Festl et al., 2019; Gassó et al., 2020; Zetterström Dahlqvist & Gillander Gådin, 2018). The most common symptoms reported in previous studies are depression and anxiety (Brinkley et al., 2017; Drouin et al., 2015; Festl et al., 2019; Gassó et al., 2020; Howard, 2019) and substance use (Dir et al., 2018; Mitchell et al., 2012; Temple et al., 2014). Those who have a history of online sexual victimization are nearly twice as likely to report depressive symptoms and substance use than those who do not (Mitchell, Ybarra, et al., 2007; Zetterström Dahlqvist & Gillander Gådin, 2018). Given the long-term psychological damage to mental health, early online sexual victimization becomes even more relevant. Children and adolescents are potentially more vulnerable victims, given that negative environmental influences experienced in childhood and adolescence can affect genetic expressions (Roth & Sweatt, 2011). Modification of DNA gene expressions that changes the accessibility of DNA without changing the genetic code is called epigenetics (Jones et al., 2018). Studies relating childhood sexual abuse and epigenetic alterations indicate that children victim of sexual abuse showed impairments in some cognitive functions, such as flexibility and response inhibition, interference control and working memory (Gervasio et al., 2020).

## **2.6 Online sexual victimization assessment**

One issue in the study of online sexual victimization refers to its assessment. Because it is a topic that has emerged with greater prominence and interest from researchers in the last two decades, there are still few instruments to assess OSV. In this line, one of the most cited measures is the OSV Scale developed by Gámez-Guadix (2015), which has good to excellent reliability and validity, in addition to being used in several other studies that investigated the OSV (Festl et al., 2019; Mochis & De, 2020; Knight, 2022). The instrument consists of 10 items that assess the three levels of online sexual victimization. The items refer to a range of unwanted sexual experiences that may occur while using the Internet, and participants are asked to score the number of times they have had such experiences using the following scale: 0 = never; 1 = 1 or 2 times; 2 = 3 or 4 times; 3 = 5 or 6 times; and 4 = 7 or more times (Gámez-Guadix et al., 2015). However, there was no version in Portuguese. Therefore, the process of translation and adaptation was then elaborated by us, as can be seen further in

article 1 of this dissertation. For the elaboration of this work, an online survey was carried out in which we recruited 861 fluent Brazilian Portuguese speakers aged between 18 and 46 years, in order to obtain analyzes and psychometric properties similar to the original scale. Through this process of translation and adaptation, the OSV-BR can support future research aimed at deepening and producing more knowledge on the topic of online sexual victimization in Brazil.

## **2.7 Objective**

Through all the study we carried out to produce this dissection, it is possible to highlight a concern with the vulnerability that some children and adolescents may experience on the internet and especially the risk factors that such an early experience may cause throughout their lives. Because it is an extremely important issue, the main objective is to bring more knowledge and information on this topic, in order to provide the development of health promotion in primary care to build stronger protective functionalities with the intention of preventing children and adolescents from being exposed to such stressful situations.

### 3 ARTICLE 1. Translation And Adaptation Of The Online Sexual Victimization Scale: OSV-BR

*Escala de Vitimização Sexual Online. OSV-BR: tradução e Adaptação*

Licht-Teixeira, Carolina; Dios-Almeida, Felipe; Gouveia, Andresa; Sarkis, Clarissa; Faro, Janaina; Henrique-Brito, Julia; Almeida, Julia; Romani, Aline and Sanvicente-Vieira, Breno.

#### Abstract

**Introduction:** Online sexual victimization has been the subject of much research in recent years. Due to the increasing internet access, especially among children and adolescents, it is possible to observe that new forms of sexual interaction are emerging. Since sexual abuse is a global concern and can occur regardless of location, the use of the internet has brought a new way for some types of sexual abuse to occur. Such studies have used the Online Sexual Victimization Scale instrument, consisting of 10 items that assess three levels of online sexual victimization. However, there is no translated and validated version to Brazilian Portuguese. Therefore, the objective of this work is to translate and adapt the online sexual victimization, also evaluating some of its psychometric properties. **Method:** The study was divided into two stages (I) translation and adaptation and (II) evaluation of reliability and factor structure. In order to test reliability and factorial structure assessment of online sexual victimization, confirmatory factor analysis (CFA) was performed in R software (R Core Team, 2020) using the lavaan package (Rosseel et al., 2017). **Results:** The translated version of the OSV was obtained after passing through systematized stages of translation and adaptation and validation of reliability and factorial structure. According to factor analysis, OSV is a second-order factor composed of three first-order factors - insistence (4 items), threats (4 items) and dissemination (2 items). The second-order model showed good to excellent model fit between the indices (RMSEA=0.047 [90% CI = 0.036, 0.058]; CFI = 0.998; TLI = 0.997) and all items had significant factor loadings ( $p < 0.001$ ). **Discussion:** The procedure presented in this study of translation and cross-cultural adaptation of the online sexual victimization into Brazilian Portuguese may contribute to future Brazilian



research on the topic of online sexual victimization, as it provides a tool to identify the presence, frequency, and severity of online sexual victimization.

**Keywords:** online sexual victimization, sexual abuse, internet, translation.

## Resumo

**Introdução:** A vitimização sexual online tem sido tema de diversas pesquisas nos últimos anos. Devido à crescente acessibilidade da internet, principalmente, entre crianças e adolescentes, é possível observar que novas formas de interação sexual estão surgindo. Visto que, o abuso sexual é uma preocupação global e pode ocorrer independentemente do local, o uso da internet trouxe um novo caminho para que alguns tipos de abuso sexual ocorram. Tais pesquisas têm utilizado o instrumento Online Sexual Victimization Scale formado por 10 itens que avaliam três níveis de vitimização sexual online. No entanto, não há uma versão traduzida e validada para o português brasileiro. Logo, o objetivo deste trabalho foi traduzir e adaptar a OSV, avaliando também algumas de suas propriedades psicométricas.

**Método:** O estudo foi dividido em duas etapas (I) tradução e adaptação e (II) avaliação da confiabilidade e estrutura fatorial. Para testar a confiabilidade e a avaliação da estrutura fatorial do OSV, foi realizada análise fatorial confirmatória (CFA) no software R (R Core Team, 2020) usando o pacote lavaan (Rosseel et al., 2017). **Resultados:** A versão traduzida da OSV foi obtida após passar por etapas sistematizadas de tradução e adaptação e validação da confiabilidade e estrutura fatorial. De acordo com a análise fatorial, a OSV é um fator de segunda ordem composto por três fatores de primeira ordem - insistência (4 itens), ameaças (4 itens) e disseminação (2 itens). O modelo de segunda ordem apresentou ajuste de modelo bom a excelente entre os índices (RMSEA=0,047 [IC 90% = 0,036, 0,058]; CFI = 0,998; TLI = 0,997) e todos os itens tiveram cargas fatoriais significativas ( $p < 0,001$ ). **Discussão:** O procedimento presente neste estudo de tradução e adaptação transcultural para o português brasileiro pode contribuir para futuras pesquisas brasileiras sobre o tema da VSO permitindo identificar a presença, frequência e gravidade da vitimização sexual online.

**Palavras Chaves:** vitimização sexual online, abuso sexual, internet, tradução

### 3.1 Introduction

The increasing internet access enabled the development of new forms of intimate communication and sexual interaction (Barrense-Dias et al., 2017). On one hand, it has brought new ways to live a healthy sex life (Kosenko et al., 2017), on the other hand it has brought new forms of sexual victimization (Festl et al., 2019) – namely online sexual victimization (Gámez-Guadix et al., 2015). Online sexual victimization (OSV) is defined as experiencing any type of pressure via the Internet or cell phones to obtain unwanted sexual contact (eg, sharing sexual information, sending images with sexual content without permission, doing something against the will of a party involved) or/and the dissemination by the author of sexual images or information of the victim without her consent (Gámez-Guadix et al., 2015).

Over the past 15 years, growing concern has been taking shape over the topic of online sexual victimization, as it has become a harassment issue on top of offline victimization. Online sexual victimization rates in adolescents range from 18% to 35% depending on how it is measured, the type of victimization and there is also a difference between genders (Gassó et al., 2020; Helweg-Larsen et al., 2012). Because the relevance of the topic and variations in outcomes are already documented, it is important to support the development and standardization of assessment methods (Helweg-Larsen et al., 2012).

Online sexual victimization has been assessed in different forms. To date, studies already used a two-item measure to assess unwanted online sexual solicitation (Baumgartner et al., 2010; Mitchell, Wolak, et al., 2007). The items inquire: “How often in the past six months, did anyone ask you online to talk about sex when you did not want to?” and “How often in the past six months, did anyone ask you online to do something sexual when you did not want to?”. In this example, participants should answer in a 5-point Likert-type scale going from 0 (never) to 4 (seven times or more). However, upon the understanding that such questions were not enough to assess the different types of online sexual victimization, Gámez-Guadix and colleagues (2015) have developed the Online Sexual Victimization Scale (OSV), which has become the most used scale for measuring online sexual victimization in recent years. The OSV scale

combines the questions described above and also other measures for offline sexual harassment (Straus & Hamby, 1996).

OSV Scale is divided into three dimensions: (1) sex-related insistence, (2) threats and coercion, and (3) the unwanted dissemination of content. The instrument consists of 10 items that assess the three levels of online victimization. The items refer to a series of unwanted sexual experiences that may occur on the internet, and participants mark the number of times they have had such experiences using the following scale: 0 = never; 1 = 1 or 2 times; 2 = 3 or 4 times; 3 = 5 or 6 times; and 4 = 7 or more times (Gámez-Guadix et al., 2015).

