UNIVERSIDADE FEDERAL DE UBERLÂNDIA
FACULDADE DE MEDICINA
PROGRAMA DE PÓS-GRADUAÇÃO EM CIÊNCIAS DA SAÚDE

ASSOCIAÇÃO ENTRE EXPOSIÇÃO À VIOLÊNCIA INTERPESSOAL E ISOLAMENTO SOCIAL COM A ADOÇÃO DE PRÁTICAS NÃO SAUDÁVEIS EM RELAÇÃO AO PESO

LETÍCIA MARTINS OKADA

UBERLÂNDIA/MG
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Dissertação apresentada ao Programa de Pós-Graduação em Ciências da Saúde da Faculdade de Medicina na Universidade Federal de Uberlândia, como requisito parcial para obtenção do título de Mestre em Ciências da Saúde.
Área de concentração: Ciências da Saúde

Orientadora: Profa. Dra. Catarina Machado Azeredo
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PROGRAMA DE PÓS-GRADUAÇÃO EM CÊNCIAS DA SAÚDE

Ata da defesa de DISSERTAÇÃO DE MESTRADO junto ao Programa de Pós-Graduação em Ciências da Saúde da Faculdade de Medicina da Universidade Federal de Uberlândia.

Defesa de Dissertação de Mestrado Acadêmico Nº 046/PPCSA

Área de concentração: Ciências da Saúde

Linha de Pesquisa 2: Diagnóstico, tratamento e prognóstico das doenças e agravo à saúde.

Projeto de Pesquisa de vinculação: Epidemiologia Nutricional – Consumo alimentar de populações. Discente: **Letícia Martins Okada** – Matrícula nº **11712CSD018** - Título do Trabalho: **"Associação entre exposição à violência interpessoal e isolamento social com a adoção de práticas não saudáveis em relação ao peso".** Às 14:00 horas do dia 20 de dezembro do ano de 2018, na sala de videoconferência da Biblioteca Setorial do Umuarama - bloco 4 G - Campus Umuarama da Universidade Federal de Uberlândia reuniu-se a Banca Examinadora, designada pelo Colegiado do Programa de Pós-Graduação em Ciências da Saúde, assim composta: Professoras Doutoras: Tatiana Bering (UFMT) por videoconferência, Ana Elisa Madalena Rinaldi (UFU)e Catarina Machado Azeredo (UFU) – orientadora da discente presentes no recinto. Iniciando os trabalhos, a presidente da mesa Profa. Dra. Catarina Machado Azeredo (UFU) apresentou a Comissão Examinadora e a discente, agradeceu a presença do público e concedeu a discente a palavra para a exposição do seu trabalho. A seguir a senhora presidente concedeu a palavra aos examinadores que passaram a arguir a candidata. Ultimada a arguição, que se desenvolveu dentro dos termos regimentais, em sessão secreta, em face do resultado obtido, a Banca Examinadora considerou a candidata (X) aprovada ( ) reprovada. Esta defesa de Dissertação de Mestrado Acadêmico é parte dos requisitos necessários à obtenção do grau de Mestre. O competente diploma será expedido após cumprimento dos demais requisitos, conforme as normas do Programa, legislação e regulamentação internas da UFU, em especial do artigo 55 da resolução 12/2008 do Conselho de Pós-Graduação e Pesquisa da Universidade Federal de Uberlândia. Nada mais havendo a tratar foram encerrados os trabalhos às 16:30 horas. Foi lavrada a presente ata que após lida e achada conforme foi assinada pela Banca Examinadora.

Profa. Dra. Catarina Machado Azeredo Catarina M. Azeredo

Profa. Dra. Tatiana Bering (via Skype)

Profa. Dra. Ana Elisa Madalena Rinaldi Ana Elisa Madalena Rinaldi

DEDICATÓRIA

À Deus, minha fonte de paz, força e equilíbrio interior. À minha família, pela presença, apoio e incentivo em todos os momentos; sem vocês, essa vitória teria sido impossível.
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RESUMO

Introdução: Exposição à violência interpessoal e isolamento social são comuns na adolescência e podem estar associados à adoção de práticas não saudáveis relacionadas ao peso. Entretanto, faltam estudos que identifiquem associações conjuntas entre diferentes formas de violência e do isolamento social com essas práticas, em ambos os sexos. **Objetivos**: Descrever as prevalências de violência interpessoal (violência física familiar, *bullying*), isolamento social e práticas não saudáveis relacionadas ao peso em adolescentes brasileiros, de acordo com o sexo; Avaliar a associação entre violência interpessoal (violência física familiar, *bullying*) e isolamento social com a adoção de práticas não saudáveis relacionadas ao peso em adolescentes brasileiros, de acordo com o sexo. **Métodos**: Dados da Pesquisa Nacional de Saúde do Escolar (2015) foram utilizados, com amostra representativa de estudantes do 9º ano de escolas públicas e privadas. A violência interpessoal (violência física familiar, *bullying* relacionado ao corpo e por outros motivos) sofrida no último mês à pesquisa, e o isolamento social foram as exposições. E as práticas não saudáveis em relação ao peso (induzir vômito/tomar laxante; tomar qualquer medicação, produto ou fórmula para perder ou ganhar peso/massa muscular sem acompanhamento médico) foram os desfechos. Para obtenção dos *odds ratios* (OR) foram realizados modelos de regressão logística simples e múltipla, estratificados por sexo e ajustados para variáveis de confusão. **Resultados**: Pouco mais da metade dos adolescentes era do sexo feminino (51,3%), sendo a maioria com idade entre 11 e 15 anos (89%), de cor autodeclarada parda (43%) ou branca (36,1%) e filhos de mães com ensino fundamental incompleto (33,9%) e ensino médio completo (30,9%). As meninas apresentaram maiores prevalências de violência física familiar (15,1%), *bullying* devido à aparência do corpo (7,8%), isolamento social (28,7%) e indução de vômito/uso de laxante (7,5%); enquanto que *bullying* por outros motivos (39,9%) e uso de qualquer medicação, produto ou fórmula para perda (6,8%) e ganho de peso/massa muscular (8,6%) foram mais frequentes entre os meninos. Todas as exposições se associaram à maior adoção de práticas não saudáveis relacionadas ao peso. Meninas vítimas de *bullying* relacionado ao corpo tiveram maior probabilidade de induzir o vômito/usar laxante (OR2,29 IC95% 1,87-2,81), usar qualquer medicação, produto ou fórmula para perda (OR1,92 IC95% 1,50-2,46) e ganho de peso/massa muscular (OR1,51 IC95% 1,17-1,93), sendo essa associação mais forte do que com o *bullying* por outros motivos. Meninos vítimas de violência física familiar apresentaram quase o dobro da probabilidade para práticas não saudáveis, comparados às meninas. **Conclusão**: Tanto a violência interpessoal (violência física familiar e *bullying*) quanto o isolamento social, se associaram à maior adoção de práticas não saudáveis relacionadas ao peso em adolescentes brasileiros.

Palavras-chave: violência doméstica, *bullying*, isolamento social, transtornos alimentares, adolescente.

ABSTRACT

Introduction: Exposure to interpersonal violence and social isolation are common in adolescence and may be associated with unhealthy weight control practices. However, there is a lack of studies that identify joint associations between different forms of violence and social isolation with unhealthy weight control practices, in both sexes. **Objective:** To describe the prevalence of interpersonal violence (family physical violence, bullying), social isolation and unhealthy weight control practices in Brazilian adolescents, according to gender; To evaluate the association between interpersonal violence (family physical violence, bullying), social isolation and unhealthy weight control practices. **Methods:** We used data from the National School Health Survey (2015), with a representative sample of 9th grade students from public and private schools. The exposures were interpersonal violence (family physical violence, bullying based on body appearance and other reasons) suffered during the last month of the study, and social isolation; the outcomes were unhealthy weight control practices, such as self-induced vomiting/taking laxatives, taking any diet pills, powders, or liquids to lose or gaining weight/muscle mass without a doctor's advice. We performed simple and multiple logistic regression models, stratified by sex and adjusted for confounding variables, to obtain the odds ratios (OR). **Results:** A little more than half of the adolescents were female (51.3%), the majority of them were aged between 11 and 15 years (89%), with a self-declared Brown color (43%) or White (36.1%) and children of mothers with incomplete middle education (33.9%) and complete high school (30.9%). The girls had higher prevalence of family physical violence (15.1%), bullying based on body appearance (7.8%), social isolation (28.7%) and induction of vomiting/laxative use (7.5%); while bullying for other reasons (39.9%) and use of any diet pills, powders, or liquids for loss (6.8%) and weight gain/muscle mass (8.6%) were more frequent among boys. All exposures were associated with greater adoption of unhealthy weight control practices. Girls who were victims of bullying based on body appearance were more likely to induce vomiting/take laxatives (OR2,29 95%CI 1,87-2,81), to take any diet pills, powders, or liquids for loss (OR1,92 95%CI 1,50-2,46) and gain of weight/muscle mass (OR1,51 95%CI 1,17-1,93), being this association stronger than with bullying for other reasons. Boys victims of family physical violence were almost twice as likely to adopt unhealthy practices, compared to girls. **Conclusion:** Interpersonal violence (family physical violence and bullying), as well as social isolation, were associated with unhealthy weight control practices among Brazilian adolescents.

Keywords: domestic violence, bullying, social isolation, eating disorders, adolescent.

LISTA DE TABELAS

LISTA DE ABREVIATURAS E SÍMBOLOS

CNS ..... National Health Council

CONEP ..... National Commission of Ethics in Research

DF ..... Federal District

GSHS ..... Global School-based Student Health Survey

IBGE ..... Brazilian Institute of Geography and Statistics

CI ..... Confidence interval

WHO ..... World Health Organization

OR ..... Odds ratio

PeNSE ..... National School Health Survey

TCLE ..... Informed Consent Term

UPA ..... Primary sampling units

USA ..... Secondary sampling units

SUMÁRIO

1. INTRODUÇÃO

Anualmente, são registrados no mundo mais de 1,3 milhão de óbitos decorrentes de violência, sendo a quarta principal causa de morte entre indivíduos de 15 a 44 anos de idade (WHO, 2014). Alguns dados epidemiológicos destacam que, desde 2007, a região da América Latina e do Caribe é a única que apresentou um aumento (embora pequeno) nas taxas de homicídios entre adolescentes de 10 a 19 anos (UNICEF, 2017). No Brasil, desde a década de 80, violência e lesões têm sido causas relevantes de morbidade e mortalidade, compreendendo 12,5% de todas as mortes em 2007, predominantemente entre jovens do sexo masculino (REICHENHEIM et al., 2011). Dentre as formas de agressão existentes, a violência interpessoal é aquela infligida por qualquer meio, na intenção de ferir ou matar outra pessoa (UNICEF, 2017). Esse tipo de violência pode ocorrer entre familiares (maus-tratos contra crianças e idosos), parceiros íntimos (violência sexual, principalmente contra mulheres) e amigos (violência juvenil, incluindo violência associada a gangues e *bullying*), bem como entre conhecidos e desconhecidos (KRUG et al., 2002).

A vitimização por violência interpessoal pode ser considerada um fator de risco para o desenvolvimento de transtornos alimentares (LEE; VAILLANCOURT, 2018; LIBBEY et al., 2008; NORMAN et al., 2012). Um recente estudo, que avaliou vários tipos de trauma interpessoal (abuso físico, abuso sexual, *bullying*, violência familiar e morte/perda significativa) em uma amostra de adolescentes em tratamento de transtornos alimentares, encontrou associação significativa entre exposição ao trauma ao longo da vida e diagnóstico de bulimia. Com isso, é importante considerar que o tratamento desses pacientes precisa ser diferente daqueles que não possuem um histórico de exposição à violência interpessoal, sendo mais abrangente (levando em conta os diferentes tipos de trauma) e possibilitando assim uma recuperação mais efetiva do transtorno alimentar (HICKS WHITE; PRATT; COTTRILL, 2018).

Apesar disso, grande parte dos estudos que avalia a associação entre violência interpessoal e transtornos alimentares se concentra em abordar somente um tipo de violência, de forma isolada (BRADY, 2008; ENGSTRÖM; NORRING, 2002; GROFF STEPHENS; WILKE, 2016). Dessa forma, não é possível identificar o impacto conjunto de diferentes tipos de violência na realização de práticas não saudáveis relacionadas ao peso, já que se sabe que essas violências estão, na maioria das vezes, inter-relacionadas (WHO, 2002b). Além disso, nesses estudos, o isolamento social não é

explorado juntamente à violência interpessoal, o que poderia colaborar para uma avaliação mais ampla da análise de associação com as práticas não saudáveis, já que é notória a relação entre ser intimidado por *bullying* e sentir-se sozinho ou com poucos amigos (PRADO; PEREIRA, 2008; UNESCO, 2017). Por fim, existem estudos que não observaram associações entre isolamento social e transtornos alimentares (KIRSCH et al., 2016), o que sugere a necessidade de mais estudos que possam produzir evidência sobre o tema.

Até onde se sabe, este é o primeiro estudo realizado no Brasil, com uma amostra representativa de adolescentes, que avaliou a associação entre a violência de forma mais ampla e o isolamento social com a adoção de práticas não saudáveis relacionadas ao peso. Além disso, as análises foram estratificadas por sexo, com o intuito de identificar diferenças na magnitude de associação de cada tipo de violência e do isolamento social em função do sexo do adolescente. Dessa forma, é possível planejar ações de prevenção e cuidado mais amplas e que compreendam melhor o papel das diversas formas de violência interpessoal no possível desenvolvimento de transtornos alimentares (HICKS WHITE; PRATT; COTTRILL, 2018; WHO, 2002b). Finalmente, avaliando as causas da vitimização por *bullying*, será possível identificar a probabilidade para a adoção de práticas não saudáveis relacionadas ao peso, dependendo do motivo pelo qual esse tipo de vitimização foi sofrido pelos adolescentes.