The psychometric properties of this scale were analyzed and validated by the author Gámez-Guadix (2015) in a survey on the prevalence of online sexual victimization with a sample of 873 Spanish adults. The results show statistically significant factor loadings greater than 0.46 ( $p < 0.001$ ). Confirmatory factor analyzes were performed and give support for a factor structure of three first-order factors (insistence, threats, and dissemination) grouped into a general second-order factor (online sexual victimization) - factor loadings of insistence, threats and dissemination in the general OSV factor were 0.64, 0.65 and 0.63, respectively. OSV Scale also shows alpha Chronbach's alphas for insistence, threats and dissemination of 0.92, 0.78 and 0.53, respectively (Gámez-Guadix et al., 2015). These proprieties enabled authors to assum different forms of correction for the scale: a total OSV Score, but also scores for each of the subscales. The total score is calculated by adding up all the items, with a score ranging from 0 to 40. With this, it is possible to assign a degree of severity to online sexual victimization; however, apparently there is still no standardization data with cut-off points used in any population. In addition, the subscale scores (insistence, coercion/threat and dissemination) can also be calculated separately.

In this study, we aimed to conduct the translation and adaptation of the OSV scale into Brazilian Portuguese, in addition to investigate its psychometric proprieties. The goal of this study is justified by different points: (I) online sexual victimization is a emerging and timely topic of research interest (Powell & Henry, 2019; Zetterström Dahlqvist & Gillander Gådin, 2018). (II) As far as we know,

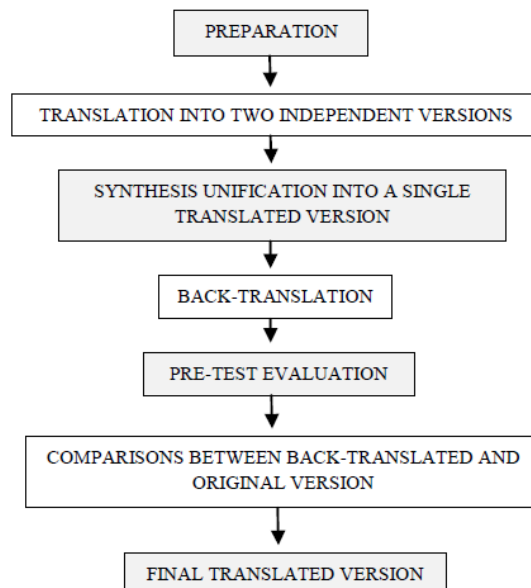
this scale exists only in the Spanish and English language versions, both created by Gámez-Guadix (2015) as original versions. There are also reports of the use of the scale in a survey with German participants (Festl et al., 2019), although there is no information in the article about the translation of this instrument into German or psychometric assessments. (III) Brazil is estimated to have 75% of all population with access to the internet (Alves, 2021), thus having a considerable amount of people vulnerable to online sexual victimization. (IV) To our knowledge there is no measure to investigate sexual online victimization in Brazilian Portuguese.

### **3.2 Methods**

To translate, adapt and assess reliability and factorial structure of the Online Sexual Victimization Scale we planned the work in two phases: (I) translation and adaptation and (II) reliability and factorial structure assessment.

#### **3.2.1 Translation and adaptation**

To achieve a Brazilian Portuguese OSV scale version we followed the International Test Commission (Commission, 2010) guideline. Steps for good practice on transcultural scale translation and adaptation include: (1) preparation, (2) translation into two independent versions, (3) synthesis unification into a single translated version, (4) conceptual and semantic review of unified version by independent researcher, (5) back-translation into original language (i.e., English), (6) comparisons between back-translated version and original version, and (7) acceptability trial. Figure 1 details all planned steps for translating and adapting OSV scale into Brazilian Portuguese.

*1<sup>st</sup> PHASE: TRANSLATION AND ADAPTATION**2<sup>nd</sup> PHASE: RELIABILITY AND FACTORIAL STRUCTURE EVALUATION*

**Figure 1: Step-by-step flowchart of the method used to translate the instrument ONLINE SEXUAL VICTIMIZATION (OSV) SCALE to the Portuguese language of Brazil.**

### 3.2.2 Preparation

Before starting translation processes, we asked for the author's permission to translate the OSV scale and requested the author's expertise to review the retrotranslated version to be compared to the original one later. In addition, we prepared material and the team to be involved with all the steps.

### 3.2.3 Translation into two independent versions

Two independent Brazilian Portuguese native-speaker researchers who are also fluent in English produced two translated versions. One translator was instructed to produce the most literal translation possible of the original version. The second translator was instructed to produce a version focused on the conceptual elements of the items rather than literal language matching.

### **3.2.4 Synthesis unification into a single translated version**

An expert committee with expertise in mental health care unified both literal and conceptual translations into a single version. The aim of this step is to achieve a version that matches the original one as much as possible, while taking into account cultural assessment particularities from the target-language population.

### **3.2.5 Back-translation**

A professional translator was inquired to translate back to the English the unified version. The translator was not aware of the original version.

### **3.2.6 Pre-test evaluation**

The unified version was presented to ten undergraduate students who should read each item and give feedback if it was clear and comprehensible. For each item they should answer if it was fully understandable or not. In addition, we included a field for descriptive information wherever they assumed it was necessary to be added. Eventual misunderstandings and suggestions would be checked and if considered they would be taken for review.

### **3.2.7 Comparisons between back-translated version and original version**

We asked the original author (Gamez-Guadix) to check our back-translated version and check for inconsistencies in comparison to the original scale. When comparing items, the review should flag each individual point of misunderstanding for further correction or debate.

### **3.2.8 Reliability and factorial structure evaluation**

To assess reliability and factorial structure of the Brazilian Portuguese version of OSV Scale (OSV-BR) we carried out an online survey. We recruited 861 Brazilian Portuguese fluent speakers aged between 18-46 years old ( $M = 26.34$ ,  $SD = 5.44$ ). The sample included 236 (27.4%) males and 625 (72.6%) females.

Participants answered a brief sociodemographic questionnaire and the OSV-BR. The research protocol and procedures were approved by the competent Committee for Ethics in Research. All participants were required to review and to agree with the consent form before access the questionnaire.

### 3.2.9 Analyses

In order to test reliability and factorial structure assessment of OSV, confirmatory factor analysis (CFA) was performed in R software (R Core Team, 2020) using the *lavaan* package (Rosseel et al., 2017). Model fit was tested by root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker–Lewis index (TLI). RMSEA near or below 0.080 represent acceptable model fit, and values lower than 0.060 represent good-to-excellent model fit CFI and TLI values near or above 0.900 represent acceptable model fit, while values higher than 0.950 represent a good-to-excellent model fit (Hu & Bentler, 1999). CFAs used diagonally weighted least squares (WLSMV) estimator and pairwise deletion of missing data. Cronbach's  $\alpha$  coefficient were calculated to estimate factor reliability.

## 3.3 Results

All steps planned were successfully carried out and are detailed below.

### 3.3.1 Preparation

Following the planned strategy to translate and adapt the OSV scale, we got the author's permission to translate the scale in August 2020. After that, we invited two independent bilingual researchers who Brazilian Portuguese native-speakers to translate the scale.

### 3.3.2 Literal and conceptual translation

One translator was instructed to produce a Brazilian Portuguese version as literal as possible. The second translator was instructed to be particularly mindful to preserve conceptual and semantic meanings into the Brazilian version. Both literal and conceptual versions are shown in Table 1.

As can be seen, there were some differences between the two versions. Of particular note, some terms were translated differently. In the original version instructions included the term “mobile phone”, which was literally translated as “telephone móvel” and conceptually translated as “aparelho celular”. Similarly, the literal version kept the word “webcam”, such as the original version; in contrast, the conceptual version translated it into “video chamada”. In the original version there is the verb “disseminating”, which in the literal translation would be “disseminaram”, however, in the conceptual translation it was adapted to the verb “compartilharam”. As well as the verb “coercing”, which means “coagiram” in the literal translation, however it was translated conceptually into the verb “forçaram”.

### 3.3.3 Synthesis unification into a single translated version

Unified translated version is shown in Table 1. Considering differences between literal and conceptual versions, the expert committee made decisions trying to preserve as much as possible the original text with literal translation, but also taking care to minimize future problems when evaluating Brazilian population. From the differences previously flagged out, the committee decided to use more updated and daily used terms. Mobile phone often is just called “celular” in Brazil, so the decision was to replace the word “telefone” from the literal translation and keep the word “cellular” from the conceptual translation. Because video chatting nowadays is not exclusively done with webcams, the decision was made to use “chamada de vídeo” which seems to include webcam and mobile phone calls, for example. A significant structural change was also made to adapt the verb “coercing”, literally translated as “coagiram” to the verb “forçaram”, since the word “coagir” is used in more formal contexts in Brazil, thereby sounding strange to some people, hence taking into account the educational and socioeconomic levels which must be balanced in an adaptation. As in the original version, the word “disseminated” was used, as seen in Table 1, however, this word, when literally translated into Brazilian Portuguese, was not suitable for the theme proposed in the scale. Therefore, we opted for the word “compartilharam”, as it is not only more common, but also part of the Brazilian virtual world language.



### 3.3.4 Pre-test evaluation

The unified version was shown to 10 undergraduate students who should indicate if items were comprehensible or not. All the undergraduate students indicated that all items were fully comprehensible. We also included a field for descriptive observations one might think to be important to add. There was a single note of interest in this field. One participant indicated that item number 4 did not make it clear if the act of insisting should have occurred online or not. Regarding this as an important input and in order to avoid any confusion, we modified the aforementioned item and sent it to back-translation and expert review. The modified item was: “Insistiram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet) contra a sua vontade.”.

### 3.3.5 Back-translation

A professional translator who was not aware about study objectives translated the unified version into English. The back-translated version is shown in Table 1.

**Table 1: Literal, conceptual, unified and back-translated versions of the Online Sexual Victimization Scale (OSV)**

VERSION	LITERAL TRANSLATION	CONCEPTUAL TRANSLATION	UNIFIED VERSION	BACK-TRANSLATED VERSION
<b>ENUNCIATION</b>	Por favor, assinale o número de vezes que você experienciou cada uma das seguintes experiências por meio da Internet ou telefone móvel.	(Por favor.) Indique quantas vezes usando a Internet ou aparelho celular, você passou por qualquer das seguintes experiências.	Assinale quantas vezes você passou por qualquer das seguintes experiências, por meio da internet ou aparelho celular.	Check the boxes indicating how many times you have experienced any of the following situations online or through a cell phone:
<b>CLASSIFICATION SCALE</b>	0 = nunca, 1 = 1 ou 2 vezes, 2 = 3 ou 4 vezes, 3 = 5 ou 6 vezes, 4 = 7 vezes ou mais	0 = nunca, 1 = 1 ou 2 vezes, 2 = 3 ou 4 vezes, 3 = 5 ou 6 vezes, 4 = 7 vezes ou mais	0 = nunca, 1 = 1 ou 2 vezes, 2 = 3 ou 4 vezes, 3 = 5 ou 6 vezes, 4 = 7 vezes ou mais	0 = never, 1 = 1 or 2 times, 2 = 3 or 4 times, 3 = 5 or 6 times, 4 = 7 times or more
<b>1.</b>	Insistiram que você mandasse fotos e/ou vídeos sensuais ou eróticos contra a sua vontade.	Insistiram para que você mandasse fotos ou vídeos sensuais ou eróticos contra a sua vontade.	Insistiram para que você mandasse fotos e/ou vídeos sensuais ou eróticos contra a sua vontade.	You have been asked to send sexy pictures and/or videos against your will.
<b>2.</b>	Insistiram que você revelasse informações sexuais ou eróticas sobre si mesmo contra a sua vontade.	Insistiram para que você contasse informações sexuais ou eróticas sobre si mesmo contra a sua vontade.	Insistiram para que você contasse informações sexuais ou eróticas sobre si mesmo contra a sua vontade.	You have been asked to share sexual or erotic information about yourself against your will.
<b>3.</b>	Insistiram que você cometesse um ato sexual online contra sua vontade (via webcam, por exemplo).	Insistiram para que você realizasse atos sexuais contra a sua vontade (por exemplo, via vídeo chamada).	Insistiram para que você realizasse um ato sexual online contra a sua vontade (por exemplo, via vídeo chamada).	People have insisted that you perform an online sexual act against your will.
<b>4.</b>	Insistiram que você tivesse relações sexuais offline contra a sua vontade.	Insistiram para que você tivesse relações sexuais fora da internet contra a sua vontade.	Insistiram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet) contra a sua vontade.	People have insisted (online) that you have sexual intercourse (offline) against your will.
<b>5.</b>	Ameaçaram ou coagiram você a mandar fotos, imagens ou vídeos de si mesmo	Ameaçaram ou forçaram você a mandar fotos ou vídeos com conteúdo sensual ou erótico sobre si	Ameaçaram ou forçaram para que você mandasse fotos e/ou vídeos de si mesmo com conteúdo	You have been threatened or forced to send pictures and/or videos of yourself with sensual or erotic content.

	com conteúdo sensual ou erótico.	mesmo.	sensual ou erótico.	
6.	Ameaçaram ou coagiram você a revelar informações sexuais ou eróticas sobre si mesmo.	Ameaçaram ou forçaram você a contar informações sexuais ou eróticas sobre si mesmo.	Ameaçaram ou forçaram para que você contasse informações sexuais ou eróticas sobre si mesmo.	You have been threatened or forced to share sexual information about yourself.
7.	Ameaçaram ou coagiram você a realizar atos sexuais na Internet (via webcam, por exemplo).	Ameaçaram ou forçaram você a executar atos sexuais na Internet (por exemplo, via vídeo chamada).	Ameaçaram ou forçaram para que você realizasse atos sexuais online (por exemplo, via vídeo chamada).	You have been threatened or forced to perform sexual acts online.
8.	Ameaçaram ou coagiram você, por meio da Internet, a manter relações sexuais offline.	Ameaçaram ou forçaram você, por meio da Internet, a manter relações sexuais offline.	Ameaçaram ou forçaram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet).	You have been threatened or forced (online) to have sexual intercourse offline.
9.	Publicaram ou disseminaram fotos ou vídeos pessoais de conteúdo sexual ou erótico na Internet, sem o seu consentimento.	Publicaram ou compartilharam na Internet, fotos ou vídeos seus de cunho sexual ou erótico, sem sua permissão.	Publicaram ou compartilharam na internet, fotos ou vídeos seus de conteúdo sexual ou erótico, sem sua permissão.	People have posted or shared pictures or videos of you online without your permission.
10.	Disseminaram informações de natureza erótica ou sexual sobre você sem o seu consentimento.	Compartilharam informações de cunho sexual ou erótico sobre você sem a sua permissão.	Compartilharam informações sexuais ou eróticas sobre você, sem a sua permissão.	People have shared sexual or erotic contents about you without your permission.

### 3.3.6 Comparisons between back-translated version and original version

Back-translated version was sent to Gamez-Guadix for comparison with the original version. Items 1, 2, 3 and 4 in the original scale start with “insisting”, whereas in our unified version, items 1 and 2 were not expressing the meaning of someone persisting in doing something. For this reason, it was suggested to review such points.

In items 4 and 8 the back-translation replaced “relações sexuais” by “sexual intercourse”. Original version is: “insisting that you have sexual relations offline against your will” and “threatening/coercing you throughout the internet to maintain sexual relations offline”. Therefore, original version used “sexual relations” instead “sexual intercourse”. Thus, the reviewer noticed that “intercourse” would be more restrictive than “relations” and asked the final version to keep “relations”. As we learned that this was a side-effect of back-translation, we notified the reviewer about that. Similarly, for item number 5, the back-translation turned “sexual” into “sensual” which was noticed and asked to be assured the use of sexual instead of “sensual”. Finally, original item 9 is “Disseminating information of an erotic or sexual nature about you without your consent”, but back-translation omitted “erotic”, which was required to be included.

Furthermore, the reviewer noticed the decision to not use “webcam”. We explained that we understand that is restrictive since nowadays it is very common to make video calls with different devices than webcam and our decision was accepted by the reviewer. After we addressed all items, we resend it to the reviewer who approved our final version, as can be seen in Figure 2.

Assinale quantas vezes você passou por qualquer das seguintes experiências, por meio da internet ou aparelho celular.	
1.	Insistiram para que você mandasse fotos e/ou vídeos sensuais ou eróticos contra a sua vontade.
2.	Insistiram para que você contasse informações sexuais ou eróticas sobre si mesmo contra sua vontade.
3.	Insistiram para que você realizasse um ato sexual online contra a sua vontade.
4.	Insistiram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet) contra a sua vontade.
5.	Ameaçaram ou forçaram para que você mandasse fotos e/ou vídeos de si mesmo com conteúdo sensual ou erótico.
6.	Ameaçaram ou forçaram para que você contasse informações sexuais ou eróticas sobre si mesmo.
7.	Ameaçaram ou forçaram para que você realizasse atos sexuais online.
8.	Ameaçaram ou forçaram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet).
9.	Publicaram ou compartilharam na internet, fotos ou vídeos seus de conteúdo sexual ou erótico, sem sua permissão.
10.	Compartilharam informações sexuais ou eróticas sobre você, sem a sua permissão.
Escala de classificação:	
0 = nunca, 1 = 1 ou 2 vezes, 2 = 3 ou 4 vezes, 3 = 5 ou 6 vezes, 4 = 7 vezes ou mais	

**Figure 2: Final version – Escala de Vitimização Sexual Online (OSV-BR)**

### 3.3.7 Reliability and factorial structure evaluation

In order to test the factorial structure of OSV, the second order model proposed by Gámez-Guadix (2015) was used to run the CFA. This model considers that OSV is a second order factor composed of three first order factors - insistence (4 items), threats (4 items) and dissemination of content (2 items). The second order model presented good-to-excellent model fit across indices (RMSEA=0.047 [90% CI = 0.036, 0.058]; CFI = 0.998; TLI = 0.997) and all items had significant factor loadings ( $p < 0.001$ ), whose values are reported in Table 2. Reliability was tested using Chronbach's alpha, in which acceptable values were found for each subscale: insistence (0.927), threats (0.949) and dissemination of content (0.870).

**Table 2: Factor loadings from confirmatory factor analysis of Online Sexual Victimization Scale**

OSV Item	Insistence Threats	Dissemination of content
Insistiram para que você mandasse fotos e/ou vídeos sensuais ou eróticos contra a sua vontade	0.903	
Insistiram para que você contasse informações sexuais ou eróticas sobre si mesmo contra a sua vontade	0.885	
Insistiram para que você realizasse um ato sexual online contra a sua vontade	0.901	
Insistiram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet) contra a sua vontade	0.829	
Ameaçaram ou forçaram para que você mandasse fotos e/ou vídeos de si mesmo com conteúdo sensual ou erótico	0.928	
Ameaçaram ou forçaram para que você contasse informações sexuais ou eróticas sobre si mesmo	0.897	
Ameaçaram ou forçaram para que você realizasse atos sexuais online	0.913	
Ameaçaram ou forçaram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet)	0.906	
Publicaram ou compartilharam na internet, fotos ou vídeos seus de conteúdo sexual ou erótico, sem sua permissão		0.833
Compartilharam informações sexuais ou eróticas sobre você, sem a sua permissão		0.925
OSV	0.914	0.932
		0.572

### 3.4 Discussion

The present work aimed to translate, adapt and investigate some psychometric proprieties of the Online Sexual Victimization Scale (OSV), due to the need for an instrument that could assess online sexual victimization in the Brazilian language. We could complete all planned steps for translation and adaptation, moreover, we ran analyses that support that the translated scale has very similar psychometric proprieties to the original one.