2. FUNDAMENTAÇÃO TEÓRICA

2.1 Violência: conceito e tipologia

A violência é caracterizada como um fenômeno extremamente complexo, presente em todo o mundo. Seu conceito é frequentemente influenciado pelas diversas culturas, passando por processos de revisão concomitantes à evolução dos valores e normas sociais dentro de uma sociedade (WHO, 2002a). Ela pode ser definida como "*o uso intencional de força física ou poder, real ou como ameaça contra si próprio, outra pessoa, um grupo ou uma comunidade, que resulte ou tem grande probabilidade de resultar em ferimentos, morte, danos psicológicos, desenvolvimento prejudicado ou privação*." (WHO, 1996).

A violência pode ser dividida em três categorias, relacionadas às características de quem comete a agressão. A violência autodirigida inclui pensamentos e tentativas de suicídio, bem como automutilação. A violência coletiva indica suas possíveis causas (social, política ou econômica), seja quando cometida por grupos maiores de indivíduos ou por estados, como crimes de ódio realizados por grupos organizados, atos terroristas, guerras e conflitos. Já a violência interpessoal é dividida em violência familiar e por parceiros íntimos (ocorrida com mais frequência em casa) e violência comunitária, que ocorre geralmente fora de casa entre pessoas que podem ou não se conhecer. Entre adolescentes, a violência entre pares como, por exemplo, o *bullying*, é uma importante forma de violência comunitária (WHO, 2002a).

A violência familiar pode ser categorizada em abuso físico, definido por atos de intimidação capazes de causar danos físicos reais na vítima; abuso sexual, em que o agressor a violenta sexualmente; abuso emocional, em que são feitas agressões que afetam sua saúde emocional e desenvolvimento, como ameaças, intimidações e comentários de rejeição; e negligência, que está mais relacionada à falha dos pais em fornecer boas condições de saúde, educação, alimentação, abrigo e segurança aos filhos adolescentes (KRUG et al., 2002). Já a violência entre pares como, por exemplo, o *bullying*, é uma importante forma de violência comunitária entre os adolescentes (WHO, 2002a).

Muitas vezes as diferentes formas de violência estão inter-relacionadas. Vítimas de traumas e abusos durante a infância têm maiores chances de se envolverem em atos violentos na juventude (FOX et al., 2015), e sofrer abuso sexual na infância pode ser um fator de risco para comportamentos suicidas na adolescência e na vida adulta

(O'BRIEN; SHER, 2013). Compreender essa relação pode auxiliar e aumentar as possibilidades de prevenção da violência, como um todo (WHO, 2002b).

2.2 Violência interpessoal: epidemiologia

Dados recentes sobre a prevalência de violência interpessoal têm sido apresentados pela literatura. Desde o ano 2000, cerca de seis milhões de pessoas morreram em todo o mundo vítimas de violência interpessoal. Quando não leva ao óbito, a violência interpessoal traz às vitimas consequências de saúde físicas, mentais e comportamentais, como lesões, fraturas, queimaduras, consumo de álcool e drogas, depressão, ansiedade, distúrbios alimentares e do sono, pensamento suicida e dificuldades de relacionamento (USP, 2015).

Entre os adolescentes, os indivíduos de 15 a 19 anos são mais vulneráveis do que aqueles entre 10 e 14 anos, sendo três vezes mais propensos a morrer em decorrência de um ato violento. Quase metade dos homicídios de adolescentes entre 10 e 19 anos ocorre em países na América Latina e no Caribe, com destaque para Venezuela, Honduras, Colômbia, El Salvador e Brasil (UNICEF, 2017).

No Brasil, os maus-tratos contra crianças e adolescentes são considerados um problema de saúde pública, sendo que a prevalência média de abuso físico (segundo estudos de base populacional publicados no país entre 1995 e 2010) foi de 15,7%, sendo maior comparado a outros países do continente, como Chile (4%) e EUA (4,9%) (REICHENHEIM et al., 2011). Há cerca de três décadas, a violência familiar tem sido estudada e considerada como parte de um contexto que afeta o comportamento das vítimas, que tendo feito parte de situações de abandono e opressão até os 18 anos de idade, se tornam pais que tendem a repetir e perpetrar este tipo de violência contra seus filhos (FERREIRA, 2002), que provavelmente se tornam vítimas-agressoras ao se envolverem em condutas agressivas na escola (BALDRY, 2003; SCHWARTTZ et al, 1997). Além disso, os maus-tratos na família geram traumas físicos e psicológicos que podem interferir em longo prazo na integração social das vítimas (MINAYO, 2002; SILVA et al, 2002), levando ao isolamento (PRADO; PEREIRA, 2008) e a dificuldades de relacionamento com outras pessoas (RIGGS, 2010).

Com relação ao *bullying* no Brasil, 43% dos alunos de 11 a 12 anos de idade relataram ter sido provocados, ameaçados, isolados, atingidos ou obrigados a fazer coisas que não queriam, no mês anterior a uma pesquisa realizada em 2013 (UNICEF, 2017). Esse tipo de violência se dá pelo desequilíbrio de poder (real ou percebido)

existente entre agressor e vítima, que se sente vulnerável e incapaz de se defender diante de um comportamento intencional e repetitivo de agressão (OLWEUS, 1993). Pode ser dos tipos físico (bater, chutar, arranhar, beliscar, etc.), verbal (insultos, provocações, ameaças, etc.), relacional (disseminação de rumores, exclusão) ou *online* (*cyberbullying*) (UN SPECIAL REPRESENTATIVE OF THE SECRETARY, 2018). Aqueles que sofrem esse tipo de violência podem ter, futuramente, consequências negativas para a saúde como dificuldades interpessoais, depressão, ansiedade, solidão, baixa autoestima e pensamentos suicidas (UNESCO, 2017).

2.3 Práticas não saudáveis relacionadas ao peso e sua relação com transtornos alimentares

Práticas não saudáveis relacionadas ao peso, como por exemplo, "pular" refeições, realizar jejum, consumir bebidas energéticas, induzir o vômito, usar pílulas dietéticas, laxantes e diuréticos sem prescrição médica, podem ser consideradas como fator de risco intermediário entre a alimentação restritiva e o diagnóstico clínico de transtornos alimentares (FORMAN-HOFFMAN, 2004; FERRARO; PATTERSON; CHAPUT, 2015).

Muitos adolescentes, mesmo não preenchendo todos os critérios para o verdadeiro diagnóstico de um transtorno alimentar, adotam essas práticas somadas a outros comportamentos de risco à saúde, o que pode levar a um desequilíbrio eletrolítico e a outras manifestações físicas, com o possível desenvolvimento de anorexia nervosa e bulimia (HALEY; HEDBERG; LEMAN, 2010).

As práticas não saudáveis relacionadas ao peso consideradas para esse estudo foram indução do vômito/uso de laxante e uso de qualquer medicação, produto ou fórmula para perda ou ganho de peso/massa muscular sem acompanhamento médico.

2.4 Violência interpessoal, práticas não saudáveis relacionadas ao peso e transtorno alimentar

Dentre os fatores de risco para a adoção de práticas não saudáveis em relação ao peso e o desenvolvimento de transtornos alimentares destaca-se a violência interpessoal, mais especificamente a violência familiar (CASLINI et al., 2016) e a vitimização por *bullying* (COPELAND et al., 2015). Isso se explica, possivelmente, pelo desenvolvimento de ansiedade e depressão pelas vítimas, que utilizam práticas não

saudáveis relacionadas ao peso (uso de laxantes, indução de vômito e uso de medicamentos para perda ou ganho de peso) como forma de controlar e regular esses sentimentos (BRADY, 2008; FARROW; FOX, 2011).