In recent years, research on online sexual victimization has been advancing. Most research came from the US (Drouin & Tobin, 2014; Maas et al., 2019; Titchen et al., 2019) and Europe (Gámez-Guadix et al., 2015; Gassó et al., 2019; Montiel et al., 2016). OSV scale already has been used in different studies. For example, it was already used to assess the prevalence of online sexual victimization in undergraduate students (Knight, 2022). Moreover, since online sexual victimization has emerged as an adverse event, its occurrence has been tested to inversely relate with psychological well-being (Festl et al., 2019) and to positively relate with HIV risk behavior in adolescents (Mochis & De, 2020). However, in Brazil, the lack of available instruments to assess online sexual victimization hinders the advancement of research in this area.

As to the translation and adaptation it is worth mentioning that very few differences and changes in the scale occurred throughout the process. However, there were some changes in order to keep up with terminological innovations and linguistic adaptations. For instance, it was observed that the term “mobile phone”, found in the original instructions, became “cellular device”, after the conceptual translation. Among other terms that were also changed, the word “webcam” became “video call”, since nowadays the latter most commonly happens through devices other than a webcam, such as cell phones.

In the same way, we adapted the verb “dissemination” (originally translated to “disseminaram”) found in the conceptual translation, to use the verb “compartilharam” (which could be translated to “sharing”), which is more aligned with the language used in Brazil for the behavior of sending online informations to third parties. The same was true for the verb “coercing”, which we chose to translate as “forced” to preserve its conceptual meaning, since this term is easier for people to understand in Brazil.

The achieved measure was tested and psychometric proprieties were compared to those reported by Gámez-Guadix (2015). As we could replicate most of the original characteristics, we assume that the translated OSV Scale can be used just as the original one. The confirmatory factor analyzes of our study showed good internal consistency for the second-order model originally reported.

Through Chronbach's alpha, acceptable values were found for each subscale (insistence, threat/coercion and dissemination), thus confirming the reliability of the scale.

Therefore, the OSV-BR is ready to be used in future researches that wish to investigate the topic of online sexual victimization. The scores can be calculated in different ways, having a total score and three more scores referring to insistence, threat and dissemination, in this way the instrument allows a more detailed investigation for the knowledge of each type of victimization. However the scale does not establish a standardized cut-off point to signal the levels of severity of victimization based on responses, as may already be seen in other instruments, including the Childhood Trauma Questionnaire (CTQ) (Fosse et al., 2020) and the Cross-cutting Symptoms Measure of the DSM-5 (Clarke &Kuhl, 2014). This instrument may be widely used in much The scores can be calculated in different ways, having a total score and three more scores referring to insistence, threat and dissemination, in this way the instrument allows a more detailed investigation for the knowledge of each type of victimization. Research seeming to be flexible and reliable at the same time. For example, the study by Festl (2019) which analyzed online sexual victimization retrospectively in a sample of German young adults.

Therefore, the procedure presented in this study may help alleviate the need of measures of assessment of online sexual victimization in Brazil. In addition, the OSV-BR allows future Brazilian researchers interested in this topic to identify the presence, frequency, and severity of online sexual victimization. The search for maximum equivalence between the original instrument and its translated and adapted version guided the entire process, in order to avoid often subtle forms of distortion.

## 4 ARTICLE 2. Early Online Sexual Victimization Associated With Adult Psychological Symptoms Independent Of Early Non-Online Sexual Victimization Experiences.

*A vitimização sexual precoce online associada a sintomas psicológicos adultos, independentemente das experiências precoces de vitimização sexual não online.*

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### Abstract

**Introduction:** Child sexual abuse is a public health problem, causing several consequences for mental health in adult life. With the emergence of the internet, new forms of sexual abuse are emerging, being called online sexual victimization (OSV). In addition to being a more frequent experience for people who grew up with internet access, it may also have long-term negative consequences for mental health. Therefore, this is an online retrospective exploratory study that aims to investigate, in a sample of young adults who have used the internet since childhood, the different effects of early history of online and non-online sexual abuse for psychopathological symptoms. **Method:** A sample of 667 young adults who answered to a sociodemographic questionnaire, questions about experiences of OSV before the age of 18 (OSV-BR), a questionnaire about diverse psychopathological symptoms (CCSM - DSM-5), and who have used the internet since childhood a questionnaire about early experiences of maltreatment (MACE). **Result:** early OSV was reported by 77.36% of the sample. The severity of MACE sexual abuse also showed a significant difference, indicating greater severity in OSV+. Psychopathological symptoms show significant differences for most domains, except for mania and personality. **Discussion:** Three out of four adults who grew up with internet access had a history of early OSV. Furthermore, it is possible to observe the effects of early online sexual victimization as risk factors for increased symptoms of anger, anxiety, somatic symptoms and sleep problems

in late adulthood. The impact of OSV is highlighted along with the importance of creating more effective mechanisms to protect children and adolescents and avoid their exposure to stressful situations.

**Keyword:** sexual abuse, online sexual victimization, trauma, childhood, psychopathology

## Resumo

**Introdução:** O abuso sexual infantil é um problema de saúde pública, causando diversas consequências para a saúde mental na vida adulta. Com o surgimento da internet, novas formas de abuso sexual estão surgindo, sendo chamadas de vitimização sexual online (VSO). Além de ser uma experiência mais frequente para pessoas que cresceram com acesso à internet, também pode ter consequências negativas a longo prazo para a saúde mental. Portanto, este é um estudo exploratório retrospectivo online que visa investigar, em uma amostra de adultos jovens e usuários de internet desde a infância, os diferentes efeitos da história precoce de abuso sexual online e não online para sintomas psicopatológicos. **Método:** Uma amostra de 667 adultos jovens que responderam a um questionário sociodemográfico, perguntas sobre experiências de VSO antes dos 18 anos (OSV-BR), questionário sobre sintomas psicopatológicos diversos (CCSM - DSM-5) e questionário sobre experiências precoces de maus-tratos (MACE). **Resultado:** VSO precoce foi relatada por 77,36% da amostra. A gravidade do abuso sexual MACE também apresentou diferença significativa, indicando maior gravidade no OSV+. Os sintomas psicopatológicos apresentaram diferenças significativas para a maioria dos domínios, exceto mania e personalidade. **Discussão:** Três em cada quatro adultos que cresceram com acesso à internet tinham histórico de VSO precoce. Além disso, foi possível observar os efeitos da vitimização sexual precoce online como fatores de risco para o aumento dos sintomas de raiva, ansiedade, sintomas somáticos e problemas de sono no final da idade adulta. Ressalta-se a relevância deste tema do VSO, destacando a importância da construção de recursos de proteção mais efetivos para evitar que crianças e adolescentes sejam expostos a tais situações estressantes.

**Palavras-chave:** abuso sexual, vitimização sexual online, trauma, infância, psicopatologia



## 4.1 Introduction

Child sexual abuse (CSA) is a public concern. Global CSA rates range between 7.6-7.9% for boys and 18.0-19.7% for girls (Stoltenborgh et al., 2015) and it is documented to have far-reaching repercussions over a lifetime, as CSA is linked to increased risk of depression/anxiety symptoms (Cougle et al., 2010; Gallo et al., 2018; Leeb et al., 2011; Rohde et al., 2008), suicide (Maniglio, 2011), substance use (Cicchetti & Handley, 2019; Mersky et al., 2013) and personality disorder (de Aquino Ferreira et al., 2018; Hecht et al., 2014). CSA refers to situations in which an adult uses a child for sexual stimulation. Although for a long time experiences of sexual abuse were expected to occur in face-to-face situations, as technology evolved, new forms of sexual abuse have begun to emerge, such as online sexual victimization (OSV). OSV is defined as experiencing some type of pressure or threats through the internet or cell phones to obtain sexual content, or/and the dissemination of this sexual content without the victim's consent (Gámez-Guadix et al., 2015). Because internet integrates the lives of many children and adolescents nowadays, they become vulnerable to OSV as well (Maas et al., 2019; Wachs et al., 2016). Thus, it is possible that OSV happening to children and adolescents represent a new form of CSA

In Brazil, for instance, it is estimated that about 85% of children and adolescents between 9 and 17 years old have access to the internet and 93% of this share have access to the internet via smartphones (United Nations Children's Fund, 2019). With a growing number of children and adolescents connected to the internet and the difficulty in controlling and filtering information obtained through the network, risks of children and adolescent suffering OSV rise. Mean while, studies with adult populations already show that OSV can be related to psychological symptoms, such as depressive and anxiety (Brinkley et al., 2017; Drouin et al., 2015; Festl et al., 2019; Gassó et al., 2020; Howard, 2019) and substance use (Dir et al., 2018; Mitchell et al., 2012; Temple et al., 2014). Similarly, an Australian survey with adolescents found out that receiving unwanted sexual messages and sending sexual messages under coercion were highly associated with mental health problems, including depression and anxiety

(Klettke et al., 2019). Because online and non-online sexual victimization may have biasing effects, research already investigated that OSV is positively related to symptoms of depression and substance use, even after adjusting for non-online sexual victimization (Mitchell, Ybarra, et al., 2007). Therefore, it can be suggested that OSV may be related to mental health issues independently of offline victimization.

Even before OSV gained space in the academic literature, another form of online victimization had already been extensively studied, which is cyberbullying (CB), defined as any type of intentional and repeated aggression carried out in an electronic context against a person who cannot easily defend himself/herself (Kowalski et al., 2014). These studies consolidate that cyberbullying experience is associated with several negative outcomes, including anxiety, depression (Beran & Qing, 2005; Hellfeldt & Laura, 2019), substance abuse (Mitchell, Ybarra, et al., 2007), difficulty sleeping (Kumar & Goldstein, 2020), somatic symptoms and suicide (Nixon, 2014). In addition, there are studies indicating that victims of CB may have more anxiety and suicidal ideation compared to peers who have not experienced online victimization (Kumar & Goldstein, 2020; Selkie et al., 2016). A retrospective study was conducted to investigate the associations between the development of sexual orientation, gender role nonconformity and family-related factors with online victimization, specifically cyberbullying, and traditional bullying victimization during childhood among gay and bisexual men, and the result demonstrate that having experienced traditional bullying victimization increased the risk of online victimization among sexual minority youth (Wang et al., 2019). These data contribute to thinking about cases of re-victimization, because, as with bullying victimization, there are already studies relating cases of childhood sexual abuse and re-victimization (Walker et al., 2019). However, with the internet, revictimization can take different forms.

For all the above, it is reasonable to assume that children and adolescents may suffer OSV. Because internet has been available for some decades, nowadays young adults ranging from 18 to 30 years old may have experienced early online sexual victimizations, which may have constituted early stressful events in their

lives. Because early stressful events may contribute to psychological symptoms emerging later in life (Nemeroff, 2004), it would be reasonable to assume that early OSV constitutes a risk factor for psychological symptoms in young adults who went through it. The contribution of early events to latter phenotype psychological characteristics is often related to epigenetic effects – modifications in gene expression profiles without changing the genetic code, often caused by environmental events (Nöthling et al., 2020; Thumfart et al., 2022). Research done to investigate the association between neurocognition and child sexual abuse found that children victims of sexual abuse had deficits in cognitive flexibility, response inhibition/interference control, and working memory (Gervasio et al., 2020). In addition, the number of times a child is exposed to a stressful experience and the diversity of types of maltreatment that he or she suffers considerably increases the chances of developing psychopathology and having an impoverished mental health (Carr et al., 2013).

Although epigenetic research is recent, CSA has been studied for a long time and in several ways. One of the methods used to investigate the epigenetic effects of child abuse is the use of retrospective investigations that assess past experiences of childhood sexual abuse in adult populations. There are results indicating associations between the occurrence of such early sexual abuse experiences and psychopathological symptoms at different phases of life course (Arnow, 2004; Fergusson et al., 1996, 2013; Hailes et al., 2019; Wegman & Stetler, 2009). Differently, since OSV is a contemporary issue, studies carried out to investigate its present occurrence in concomitant association with symptomatic manifestations (Festl et al., 2019; Gassó et al., 2019; Zetterström Dahlqvist & Gillander Gådin, 2018) do not focus on past experiences.

Thus, the aim of this study was to investigate the relation between early OSV and psychopathological symptoms in young adults. The main hypothesis we hold is that early OSV experiences would be related to higher psychopathological symptoms, which may be independent of non-online sexual abuse early experiences.

## 4.2 Method

This cross-sectional study investigates the relation between the history of early OSV and psychopathological symptoms. All the assessments were carried out through an online questionnaire in a virtual platform, named `formR`.

### 4.2.1 Participants

After exclusion criteria, a total of 667 participants of both sexes/genders, who were more than 18 years old and had more than 8 years of formal education were included in this study. Exclusion criteria were: to be more than 28 years old at the moment the survey was answered ( $n = 239$ ); to meet the minimum threshold of psychotic symptoms ( $n = 326$ ); exclusively extreme answers and/or to not complete all the instruments ( $n = 71$ ). We determined 28 years old as the maximum age to reach participants that somehow could have had access to the internet during their entire life. Because data extraction occurred in 2021 and 1994 was the year of the advent of commercial internet in Brazil (Carvalho, 2000), 28 years old was the limit age. Participants who had a suggestion of psychotic symptoms were excluded due to possible symptom bias in the answers and results, which is often noticed in other studies (Sheffield et al., 2018).

### 4.2.2 Instruments

#### 4.2.2.1 Sociodemographic Questionnaire

We included questions about age, sex, sexual orientation (heterosexual, homosexual, and bisexual), educational level and ethnicity.

#### 4.2.2.2 Online Sexual Victimization Scale

In recent years, this instrument has been the most used to assess online sexual victimization and was developed by Gámez-Guadix, Almendros, Borrajo and Calvete (2015) based on previous measures of sexual harassment (offline). This scale is divided into three dimensions: (1) sex-related insistence, (2) threats and coercion, and (3) unwanted dissemination of content. The scale consists of 10 items with the objective of evaluating three levels of online victimization (insistence, threats/coercion and dissemination). The items refer to a series of unwanted sexual experiences that may occur while using the internet,

for example, item 5 says "You were threatened or forced to send photos and/or videos of yourself with sensual or erotic content". The participants were asked to indicate the number of times they have had such experiences using the following scale: 0 = never; 1 = 1 or 2 times; 2 = 3 or 4 times; 3 = 5 or 6 times; and 4 = 7 or more times. For the retrospective purpose of this research, we added checkboxes referring to age from 1 to 17 years old, in which participants should indicate at what age they experienced any of the situations mentioned in the item above. This instrument did not have a translated version that could be used in Brazil, so we performed the translation and adaptation into Brazilian Portuguese (Licht-Teixeira et al, submitted) according to the International Test Commission guideline.

#### **4.2.2.3 *Cross-cutting Symptoms Measure of DSM-5 (CCSM)***

The measures assess the presence and severity of 13 psychiatric symptom domains. These include depression, anger, mania, anxiety, somatic symptoms, sleep disturbance, psychosis, obsessive thoughts and behaviors, suicidal thoughts and behaviors, substance use, personality functioning, dissociation, and cognition/memory problems in adults. The DSM-5 CC Symptom measures are operationalized at two levels. Level 1 consists of a 23-item measure of the presence and severity of symptoms over the past two weeks. The items, with the exception of suicide ideation, suicide attempts, and substance use are rated on a 5-point scale (i.e., 0=none/never; 1=slight/rare; 2=mild/several days; 3=moderate/more than half the days; and 4=severe/almost daily), with higher scores indicating greater frequency of occurrence or greater degree of severity. The measures were field tested in the DSM-5 field trials and demonstrated mostly good-to-excellent test-retest reliabilities and strong clinical utility from patient and clinician perspectives (Clarke & Kuhl, 2014). The choice for this instrument was based on its ease of administration, scoring and interpretation, especially in electronic form.

#### **4.2.2.4 *Maltreatment and Abuse Chronology of Exposure (MACE)***

The MACE scale is a measurement instrument for adults that aims to retrospectively assess the experience of childhood maltreatment. It consists of 52 items that assess the degree of exposure to ten types of abuse, namely:

(1) verbal abuse by parents (items 1, 2, 3, 4); (2) physical abuse by parents (items 6, 7, 8, 9, 10, 11); (3) sexual abuse (items 12, 13, 14, 19, 20, 36, 37); (4) witnessing violence against siblings (items 15, 16, 17, 18); (5) witnessing interparental violence (items 21, 22, 23, 24, 25); (6) emotional peer abuse (items 26, 27, 28, 29, 30); (7) physical peer bullying (items 31, 32, 33, 34, 35); (8) emotional neglect (items 38, 39, 42, 43, 52); (9) physical neglect (items 44, 45, 46, 47, 51) and (10) nonverbal emotional abuse (items 5, 40, 41, 48, 49, 50). The scale also provides checkboxes for the participant to indicate, approximately, at what age these experiences occurred (from 1 to 17 years old), making the information more accurate. However, in order to analyze the objective of this research, only the items referring to sexual abuse were used, thus allowing the calculation of a sexual abuse severity score.

#### **4.2.3 Procedures**

Recruitment occurred via public and virtual postings. The instruments were answered in a virtual platform, named `formR`. As it is an online survey, the disclosure occurred via public and virtual postings through social networks, e-mail and instant messaging apps (Whatsapp and Telegram). Participants who showed interest in the research were able to access a link where the objectives and procedures were presented to them, through the Free and Informed Consent Term (FICT). Only when they agreed to the FICT did the questionnaires begin. The study and all procedures were approved by the competent Research Ethics Committee and followed the General Data Protection Law (LGPD). The instruments were answered on a virtual platform called `formR` and took approximately 20 to 25 minutes to complete and, once completed, participants who scored moderate to severe for psychopathological symptoms received information about nearby psychosocial care resources and the email address to contact us about any concerns.

#### **4.2.4 Data Analysis**

Statistical analyses were performed using SPSS Version 26.0. First step was to descriptively analyze the whole sample using measures of central tendency for continuous variables and frequency and percentage for categorical ones. In this stage, the sample was divided into two groups according to criteria for

dichotomous identification of early history of online sexual victimization using the OSV scale, splitting the sample into a group of people who had positive history of early online sexual victimization (OSV+) and a group of people had no history of early online sexual victimization (OSV-).

Groups' characteristics were analyzed using Pearson's Chi-square test for categorical data and Student t-tests and Mann-Whitney tests for continuous and ordinal data according to type of distribution of each variable. After comparisons, we corrected all p-values for multiple comparisons using the "false discovery rate" (FDR) (Benjamini & Yekutieli, 2001). FDR is made considering the observed p-value and the statistical parameters. We assumed a corrected p of 0.05 or lower to statistical significance.

In the following, for comparisons that show significant differences in sample comparisons, controlled models are planned. Different analyses of covariance are planned for each CCSM score that showed group effect previously. The CCSM score is the dependent variable, the group association is the independent variable and all other variables with group effects would be entered as covariates.

## **4.3 Results**

### **4.3.1 Sample Characteristics**

The sample was divided into two groups: group that had positive history of early OSV (OSV+, n=516) and group that had no early OSV (OSV-, n=151.). Comparison between groups for demographic, early non-online abuse (sexual, physical, emotional and non-verbal) assessed with MACE and early online sexual victimization are depicted in Table 3.