É importante considerar que essa associação varia de acordo com o sexo do adolescente, já que meninos parecem apresentar, de forma mais expressiva, comportamentos não saudáveis relacionados ao peso devido à vitimização por violência familiar (abuso físico grave) (HELWEG-LARSEN; FREDERIKSEN; LARSEN, 2011; LANDSTEDT; GILLANDER GÅDIN, 2011); e meninas apresentam mais esses comportamentos como consequência da vitimização por *bullying* (MELTZER et al., 2003), especificamente relacionado ao corpo (LAMPARD et al., 2014; MENZEL et al., 2010).

De modo geral, a aparência física é uma característica que contribui com a vitimização por *bullying* entre adolescentes, principalmente quando relacionada ao peso corporal (UNESCO, 2017). A magreza, assim como o sobrepeso e a obesidade, se associam a esse tipo de violência (PELLS; PORTELA; REVOLLO, 2016; AZEREDO et al., 2015). Ademais, quando se percebem acima do peso, meninas são mais propensas a realizarem práticas não saudáveis de perda de peso, como jejum, alimentação restritiva, "pular" refeições e fazer uso de suplementos alimentares (SOM; MUKHOPADHYAY, 2015), enquanto os meninos tendem a realizar práticas para a melhoria muscular, como fazer uso de esteroides e de suplementos proteicos (EISENBERG; WALL; NEUMARK-SZTAINER, 2012).

2.5 Isolamento social: definição e consequências

O isolamento social é caracterizado pela dificuldade em estabelecer e manter a qualidade das relações sociais, levando o adolescente a ter amizades que podem prejudicar sua saúde emocional, comportamental e cognitiva (NICHOLSON JR., 2009; HAWKLEY; CACIOPPO, 2003). Ele pode ser mensurado através da quantidade de amigos e do sentimento percebido de solidão (FRIEDLER; CRAPSER; MCCULLOUGH, 2015). No Brasil, 15,8% dos adolescentes referiram se sentir sozinhos e cerca de 20% reportaram ter poucos amigos, sendo as meninas as mais afetadas (SANTOS et al., 2015).

A adolescência é uma fase em que o indivíduo precisa de maior apoio e atenção daqueles que estão a sua volta, principalmente de seus colegas (RAY, 2012). Quando isso não acontece, os adolescentes podem apresentar dificuldade para dormir, tristeza,

ansiedade, pensamentos de suicídio (MAHFOUD et al, 2010; RUDATSIKIRA et al, 2007), maior desenvolvimento, morbidade e mortalidade por doenças crônico-degenerativas na idade adulta (CASPI et al., 2006), bem como transtornos alimentares e distúrbios emocionais (AIMÉ et al., 2008; BODELL et al., 2011).

2.6 Isolamento social, práticas não saudáveis relacionadas ao peso e transtorno alimentar

O isolamento social em adolescentes, caracterizado pela solidão e pela baixa qualidade das amizades, também pode ser considerado um fator de risco para o desenvolvimento de transtornos alimentares (LASGAARD et al., 2011; MASON et al., 2016). Essa associação pode ser explicada pela diminuição da capacidade do indivíduo em regular seu comportamento alimentar devido à solidão, levando-o assim à compulsão alimentar (HAWKLEY; CACIOPPO, 2010).

Sendo o apoio social algo muito importante para todos os indivíduos (BODELL et al., 2011), a baixa qualidade e quantidade das amizades tem sido considerada como fator de risco para a presença de mau-humor, depressão e baixa autoestima, levando potencialmente o adolescente à insatisfação corporal e ao desenvolvimento de transtornos alimentares (SHARPE et al., 2014). Indivíduos socialmente isolados também tendem a desenvolver comportamentos alimentares inadequados na tentativa de serem mais aceitos e valorizados pela modificação do seu peso corporal (GERNER; WILSON, 2005).

Diante disso, é importante avaliar como diferentes tipos de violência interpessoal e o isolamento social se associam à maior adoção de práticas não saudáveis relacionadas ao peso, indicativas do possível desenvolvimento de transtornos alimentares na população adolescente brasileira.

3. OBJETIVOS

3.1 Objetivo Geral

Avaliar a associação da violência interpessoal e do isolamento social com as práticas não saudáveis relacionadas ao peso em adolescentes brasileiros.

3.2 Objetivos Específicos

Caracterizar a amostra com base nas variáveis sociodemográficas (sexo, idade, cor da pele e escolaridade materna);

Descrever as prevalências de violência interpessoal (violência física familiar, *bullying*), isolamento social e práticas não saudáveis relacionadas ao peso em adolescentes brasileiros, de acordo com o sexo;

Avaliar a associação entre violência interpessoal (violência física familiar, *bullying*) e isolamento social com a adoção de práticas não saudáveis relacionadas ao peso em adolescentes brasileiros, de acordo com o sexo.

Artigo “Association between exposure to interpersonal violence and social isolation with the adoption of unhealthy weight control practices”

ASSOCIATION BETWEEN EXPOSURE TO INTERPERSONAL VIOLENCE AND SOCIAL ISOLATION WITH THE ADOPTION OF UNHEALTHY WEIGHT CONTROL PRACTICES

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Abstract

Objective: To evaluate the association between interpersonal violence, social isolation and unhealthy weight control practices. **Methods**: We used data from the National School Health Survey (PeNSE, 2015), with a representative sample of 9th grade Brazilian adolescents from public and private schools (n = 102,072). The exposures were interpersonal violence (family physical violence, bullying based on body appearance and other reasons) suffered during the last month of the study, and social isolation. The outcomes were unhealthy weight control practices (self-induced vomiting/taking laxatives, taking any diet pills, powders, or liquids to lose or gaining weight without a doctor's advice). To obtain the odds ratios (OR), we performed simple and multiple logistic regression models, stratified by sex and adjusted for confounding variables. **Results**: Family physical violence and social isolation were associated with greater adoption of unhealthy weight control practices, for both sexes. Boys victims of family physical violence were almost twice as likely to be unhealthy compared to girls. Girls who were victims of body-related bullying were more likely to induce vomiting/use laxative (OR2.29 IC95% 1.87-2.81), use any diet pills, powders, or liquids for loss (OR 1.92 95% CI 1.50 -2.46) and weight gain / muscle mass (OR1.51 IC95% 1.17-1.93), being this association stronger than with bullying for other reasons. **Conclusion**: Interpersonal violence (family physical violence and bullying) and social isolation were associated with a higher occurrence of unhealthy weight control practices, such as inducing vomit/taking laxatives and taking any any diet pills, powders, or liquids to lose or gain weight/muscle mass.

Keywords: domestic violence, bullying, social isolation, eating disorders, adolescent.

1.1 Introduction

Unhealthy weight control practices, such as self-induced vomiting, taking laxatives and medications for weight control, are common in adolescence (Utter et al., 2012; Laakso, Hakko, Räsänen & Riala, 2013) and indicate the development of eating disorders (Allen, Byrne, La Puma, McLean & Davis, 2008). These disorders are among the major chronic diseases that affect adolescents (Gonzalez, Kohn, & Clarke, 2007) and their prevalence ranges from 0.1% (anorexia) to 1.16% (bulimia) in Latin America (Kolar, Rodriguez, Chams, & Hoek, 2016). In Brazil, about 9% of adolescents perform at least one practice of inducing vomit/taking laxatives or medications to lose weight and 6% take medications to gain weight (Claro, Santos, & Oliveira-Campos, 2014).