**Table 3: Descriptive data of the total sample, OSV- and OSV+**

	Total(n=667) M/n (SD/%)	OSV- (n=151) M/n (SD/%)	OSV+ (n=516) M/n (SD/%)	Statistics	p
<b>Sociodemographic data</b>					
<b>Age</b>	23.43 (2.53)	23.74 (2.53)	23.34 (2.53)	t = 1.674	.095
<b>Education</b>				$\chi^2 = 6.702$	.019
9-14 years of study	426 (63.9%)	83 (55%)	343 (66.5%)		
More than 14 years of study	241 (36.1%)	68 (45%)	173 (33.5%)		
<b>Sex (woman %)</b>	600 (90%)	117 (77.5%)	483 (93.6%)	$\chi^2 = 33.599$	<.001
<b>Skin color (white %)</b>	448 (67.2%)	98 (64.9%)	350 (67.8%)	$\chi^2 = .454$	.999
<b>MACE sexual abuse severity</b>	2.44 (2.81)	1.17 (2.03)	2.82 (2.90)	U = 25539.5	<.001
<b>OSV scores</b>					
OSV Threatening			5.83 (3.26)		
OSV Dissemination			2.58 (1.03)		
OSV Insistence			9.67 (4.43)		
OSV Total			18.08 (7.20)		
<b>OSV dichotomization by types</b>					
OSV Threatening (n/%)	220 (33%)		220 (42.6%)		
OSV Dissemination (n/%)	173 (25.9%)		173 (33.5%)		
OSV Insistence (n/%)	501 (75.1%)		501 (97.1%)		

As noticed by group division, early online sexual victimization was reported by 77.36% of the sample. Taking into account subtypes of early online sexual victimization, the most common type was insistence, followed by threatening and dissemination. To add descriptive data, we noticed that among participants of OSV+ group, 89 (17.2%) indicated to have experienced all three types of early online sexual victimization, 200 (38.8%) indicated to have experienced two types and 227 (44%) to have experienced one type.

About general characteristics, OSV+ showed significant lower years of formal education in comparison to OSV-. There were proportionally more females in OSV+ than in OSV-. MACE sexual abuse severity showed significant difference as well, indicating higher severity in OSV+.

#### 4.3.2 Clinical Differences

Psychopathological symptoms assessed with “DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure (CCSM)” revealed significant differences in all domains but two (mania and personality functioning). Differences indicated OSV+ as having higher symptoms in the following domains: depression, anger, somatic symptoms, suicidal ideation, sleep, memory, repetitive thoughts and behaviour, dissociation and substance use. Moreover, the total score calculated with the measure also differed groups, as OSV+ presented higher score when



compared to OSV-. Differences remained after multiple comparisons corrections.

Table 4 depicts descriptive data and results of comparisons between groups.

**Table 4: Descriptive clinical data of the total sample, OSV- and OSV+**

	Total (n=667)	OSV- (n=151)	OSV+ (n=516)	Simple comparisons		Controlled comparisons (ANCOVAs)	
	M (SD)	M (SD)	M (SD)	Statistics	Corrected <i>p</i>	F	p- value
<b>Cross-Cutting Symptom Measure Domains Average</b>							
Depression domain	2.33 (1.12)	2.1 (1.13)	2.4 (1.11)	t = -2.940	.005	2.943	.087
Anger domain	2.21 (1.26)	1.94 (1.31)	2.29 (1.27)	t = -2.980	.005	4.174	.041
Mania domain	0.97 (0.93)	0.89 (0.89)	0.99 (0.94)	t = -1.148	.268	-	-
Anxiety domain	2.05 (1.06)	1.79 (1.06)	2.13 (1.05)	t = -3.519	< .001	6.203	.013
Somaticsymptoms domain	1.63 (1.26)	1.32 (1.24)	1.73 (1.25)	t = -3.520	< .001	5.632	.018
Suicidal ideation domain	0.85 (1.28)	0.69 (1.26)	0.9 (1.28)	U =33993	.009	.314	.575
Sleep problems domain	1.77 (1.46)	1.39 (1.34)	1.88 (1.47)	t = -3.853	< .001	6.262	.013
Memory domain	1.17 (1.38)	1 (1.35)	1.22 (1.38)	U = 35006	.050	.773	.379
Repetitive thoughts and behaviors domain	1.25 (1.16)	1.01 (1.07)	1.31 (1.17)	U = 33029.5	.006	1.454	.228
Dissociation domain	1.28 (1.33)	1.08 (1.29)	1.34 (1.34)	U =34343.5	.025	.973	.324
Personality functioning domain	1.53 (1.26)	1.37 (1.25)	1.58 (1.26)	t = -1.805	.081	-	-
Substance use domain	0.67 (0.84)	0.42 (0.63)	0.74 (0.88)	U =29363	< .001	9.910	.002
Total average	1.34 (0.68)	1.13 (0.64)	1.41 (0.65)	t = -4.534	< .001	7.860	.005

### 4.3.3 Adjusted Comparisons

Due to the possible bias effects caused by variables other than early OSV that may interfere with psychopathological symptoms, we ran analyses of covariance to control potential confounding variables, in order to find significant differences in the comparison between the groups. A total of 11 individual analyses were ran having the groups (OSV+ and OSV-) as independent variables, each domain score as dependent variable and other variables with group differences as covariates: non-online sexual abuse severity, measured by MACE sexual abuse severity score, years of education, skin color and sex. Results of such comparisons are shown in Table 4. After controlling for confounders, early OSV effects remained significant for anger, anxiety, somatic symptoms, sleep problems, substance use and total CCSM.

## 4.4 Discussion

In the present study, we retrospectively investigate early online sexual victimization in order to relate it to risks of later psychopathological symptoms during adulthood. Our hypothesis was that those who had experienced early OSV would have higher risk factors to present psychopathological symptoms. We could confirm such hypothesis, since those who had a history of early OSV showed higher symptoms of anger, anxiety, somatic symptoms and sleep problems in later adulthood, even after controlling for other confounding variables. Symptoms of depression and personality disorder did not survive the analysis controls. All these results were controlled by non-online early sexual victimization. Thus, it seems that early OSV can play a role in psychological development such as other early negative life events, requiring attention to be better understood.

Although we found interesting associations, the first point to be flagged out in our results relates to the descriptive observation of a high prevalence of early OSV reported by participants. Data we found indicate that three out of four adults who grew up with access to the internet have suffered an online sexual aggression during childhood and/or adolescence. As a reference for comparison,

representative studies on presence of positive history of childhood sexual abuse (non-online) indicate a prevalence of 7.6-7.9% for boys and 18.0-19.7% for girls (Stoltenborgh et al., 2015). Other studies that retrospectively investigated child sexual abuse reported a prevalence of 60% (Bucci et al., 2016). The significant difference between these results may be associated with the use of retrospective investigation. In comparison, in our sample, non-online childhood sexual abuse was present in 55.4%, similarly. Thus, data presented here suggest that early OSV victimization is an emerging topic of concern as the internet becomes more and more accessible to general population. However, it is also worth mentioning that high prevalence may be caused by a recruitment bias. Advertisements for research participation referred to the theme of OSV which may have made more people who have had such experiences engage in answering the survey.

In addition to seeming widespread, such occurrence emerges as a topic of concern due to possible lasting implications associated with it. Data we found indicate that early OSV may have relation with long lasting effects on mental health. Conclusions were drawn primarily from group differences observed between participants who had reported online sexual victimization before the age of 18 years old and participants who did not. To the best of our knowledge, this is the first study to investigate early OSV associated with psychopathological symptoms in later life. However, there is a body of studies that investigated the relation between childhood sexual abuse to later symptoms (Arnow, 2004; Fergusson et al., 1996, 2013; Hailes et al., 2019; Wegman & Stetler, 2009) without the online component. Likewise, there are studies that investigate OSV as a factor associated to present symptoms (Medrano et al., 2018; Mitchell, Ybarra, et al., 2007), but not focusing on previous experiences. Combining these two backgrounds, results found here are partially in line with previous studies.

For instance, we found early OSV to relate with higher anxiety symptoms in adulthood. It is in agreement with data from both courses we used to justify this study. Anxiety is one of the most common manifestations documented to be associated with previous sexual abuse occurred during the childhood (Brühl et al., 2019; Cogle et al., 2010; Gallo et al., 2018; Gardner et al., 2019; Leeb et al., 2011). Likewise, studies on online sexual victimization also point out that people

who have suffered such stress tend to show higher anxiety symptoms in comparison to people who have not had the same experiences (Brinkley et al., 2017; Drouin et al., 2015; Festl et al., 2019; Gassó et al., 2020; Howard, 2019). Similarly, we found out that participants who have experienced early OSV had higher substance use disorder symptoms than participants who have not experienced early OSV, which also is supported by the background of both courses we used here. There is a body of data relating childhood sexual abuse and later substance use problems (Cicchetti & Handley, 2019; Mersky et al., 2013), likewise there are studies with adolescents that relate online sexual victimization with more frequent substance use behaviors (Mitchell, Ybarra, et al., 2007; Temple et al., 2014).

Data we found also are consistent with literature on child sexual abuse related to adulthood sleep disturbance, anger and somatic symptoms. Here we found out that a positive history of early online sexual victimization had an effect indicating higher sleep disturbance, anger and somatic symptoms in latter adulthood. Indeed, there are publications supporting that people who experienced childhood sexual abuse are more likely than people who have not had such experiences to show sleep disturbance (Bader et al., 2007; Fallon et al., 2013), anger (Walker et al., 2021) and somatic symptoms (Kealy et al., 2018). To our knowledge, there are no studies on relations between sexual online victimization and such symptomatic features.

Despite consistent results aligned with hypothesis hold by us, a critical point of attention for the interpretation of our results regards the lack of effects of early online sexual victimization on depressive symptoms. Both experiences of early sexual abuse (Cougle et al., 2010; Gallo et al., 2018; Leeb et al., 2011; Rohde et al., 2008) and OSV in childhood (Brinkley et al., 2017; Drouin et al., 2015; Festl et al., 2019; Gassó et al., 2020; Howard, 2019) have been associated with higher depressive symptoms. It is worth mentioning that we did find initial group differences in this regard. Significant differences remained after correcting results for multiple comparisons, but failed to survive to adjustments controlling for non-online child sexual abuse severity, years of education, skin color and sex – variables to which groups showed differences between each other.

Of particular note, groups showed strong differences between non-online childhood sexual abuse severity and sex - the early OSV group we investigated had more women and showed higher non-online childhood sexual abuse severity in comparison to the group that had no history of early OSV. Given that adulthood depressive symptoms are both highly associated to non-online childhood sexual abuse (Cogle et al., 2010; Gallo et al., 2018; Leeb et al., 2011; Rohde et al., 2008) and female sex (Brody et al., 2018; Eid et al., 2019; McLean et al., 2011), perhaps the effect of these variables have outweighed possible early OSV effects. Furthermore, in our study we approached early online sexual victimization effects on symptomatic features looking for independent effects, that is, discounting possible biasing effects. It is possible that early OSV has moderation effects in later depressive symptoms, which requires further investigation.

Similarly to depressive symptoms, personality disorder functioning symptoms are also highly associated with a history of childhood sexual abuse (de Aquino Ferreira et al., 2018; Johnson et al., 2004; Spataro et al., 2004) and we did not find any effect of early OSV to be related with it. It is important to mention that there are several types of personality disorders, so a more accurate future investigation of specific types of personality disorder on the topic could help to find more consistent results. It would be particularly interesting to investigate early OSV relations to different personality traits, since the literature already confirms the association between sexual abuse in childhood and some personality disorders, especially borderline personality disorder (Brinkley et al., 2017; Hecht et al., 2014). However, in this study, the evaluation was performed superficially with only two questions that measured personality symptoms, so it was not possible to confirm this part of the hypothesis.

Although results could drive us to important conclusions and possible calls for action, our work has important limitations that may hinder conclusions. The online approach is one of the limitations important to be flagged out. On one hand, it makes it easier for participants to enroll to the study from any where, on the other hand, the clinical investigation becomes weaker than in a face-to-face setting. Similarly, the symptomatic assessment used is also a matter of concern. Because this was an exploratory study, we used a generalist measure

to investigate psychopathological symptoms and, despite other studies having already used it (Lace & Merz, 2020; Mahoney et al., 2020; Meaklim et al., 2018), the variability of the outcomes is reduced and singularities related to symptoms could not be investigated. The online recruitment also is a point that could have biased our results. Since by Brazilian law research objectives must be described in research advertisements, maybe more people who had a history of early OSV and psychopathological symptoms got interested to participate. Because of the sensitive topic (child abuse) and the extent of online protocol, we could not investigate other childhood traumas in this research. Different studies indicate that different types of early abuse and neglect may have differential impacts on later mental health features (Daigre et al., 2015; Lee et al., 2017; Wegman & Stetler, 2009). Thus, the lack of consideration of other types of child and adolescent maltreatment in here is also a limitation to be pointed out. Finally, since one of the most important conclusions is the suggestion that early OSV may somehow be a risk factor for later symptoms, the transversal study design emerges as an important issue as well. In a perspective, it would be interesting to investigate longitudinal effects related to early OSV on psychopathological symptoms.

Assuming that early online sexual victimization has an effect on psychological development, increasing the risk for later symptoms, it supports the conclusion that it has epigenetic effects. Although the replication of such finding with more rigorous control is important, the suggestion of such effect opens perspectives for different actions. As a basic science point, for instance, the investigation of other variables could give more external validity to the phenomena. For example, previous studies indicated that different types and timing of early traumas have particular associations with psychobiological outcomes. A study identified that those participants who had severe experiences of abuse and both emotional and physical neglect in childhood and adolescence had more sleep problems than those who had a lower severity or who were not abused (Bader et al., 2007). Another study that also follows this line of relating specific types of abuse to mental disorders resulted in a significantly greater association between emotional abuse and depressive disorders than for physical abuse (Choi et al., 2017). Similarly, research did not yet paid attention to online sexual victimization as a

topic of concern related to children and adolescent who have internet access, but cyberbullying has already been related to poor mental health (Hellfeldt & Laura, 2019). It remains a question if cyberbullying and online sexual victimization have different effects. Furthermore, online sexual victimization as investigated here may be divided into three types, which requires attention in the future to understand if there are particular effects. Finally, assuming as true our conclusions, in primary care it would be important to build up stronger protective functionalities to prevent children and adolescents from being exposed to such stressful situations. There are initiatives in this direction, such as the Caretas project created by UNICEF to assist adolescent girls who are victims of leaked intimate images (Sousa et al., 2019), and worldwide assessment of it is more and more necessary.

For all the above, our work adds to present literature suggesting that three out of four adults who were born and grew with access to the internet acknowledge to having suffered online sexual victimization before the age of 18 years old, which relates to later life symptoms of anxiety, anger, sleep disturbances and somatic symptoms. Because results were controlled for non-online childhood sexual abuse, it is possible to argue that early online sexual victimization may have a particular epigenetic effect in psychological development. Since results were found for different domains of symptoms, it seems that early online sexual victimizations effects are unspecific, but it constitutes an adverse early life experience, requiring particular attention in further studies.

## 5 Final Conclusion

The experience of taking the master's degree over these two years gave me a deeper look at scientific knowledge, in addition to improving my critical analysis as a researcher. Reflecting on the increasing use of the internet in recent times and the new way in which most people communicate today, via messages, videos, photos and audiovoices, I was interested in investigating more deeply the current types of interaction that arise from the use of this technology. In addition to social interaction, the virtual world has also enabled new ways of expressing themselves sexually through apps, websites and social networks. Moreover, I could have a broader view of the impacts related to early negative events can have throughout life. Then, I could draw a picture of how abusive online experiences can have a similar impact to other stressful events and in turn affect psychological development.

From the interest in studying sexuality and contemporary behaviors in young people and adolescents, the topic of sexting emerged as a recent phenomenon widely practiced by adolescents (Gámez-Guadix et al., 2017; Klettke et al., 2014). Despite the positive side of sexting as another means of interacting sexually, when reviewing the literature we found that this practice can also bring some risks, depending on how it is done, especially by children and adolescents. (Kosenko et al., 2017; Mori et al., 2019; Ševčíková, 2016). Considering that this age group is still in cognitive and emotional development, they constitute a vulnerable to risk to negative experiences related to sexual situations in internet. Many studies began to observe that along with the practice of sexting, other forms of sexual abuse also appeared, which would come to be called online sexual victimization, OSV (Gámez-Guadix et al., 2015; Gassó et al., 2019; Kernsmith et al., 2018). A OSV example would be to send a message, photo or video with sexual content without the recipient's consent; or to use threats to obtain sexy photos or videos of a person and to share another person's sexual messages, photos or videos without their permission.



According to recent data, internet use by children and teenagers is increasing extremely fast (Wolfe et al., 2013). We know that exposure to the internet at this stage of life, in addition to bringing benefits, can also bring numerous risks, including to be pressured to do something against own will, or to have an intimate relationship, or even to have particular information with third parties who are strangers to the relationship.

Considering the seriousness of the issue, this dissertation investigated further about early OSV and, mainly, what would be its future associated consequences. Because being considered a new form of sexual abuse, it would also be possible to cause harmful effects on mental health as well as non-online sexual abuse. As we advanced in the bibliographic reading, new questions emerged, such as, for example, whether it was possible to observe a similarity between experiences of sexual abuse in childhood and early online sexual victimization, regarding present and subsequent psychopathological effects. The concern with this OSV theme took on an increasing proportion as the equivalence between non-online childhood sexual abuse experiences and early online sexual victimization was highlighted.

After realizing the importance of researching the topic, we faced to a sad reality: although a recognizable issue, OSV (particularly in children) is not a matter of action and research in Brazil by now. To take a picture about it: there was (after this work it started to change) a lack of Brazilian instruments to assess OSV. Through some recent readings, the instrument chosen was the OSV-Scale of Gamix-Guadiz (2015), in which the solution was to prepare the translation and adaptation of this instrument, which has good validity and reliability, in addition to being used in other previous research (Festl et al., 2019; Mochis & De, 2020; Knight, 2022), giving rise to the first step of this dissertation. Furthermore, we completed all the steps planned for translation and adaptation, in addition to carrying out analyzes that supported the translated scale to have psychometric properties very similar to the original.

Thus, study 1 gave rise to the OSV-BR scale to be used in Brazil. With the translation completed, we were able to proceed with study 2, which makes up this

dissertation. Due to the concern with the issue of online sexual victimization pointed out by existing studies (Gámez-Guadix et al., 2015; Gassó et al., 2020; Zetterström Dahlqvist & Gillander Gådin, 2018), we needed to take a closer look at online sexual victimization in childhood and adolescence, specifically in relation to the psychopathological symptoms that this experience could cause in adulthood. In the second article, this was even more evident, as results indicated an association between early OSV and psychopathological symptoms in adulthood, showing that three out of four adults who grew up with internet access experienced some type of online sexual victimization during childhood and/or adolescence.

The studies present in this dissertation made us reach important results and conclusions regarding the relevance of researching early online sexual victimization. It is necessary to pay attention to the concern that this topic brings us, since early online sexual victimization can be considered a possible form of traumatic experience and having as a consequence several psychopathological damages throughout life. This work contributed to the emergence of a look at children and adolescents who use the internet from an early age and the possible risks they may suffer from inadequate and unguided online exposure. Hereupon, it is necessary to create more projects in order to promote health to this public, taking information and knowledge to primary care, schools, parents and health professionals. As can be seen in the CARETAS project developed by UNICEF in Brazil (Sousa et al., 2019), which provides care and reception to adolescent girls who have had their intimacy exposed on the internet. Through a virtual experience, the teenagers interact with a fictional character who had an intimate video leaked on the internet by her ex-boyfriend. The purpose of the project is to create a safe space for girls to talk about the topic and have information about sexting and leaking images on the internet.