In adolescence, these practices are due to physiological, physical, emotional and psychological changes that contribute to the development of a negative body image (Ackard & Peterson, 2001; Patton & Viner, 2007) and, consequently to weight control problems (Neumark-Sztainer et al., 2007). Such practices are more frequent among girls (Neumark-Sztainer et al., 2002), and their possible consequences are disproportionate weight gain, followed by obesity (Neumark-Sztainer et al., 2007), depression (Stice & Bearman, 2001), and eating disorders (Neumark-Sztainer et al., 2007).

Among the risk factors for eating disorders are media influence and poor social interaction with colleagues, which reinforce the internalization of an ideal of thinness (Field, Camargo, Taylor, Berkey, & Colditz, 1999), a concern with weight (Keel & Forney, 2013), and family disunity (Nagata, Garber, Tabler, Murray, & Bibbins-Domingo, 2018). The adoption of unhealthy weight control practices also varies according to gender, as girls aim more often to lose weight (Som & Mukhopadhyay, 2015), and boys, to gain muscles (Murray, Accurso, Griffiths, & Nagata, 2018).

Some studies have shown that having suffered some type of interpersonal violence, such as family violence (Brady, 2008) or victimization by bullying (Striegel-Moore, Dohm, Pike, Wilfley, & Fairburn, 2002; Engström & Norring, 2002), is associated with the adoption of unhealthy weight control practices and eating disorders. In addition, some studies have associated social isolation with these disorders (Bodell, Smith, Holm-Denoma, Gordon, & Joiner, 2011; Sarmento, Schoen-Ferreira, Medeiros, & Cintra, 2010), while other studies have not observed this association (Sharpe, Schober, Treasure, & Schmidt, 2014; Kirsch, Shapiro, Conley, & Heinrichs, 2016).

Despite the already known relationship between exposure to violence and development of eating disorders, little information is available in the literature on how specific types of interpersonal violence could trigger such disorders. To date, most studies have assessed each type of interpersonal violence (individually) associated with unhealthy weight control practices, hindering the identification of joint associations between different forms of violence and social isolation in these practices in the same population. Recently, only one study (Hicks White, Pratt & Cottrill, 2018) associated different types of trauma and eating disorders with a small sample of adolescents in treatment of anorexia, bulimia or another eating disorder. In addition, those studies have not assessed these associations according to gender, which is important to identify the different impacts of each type of violence in male and female adolescents.

To our knowledge, this is the first study in Brazil with a representative sample of adolescents that assesses violence more broadly, observing different types of violence in the same population. Thus, greater comparability of several unhealthy weight control practices is possible, depending on the type of violence suffered and social isolation by adolescents. Moreover, it enables the planning of broader prevention and care actions and promotes a better understanding of several forms of interpersonal violence and eating disorders for both boys and girls. Therefore, the present study aimed to evaluate the association between interpersonal violence, social isolation and unhealthy weight control practices.

1.2 Methods

Study population, sampling and data collection

This study used data collected by the National School Health Survey (PeNSE), which was held between April and September 2015. PeNSE's main goal was to assess the risk and protective factors for adolescent health by providing current information about the distribution of these factors to the Surveillance System of Risk Factors of Non-communicable Chronic Diseases of the Brazilian Ministry of Health. The survey used data from the 9th grade students of elementary school of representative (urban and rural) public and private schools of Brazil.

The sampling strategy was in conglomerate with stratification and multistage selection. The sampling strata were each of the 26 capitals, plus the Federal District (DF); the 26 geographic strata grouped the other municipalities, representing each of

the Federation Units (excluding capitals), with a total of 53 strata. The primary sampling units (PSU) were schools, and the secondary sampling units (SSU) were the classes, with an independent sample of students in each stratum. Schools were selected based on their size (total number of 9th-year groups at school), as the selection of classes in each school was carried out at random, selecting two classes in schools with three or more classes, and one class in schools with up to two classes. All students of the selected classes were invited to take part in the study and, accepting the invitation, signed the Informed Consent Term (TCLE).

The self-administered questionnaire was available via smartphone and was based on questionnaires from the Global School-based Student Health Survey (GSHS), developed by the World Health Organization (WHO, 2004).

From the total number of 9th-year students present on the day of the survey (n=120,122), 102,301 answered the electronic questionnaire, of which 229 did not report their gender and, therefore, were excluded from the analysis (response rate of 82.2%). The results relate to the data of 102,072 students from 3,040 schools across the country. More details on the sampling process are available on PeNSE's report (IBGE, 2016).

Evaluation of interpersonal violence and social isolation - independent variables

Interpersonal violence was assessed through the following aspects: having been assaulted by a family member and having suffered bullying (based on body appearance and other reasons). Physical aggression by a family member was assessed through the question: "During the past 30 days, how many times have you been physically assaulted by an adult of your family?". We considered to be victims of family physical violence those who answered at least once in the past 30 days.

Victimization by verbal bullying was assessed through the question: "During the past 30 days, how often have you been mocked, teased, called names or intimidated by one of your schoolmates so much that you were hurt/annoyed/upset/offended/ashamed?" (not at all, rarely, sometimes, most of the time or always). We considered victims of bullying those students who answered one of the last three possible answers (sometimes, most of the time or always). Later, the victims were questioned about the reason/cause that would have led to this kind of violence, and the possible answers were categorized in "no bullying", "bullying based on body

appearance" and "bullying for other reasons" (color/race, religion, facial appearance, sexual orientation, region of origin, other reasons/causes).

Social isolation was assessed by two indicators, which were grouped into amount of friends and perceived feeling of loneliness (Friedler, Crapser & McCullough, 2015). The following questions were used: "How many close friends do you have?" (none, one, two, three or more friends) and "During the past 12 months, how often did you feel lonely?" (never, rarely, sometimes, most of the time, always). We considered socially isolated those students who answered having none or up to one close friend and those who answered feeling lonely most of the time or always.

Description of dependent variables

Unhealthy weight control practices

To assess the unhealthy practices carried by adolescents, we considered the affirmative answers to the following questions for the past 30 days: "Did you vomit or take laxatives to lose weight or to keep from gaining weight?" (yes or no); "Did you take any diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight?" (yes or no); "Did you take any pills, powders, or liquids without a doctor's advice to gain weight/muscle mass?" (yes or no).

Confounding variables

We considered the following variables to adjust the association analyses: gender (female, male); age (11-15, 16-19); race/color (white, black, asian, brown or mixed-race, native Brazilian indian), mother's schooling (incomplete middle school, complete middle school, complete high school, complete higher education) and administrative status of the school (public or private).

Statistical Analysis

We carried out all analyses considering the sample design and weighting of the survey, in order to represent the population of 9th grade Brazilian students.

First, we described the sample (total and per gender) to obtain the percentages of students and their respective confidence intervals (95% CI) for socio-demographic characteristics, interpersonal violence, social isolation and unhealthy weight control practices.

Most variables presented less than 1% of missing data, except for "maternal

educational level", which had 25% of missing data (n = 25.434). To have a complete set of data, multiple imputation was performed by chained equations for the variable "maternal educational level", as described by Azeredo et al. (2015a). The imputed data showed satisfactory statistical reproducibility according to the Monte Carlo error analysis (Royston & White, 2011). Therefore, we present the results considering the set of imputed data.

We obtained crude odds ratios in the association analyses of each variable (interpersonal violence, social isolation) and the outcomes (unhealthy weight control practices) by simple logistic regression. Later, through multiple logistic regression, the associations were adjusted for sociodemographic variables in a single model to obtain the adjusted odds ratios.

At last, we assessed whether the associations of interest differed according to gender based on the analysis of interaction, which was statistically significant. Thus, we present all results stratified by gender. For all statistical tests, we considered significance for p-values below 0.05. All statistical analyses were performed using the software Stata SE version 13.0 (StataCorp, 2013).

Ethical aspects

The 2015 PeNSE project was approved by the National Commission of Ethics in Research (Conep), of the National Health Council (CNS), through the Opinion Conep n. 1,006,467, dated March 30, 2015. Data are available on IBGE's website (Brazilian Institute of Geography and Statistics), without any information that allows the identification of students or schools.

1.3 Results

Adolescents showed a similar distribution regarding sex (51.5% females), aged between 11 and 15 years (89.0%); most of them self-declared to be brown or mixed-race (43%) and white (36%) and children of mothers with incomplete middle school (33.9%) and complete high school (30.9%) (Table A1).

Regarding interpersonal violence, family physical violence (15.1%) and bullying based on body appearance (7.8%) were more frequent in females, whereas bullying for other reasons was more prevalent in males (39.9%). A higher percentage of girls presented social isolation (28.7%) (Table A1).

With respect to unhealthy weight control practices, inducing vomit/taking laxatives (7.5%) was more frequent in females, and taking any diet pills, powders, or liquids to lose (6.8%) and gain weight/muscle mass (8.6%) in males (Table A1).

In the adjusted logistic regression models, girls and boys who reported being victims of family physical violence and who felt socially isolated had higher probability to adopt unhealthy weight control practices. In males, the magnitude of the association between family physical violence and all outcomes was higher (Table A2).

The association between victimization by bullying and unhealthy weight control practices only happened in females. Girls victims of bullying based on body appearance and other reasons presented higher probability to induce vomit/take laxatives, take any diet pills, powders, or liquids to lose or gain weight/muscle mass without a doctor's advice (Table A2).

1.4 Discussion

Our results showed that exposure to family physical violence and social isolation were associated with unhealthy weight control practices, for both genders. However, suffering bullying based on body appearance and for other reasons was associated with these practices only in females. For the same outcome, the association with bullying based on body appearance had greater magnitude. In addition, boys physically assaulted by a family member almost doubled the probability to induce vomit/take laxatives, take any diet pills, powders, or liquids to lose or gain weight/muscle mass compared to girls.

Some studies also showed positive associations between interpersonal violence, social isolation and practices that indicate eating disorders (Bodell, Smith, Holm-Denoma, Gordon, & Joiner, 2011; Lee & Vaillancourt, 2018; Libbey, Story, Neumark-Sztainer, & Boutelle, 2008; Brady, 2008); however, each study analyzed only one indicator of interpersonal violence or social isolation associated with these practices, unlike the present study, which assessed this violence with more indicators. This method allowed a higher comparability of the outcome obtained depending on the type of violence suffered by adolescents.

Only a recent study (Hicks White, Pratt & Cottrill, 2018) found a significant association between interpersonal violence (physical abuse, sexual abuse, bullying, family violence and death/significant loss) throughout life and bulimia, where adolescents who had already been diagnosed and were being treated were more likely to report exposure to trauma than those with anorexia or a non-specified eating disorder.

Having suffered family physical violence was related to the highest probability of adopting unhealthy weight control practices. The literature shows associations between physical abuse in childhood and eating disorders (Caslini et al., 2016; Norman et al., 2012), considering symptoms of depression and anxiety as partial mediators of this association (Mitchell & Mazzeo, 2005). A possible explanation is that violence results in low self-esteem, which in turn stimulates the development of eating disorders and depression (Striegel-Moore, Dohm, Pike, Wilfley, & Fairburn, 2002; Dominé, Berchtold, Akré, Michaud, & Suris, 2009). Adolescents may also use eating disorders as a maladapted form of emotional regulation to control feelings of depression and anxiety due to family violence (Brady, 2008).

Our results also showed that the previous association was stronger in males.

This may be due to the level of severity of physical violence suffered by boys, which is higher when compared to girls (Landstedt & Gillander Gådin, 2011). And when the assault occurs at home, victimization by severe physical violence further impairs boys' mental health, causing anxiety and depression (Helweg-Larsen, Frederiksen, & Larsen, 2011), which can lead to eating disorders.

In our study, social isolation was significantly associated with unhealthy weight control practices. It can be classified into objective (numerical lack of social contacts) or perceived isolation (loneliness, self-assessment of the quality of social relationships) (Friedler, Crapser & McCullough, 2015). The latter is a possible cause of the emergence of eating disorders (Levine, 2012; Lasgaard, Goossens, Bramsen, Trillingsgaard, & Elklit, 2011; Meyer & Gast, 2008). However, almost all studies to date have a cross-sectional design, limiting our understanding on the direction of this association.

Mason & Heron (2016) observed that symptoms of binge eating in people aged between 18 and 28 years increased the likelihood for social isolation and low number of close friends between 25 and 35 years. Another study (Mason, Heron, Braitman, & Lewis, 2016) found that girls who perceived themselves more isolated reported higher binge eating. It is possible that adolescents use food to deal with loneliness (Mason, Heron, Braitman, & Lewis, 2016) or that loneliness reduce the self-regulatory capacity of the feeding behavior (Hawkley & Cacioppo, 2010), which lead the individual to overeating.

Only girls victims of bullying based on body appearance and other reasons were more likely to adopt the unhealthy practices. According to this result, the literature shows that, among adolescents, suffering weight-related bullying is more often experienced by girls than by boys, and it is more common with those overweighed than those with a healthy weight (Goldfield et al., 2010; Neumark-Sztainer et al., 2002). This kind of bullying is associated with several unhealthy weight control behaviors, such as restrictive diet, fasting, inducing vomit and taking laxatives, diuretics and diet pills (Lampard, MacLehose, Eisenberg, Neumark-Sztainer, & Davison, 2014; Menzel et al., 2010), especially in females. This is because girls, by being bullied because of their appearance, are more likely to absorb criticism about having the "ideal thin body" compared to boys. That way, they start to compare the size and shape of their body with other girls', which increases their concern with body image and leads to eating disorders (Stice, 1998; Fredrickson &

Roberts, 1997).