Another suggestion would be to create intervention programs for children and adolescents who are victims of online sexual abuse, in order to reduce the bad feelings that can come from this traumatic experience, such as guilt, shame, self-depression and fear, because there is evidence to show that interventions can alleviate these feelings (Pittenger et al., 2019). For example, creating anonymous

help groups for victims of online sexual abuse, this could be a way of trying to lessen future psychological consequences. However, it is also necessary to draw attention to projects related to the support network for these minors, as ways to encourage family, friends and frontline professionals to identify signs of online sexual abuse, either through direct questions to children and /or teenagers, either through conversation circles at school and at home. For this, information must be produced to guide caregivers and guardians to help them better deal with this type of situation, in addition to emphasizing the importance of raising awareness about the use of the internet by children and adolescents.

The development of intervention programs is as important as prevention programs. In order to prevent more children and adolescents from being victims of online sexual abuse, it is necessary to think of projects that provide information about the risks found on the internet, such as the dangers of talking to someone you don't know, vulnerability when exposing yourself, give out information about something intimate, in order to minimize the likelihood of them experiencing online sexual victimization. A study on non-online child sexual abuse recommended the development of school programs that carry information about sexual abuse, reinforcing how wrong and illegal it is and that children and adolescents are not responsible for such experience, as part of the educational curriculum (Lemaigre et al., 2017). The aim is to encourage these age groups and at the same time prevent new victims from emerging. It would be interesting to add to this school curriculum also how to surf the internet safely, emotional management, sexual development, the importance of consent, elaboration of protective factors, social and relationship skills, in addition to welcoming and understanding with the cyber victim. Thus, to reduce future early sexual victimization online and support those who have already gone through this experience, the development of intervention and prevention programs is essential, given that through these types of projects it was possible to observe lower rates of re-victimization, especially when the intervention aims to avoid, address the perception of risk, works on emotional awareness and informs about interpersonal violence (Pittenger et al., 2019).

Although this topic is urgent, during the elaboration of this dissertation, some limitations could be observed. It was not possible to assess more specifically about the psychopathological symptoms for each type of online sexual victimization, however, it is suggested that future research can investigate in more depth the relationship of each psychopathological symptom to different types of online sexual victimization, since in this study online sexual victimization was investigated in only three types. From the conclusion that early OSV may somehow be a risk factor for later symptoms, the design of the cross-sectional study also emerges as an important issue. It would be an interesting suggestion to investigate the longitudinal effects related to early OSV on psychopathological symptoms.

In summary, this work adds to the current literature, suggesting that three out of four adults who were born and grew up with access to the internet acknowledge having experienced some form of online sexual victimization before age 18, which is related to later symptoms of anxiety, anger, sleep disorders and somatic symptoms. Therefore, the present dissertation provides indications and directions for health promotion in childhood and adolescence, as well as the opportunity to access the translated OSV-BR scale, providing this tool for the construction of more scientific knowledge for Brazilian health.

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## 7 Attachment

### 7.1 Instruments

#### 7.1.1 OSV-BR

Assinale quantas vezes você passou por qualquer das seguintes experiências, por meio da internet ou aparelho celular.
<p>0 = nunca</p> <p>1 = 1 ou 2 vezes</p> <p>2 = 3 ou 4 vezes</p> <p>3 = 5 ou 6 vezes</p> <p>4 = 7 vezes ou mais</p>
1 - Insistiram para que você mandasse fotos e/ou vídeos sensuais ou eróticos contra a sua vontade.
2 - Insistiram para que você contasse informações sexuais ou eróticas sobre si mesmo contra sua vontade.
3 - Insistiram para que você realizasse um ato sexual online contra a sua vontade.
4 - Insistiram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet) contra a sua vontade.
5 - Ameaçaram ou forçaram para que você mandasse fotos e/ou vídeos de si mesmo com conteúdo sensual ou erótico.
6 - Ameaçaram ou forçaram para que você contasse informações sexuais ou eróticas sobre si mesmo.
7 - Ameaçaram ou forçaram para que você realizasse atos sexuais online.
8 - Ameaçaram ou forçaram, por meio da internet, para que você tivesse relações sexuais offline (fora da internet).
9 - Publicaram ou compartilharam na internet, fotos ou vídeos seus de conteúdo sexual ou erótico, sem sua permissão.
10 - Compartilharam informações sexuais ou eróticas sobre você, sem a sua permissão.

### 7.1.2 Cross-cutting Symptoms Measure of DSM-5 (CCSM)

**Instruções:** As questões abaixo perguntam sobre coisas que podem tê-lo perturbado. Para cada pergunta, circule o número que melhor descreve o quanto (ou com que frequência) você foi perturbado pelos problemas descritos a seguir durante as **DUAS (2) ÚLTIMAS SEMANAS**.

<b>Durante as últimas DUAS (2) SEMANAS, o quanto (ou com que frequência) você foi perturbado pelos seguintes problemas?</b>	<b>0 = Nada (de modo algum)</b>	<b>1 = Muito Leve (Raramente, menos de um ou dois dias)</b>	<b>2 = Leve (Vários dias)</b>	<b>3 = Moderado (Mais da metade dos dias)</b>	<b>4 = Grave (Quase todos os dias)</b>
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<b>1</b>	Pouco interesse em fazer as coisas?	0	1	2	3	4
<b>2</b>	Sentiu-se desanimado, deprimido ou sem esperança?	0	1	2	3	4
<b>3</b>	Sentiu-se mais irritado, mal-humorado, ou zangado do que o usual?	0	1	2	3	4
<b>4</b>	Dormiu menos do que o usual, mais ainda tem muita energia?	0	1	2	3	4
<b>5</b>	Iniciou muito mais projetos do que o usual ou fez coisas mais arriscadas do que o habitual?	0	1	2	3	4
<b>6</b>	Sentiu-se nervoso, ansioso, assustado, preocupado ou tenso?	0	1	2	3	4
<b>7</b>	Sentiu pânico ou se sentiu amedrontado?	0	1	2	3	4
<b>8</b>	Evitou situações que o deixem ansioso?	0	1	2	3	4
<b>9</b>	Dores e sofrimentos sem explicação (p. ex., cabeça, costas, articulações, abdômen, pernas)?	0	1	2	3	4
<b>10</b>	Sentimento de que suas doenças não estão sendo levadas suficientemente a sério?	0	1	2	3	4
<b>11</b>	Pensamento de ferir a si mesmo?	0	1	2	3	4
<b>12</b>	Ouviu coisas que outras pessoas não ouviam, como vozes, mesmo quando não havia ninguém por perto?	0	1	2	3	4
<b>13</b>	Sentiu que alguém podia ouvir seus pensamentos ou que você podia ouvir o que outra pessoa estava pensando?	0	1	2	3	4
<b>14</b>	Problemas com sono que afetaram a qualidade do seu sono no geral?	0	1	2	3	4

<b>15</b>	Problemas com a memória (p. ex., aprender informações novas) ou com localização (p. ex., encontrar o caminho para casa).	0	1	2	3	4
<b>16</b>	Pensamentos impulsos ou imagens desagradáveis que entram repetidamente na sua cabeça?	0	1	2	3	4
<b>17</b>	Sentiu-se compelido a realizar certos comportamentos ou atos mentais repetidamente?	0	1	2	3	4
<b>18</b>	Sentiu-se desligado ou distante de si mesmo, do seu corpo, do ambiente físico no seu redor ou de suas lembranças?	0	1	2	3	4
<b>19</b>	Sem saber quem você realmente é ou o que você quer da vida?	0	1	2	3	4
<b>20</b>	Não se sentiu próximo a outras pessoas ou desfrutou das suas relações com elas?	0	1	2	3	4

<b>21</b>	Bebeu no mínimo 4 drinques de qualquer tipo de bebida alcoólica em um único dia?	0	1	2	3	4
<b>22</b>	Fumou cigarros, charuto, cachimbo ou usou rapé ou tabaco de mascar?	0	1	2	3	4
<b>23</b>	Usou algum dos seguintes medicamentos POR CONTA PRÓPRIA, isto é, sem prescrição médica, em quantidades maiores ou por mais tempo do que o prescrito? (p. ex., analgênicos [como paracetamol, codeína], estimulantes [como metilfenidato ou anfetaminas], sedativos ou tranquilizantes [como comprimidos para dormir ou diazepam], ou drogas como maconha, cocaína ou crack, drogas sintéticas [como ecstasy], inalantes ou solvente [como cola] ou metanfetamina [ou outros estimulantes])?	0	1	2	3	4

### 7.1.2.1 Maltreatment and Abuse Chronology of Exposure (MACE)

12.	Fizeram comentários ou sugestões sexuais inapropriadas para você. <i>Por favor, indique todas as idades em que isso aconteceu.</i>	<input type="radio"/> Sim.	<input type="radio"/> Não.																																				
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13.	Tocaram ou acariciaram seu corpo de uma forma sexual. <i>Por favor, indique todas as idades em que isso aconteceu.</i>	<input type="radio"/> Sim.	<input type="radio"/> Não.																																				
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14.	Teve que tocar o corpo de alguém de uma forma sexual. <i>Por favor, indique todas as idades em que isso aconteceu.</i>	<input type="radio"/> Sim.	<input type="radio"/> Não.																																				
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36.	Forçaram você a se envolver em atividades sexuais contra a sua vontade. <i>Por favor, indique todas as idades em que isso aconteceu.</i>	<input type="radio"/> Sim.	<input type="radio"/> Não.																																				
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37.	Forçaram você a fazer coisas sexuais que você não queria. <i>Por favor, indique todas as idades em que isso aconteceu.</i>	<input type="radio"/> Sim.	<input type="radio"/> Não.																																				
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