For the same outcome (inducing vomit/taking laxatives, taking any diet pills, powders, or liquids to lose or gain weight/muscle mass), the magnitude of association for bullying based on body appearance was higher than for bullying for other reasons. Studies have shown that being overweight or underweight is often a characteristic that turns adolescents into targets of bullying (UNESCO, 2017). With the development and validation of a scale that measures previous experiences of victimization, it was possible to conclude that weight-related bullying correlates more strongly with higher levels of eating disorders and body dissatisfaction than bullying due to overall physical appearance (non-weight characteristics) (Thompson, Fabian, Moulton, Dunn, & Altabe, 1991). Therefore, since weight is very important for adolescents to be accepted by their peers (Pearce, Boergers, & Prinstein, 2002), they are pressured to conform to the "body pattern" imposed by most of their daily colleagues by means of unhealthy weight control practices (Rodgers, Paxton, & Chabrol, 2010).

This study has limitations to be considered. Its cross-sectional design does not allow us to infer causality between interpersonal violence, social isolation and unhealthy weight control practices. However, regardless of the impossibility of establishing causal relationships, recognizing exposures to violence as possible markers to the practice of unhealthy weight control behaviors is relevant to public health for the development of broader preventive actions (Hicks White, Pratt & Cottrill, 2018). It is important to highlight that associations are related only to the greater probability of adopting unhealthy weight control behaviors, used in the present study as indicators of eating disorders, and it is not possible to extrapolate the results directly to the context of previously diagnosed eating disorders.

Another limitation is related to the use of single questions to measure interpersonal violence, social isolation and unhealthy weight control practices instead of using validated instruments, which could result in information bias (non-differential) with an underestimation of the associations found. However, other national and international studies have also used similar questions to characterize such exposures (Azeredo, Levy, Araya, & Menezes, 2015b; Santos, Hardman, Barros, Santos & Barros, 2015) and the outcomes (Becker et al., 2010), allowing the comparison of results.

The question used in this study to characterize one of the unhealthy weight control practices (inducing vomit/taking laxatives) is present in validated instruments

that can track eating behaviors in Brazilian adolescents (Bigheti, Santos, Santos, & Ribeiro, 2004; Conti, Cordás, & Latorre, 2009; Fortes, Amaral, Almeida, Conti, & Ferreira, 2016). This fact suggests that, despite being a single question, it could capture cases of increased risk of developing eating disorders.

The inclusion of only students present in class at the time of application of the questionnaire may have generated some selection bias, since adolescents not enrolled in regular education could not be represented in this study. In addition, studies show that exposure to family physical violence and bullying may lead the victims to miss classes (6% and 19.3%, respectively) (Ramirez et al., 2012); thus, some of them may not have been included in the analysis, resulting in lower prevalence of violence. However, this limitation does not invalidate the results, as the work was carried out with a significant sample of adolescents. It is also possible that there are differences in relation to teenagers of other age groups not included in this study.

Despite the limitations, our results are important and have positive points. To date, this is the first study in Brazil that assesses more broadly interpersonal violence, which together with social isolation are the possible risk factors for unhealthy weight control practices. In addition, the questionnaire was answered by the students in smartphones, without the need of interview, which increases the reliability of answers (Chen et al., 2007; Keski-Rahkonen et al., 2006).

Another positive point is that considering several types of interpersonal violence and social isolation for analysis allowed a more comprehensive assessment of the relationship between exposure to violence and greater adoption of unhealthy weight control practices, as well as showing the magnitude of the outcomes by sex. This approach contributes to the development of broader preventive and treatment actions that best understand the trauma and unhealthy weight control practices carried by adolescents. Consequently, reversing these practices would be faster and more effective (Hicks White, Pratt & Cottrill, 2018). Understanding that these factors affect boys and girls differently, and that it may or may not occur at the same time among adolescents, would help planning alert and awareness actions for teachers (UNESCO, 2017) and health professionals (USP, 2015) about the vulnerability of young victims of interpersonal violence and social isolation. Finally, assessing bullying related to body and other reasons allowed us to understand that, depending on the cause, the probability of adopting unhealthy weight control practices increases.

1.5 Conclusion

Adolescents of both sexes, victims of interpersonal violence and socially isolated, were more likely to adopt unhealthy weight control practices. In males, family physical violence is strongly associated with unhealthy practices, although victimization by bullying was not a determinant for these practices. For females, victimization by bullying, especially based on body appearance, had an important role. Future research is needed to explore the possible causal pathways of the relationship between these exposures and unhealthy weight-related practices, as well as the potential mediators of these relationships.

1.6 References

Ackard, D. M., & Peterson, C. B. (2001). Association between puberty and disordered eating, body image, and other psychological variables. *International Journal of Eating Disorders*, *29*(2), 187–194. https://doi.org/10.1002/1098-108X(200103)29:2<187::AID-EAT1008>3.0.CO;2-R

Allen, K. L., Byrne, S. M., La Puma, M., McLean, N., & Davis, E. A. (2008). The onset and course of binge eating in 8- to 13-year-old healthy weight, overweight and obese children. *Eating Behaviors*, *9*(4), 438–446. https://doi.org/10.1016/j.eatbeh.2008.07.008

Azeredo, C. M., de Rezende, L. F. M., Canella, D. S., Moreira Claro, R., de Castro, I. R. R., Luiz, O. do C., & Levy, R. B. (2015a). Dietary intake of Brazilian adolescents. *Public Health Nutrition*, *18*(07), 1215–1224. https://doi.org/10.1017/S1368980014001463

Azeredo, C. M., Levy, R. B., Araya, R., & Menezes, P. R. (2015b). Individual and contextual factors associated with verbal bullying among Brazilian adolescents. *BMC Pediatrics*, *15*(1). https://doi.org/10.1186/s12887-015-0367-y

Becker, A. E., Roberts, A. L., Perloe, A., Bainivualiku, A., Richards, L. K., Gilman, S. E., & Striegel-Moore, R. H. (2010). Youth health risk behavior assessment in Fiji: the reliability of Global School-based Health Survey content adapted for ethnic Fijian girls. *Ethn Health*, *15*, 181–197. https://doi.org/ 10.1080/13557851003615552

Bigheti, F., Santos, C. B., Santos, J. E., & Ribeiro, R. P. P. (2004). Tradução e avaliação do Eating Attitudes Test em adolescentes do sexo feminino de Ribeirão Preto. *Jornal Brasileiro de Psiquiatria*, *53*(6), 339–346 https://doi.org/ 10.11606/D.22.2003.tde-12042004-234230

Bodell, L. P., Smith, A. R., Holm-Denoma, J. M., Gordon, K. H., & Joiner, T. E. (2011). The impact of perceived social support and negative life events on bulimic symptoms. *Eating Behaviors*, *12*(1), 44–48. https://doi.org/10.1016/j.eatbeh.2010.11.002

Brady, S. S. (2008). Lifetime family violence exposure is associated with current symptoms of eating disorders among both young men and women. *Journal of Traumatic Stress*, *21*(3), 347–351. https://doi.org/10.1002/jts.20335

Caslini, M., Bartoli, F., Crocamo, C., Dakanalis, A., Clerici, M., & Carrà, G. (2016). Disentangling the Association Between Child Abuse and Eating Disorders: A Systematic Review and Meta-Analysis. *Psychosomatic Medicine*, *78*(1), 79–90. https://doi.org/10.1097/PSY.0000000000000233

Chen, P.-H., Rovi, S., Washington, J., Jacobs, A., Vega, M., Pan, K.-Y., & Johnson, M. S. (2007). Randomized Comparison of 3 Methods to Screen for Domestic Violence in

Family Practice. *The Annals of Family Medicine*, *5*(5), 430–435. https://doi.org/10.1370/afm.716

Claro, R. M., Santos, M. A. S., & Oliveira-Campos, M. (2014). Body image and extreme attitudes toward weight in Brazilian schoolchildren (PeNSE 2012). *Revista Brasileira de Epidemiologia*, *17*(suppl 1), 146–157. https://doi.org/10.1590/1809-4503201400050012

Conti, M. A., Cordás, T. A., & Latorre, M. do R. D. de O. (2009). A study of the validity and reliability of the Brazilian version of the Body Shape Questionnaire (BSQ) among adolescents. *Revista Brasileira de Saúde Materno Infantil*, *9*(3), 331–338. https://doi.org/10.1590/S1519-38292009000300012

Dominé, F., Berchtold, A., Akré, C., Michaud, P.-A., & Suris, J.-C. (2009). Disordered Eating Behaviors: What About Boys? *Journal of Adolescent Health*, *44*(2), 111–117. https://doi.org/10.1016/j.jadohealth.2008.07.019

Engström, I., & Norring, C. (2002). Estimation of the population "at risk" for eating disorders in a non-clinical Swedish sample: A repeated measure study. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *7*(1), 45–52. https://doi.org/10.1007/BF03354429

Field, A. E., Camargo, C. A., Taylor, C. B., Berkey, C. S., & Colditz, G. A. (1999). Relation of Peer and Media Influences to the Development of Purging Behaviors Among Preadolescent and Adolescent Girls. *Archives of Pediatrics & Adolescent Medicine*, *153*(11), 1184. https://doi.org/10.1001/archpedi.153.11.1184

Fortes, L. de S., Amaral, A. C. S., Almeida, S. de S., Conti, M. A., & Ferreira, M. E. C. (2016). Qualidades Psicométricas do Eating Attitudes Test (EAT-26) para Adolescentes Brasileiros do Sexo Masculino. *Psicologia: Teoria e Pesquisa*, *32*(3). https://doi.org/10.1590/0102-3772e323220

Fredrickson, B. L., & Roberts, T. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, *21*, 173–206. http://dx.doi.org/10.1111/j.1471-6402.1997.tb00108.x.

Friedler, B., Crapser, J., & McCullough, L. (2015). One is the deadliest number: the detrimental effects of social isolation on cerebrovascular diseases and cognition. *Acta Neuropathologica*, *129*(4), 493–509. https://doi.org/10.1007/s00401-014-1377-9

Goldfield, G., Moore, C., Henderson, K., Buchholz, A., Obeid, N., & Flament, M. (2010). The relation between weight-based teasing and psychological adjustment in adolescents. *Paediatrics & Child Health*, *15*(5), 283–288. https://doi.org/10.1093/pch/15.5.283

Gonzalez, A., Kohn, M. R., & Clarke, S. D. (2007). Adolescence Eating disorders in adolescents. *Australian Family Physician*, *36*(8), 6.

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness Matters: A Theoretical and Empirical Review of Consequences and Mechanisms. *Annals of Behavioral Medicine*, *40*(2), 218–227. https://doi.org/10.1007/s12160-010-9210-8

Helweg-Larsen, K., Frederiksen, M. L., & Larsen, H. B. (2011). Violence, a risk factor for poor mental health in adolescence: A Danish nationally representative youth survey. *Scandinavian Journal of Public Health*, *39*(8), 849–856. https://doi.org/10.1177/1403494811421638

Hicks White, A. A., Pratt, K. J., & Cottrill, C. (2018). The relationship between trauma and weight status among adolescents in eating disorder treatment. *Appetite*, *129*, 62–69. https://doi.org/10.1016/j.appet.2018.06.034

Howard, L. M., Trevillion, K., & Agnew-Davies, R. (2010). Domestic violence and mental health. *International Review of Psychiatry*, *22*(5), 525–534. https://doi.org/10.3109/09540261.2010.512283

IBGE. (2016). *Pesquisa Nacional de Saúde do Escolar 2015* (p. 132). Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística.

Keel, P. K., & Forney, K. J. (2013). Psychosocial risk factors for eating disorders. *International Journal of Eating Disorders*, *46*(5), 433–439. https://doi.org/10.1002/eat.22094

Keski-Rahkonen, A., Sihvola, E., Raevuori, A., Kaukoranta, J., Bulik, C. M., Hoek, H. W., … Kaprio, J. (2006). Reliability of self-reported eating disorders: Optimizing population screening. *International Journal of Eating Disorders*, *39*(8), 754–762. https://doi.org/10.1002/eat.20277

Kirsch, A. C., Shapiro, J. B., Conley, C. S., & Heinrichs, G. (2016). Explaining the pathway from familial and peer social support to disordered eating: Is body dissatisfaction the link for male and female adolescents? *Eating Behaviors*, *22*, 175–181. https://doi.org/10.1016/j.eatbeh.2016.06.018

Kolar, D. R., Rodriguez, D. L. M., Chams, M. M., & Hoek, H. W. (2016). Epidemiology of eating disorders in Latin America: a systematic review and meta-analysis. *Current Opinion in Psychiatry*, *29*(6), 363–371. https://doi.org/10.1097/YCO.0000000000000279

Laakso, E., Hakko, H., Räsänen, P., & Riala, K. (2013). Suicidality and unhealthy weight control behaviors among female underaged psychiatric inpatients. *Comprehensive Psychiatry*, *54*(2), 117–122. https://doi.org/10.1016/j.comppsych.2012.06.012

Lampard, A. M., MacLehose, R. F., Eisenberg, M. E., Neumark-Sztainer, D., & Davison, K. K. (2014). Weight-Related Teasing in the School Environment: Associations with Psychosocial Health and Weight Control Practices Among

Adolescent Boys and Girls. *Journal of Youth and Adolescence*, *43*(10), 1770–1780. https://doi.org/10.1007/s10964-013-0086-3

Landstedt, E., & Gillander Gådin, K. (2011). Experiences of violence among adolescents: gender patterns in types, perpetrators and associated psychological distress. *International Journal of Public Health*, *56*(4), 419–427. https://doi.org/10.1007/s00038-011-0258-4

Lasgaard, M., Goossens, L., Bramsen, R. H., Trillingsgaard, T., & Elklit, A. (2011). Different sources of loneliness are associated with different forms of psychopathology in adolescence. *Journal of Research in Personality*, *45*(2), 233–237. https://doi.org/10.1016/j.jrp.2010.12.005

Lee, K. S., & Vaillancourt, T. (2018). Longitudinal Associations Among Bullying by Peers, Disordered Eating Behavior, and Symptoms of Depression During Adolescence. *JAMA Psychiatry*, *75*(6), 605. https://doi.org/10.1001/jamapsychiatry.2018.0284

Levine, M. P. (2012). Loneliness and Eating Disorders. *The Journal of Psychology*, *146*(1–2), 243–257. https://doi.org/10.1080/00223980.2011.606435

Libbey, H. P., Story, M. T., Neumark-Sztainer, D. R., & Boutelle, K. N. (2008). Teasing, Disordered Eating Behaviors, and Psychological Morbidities Among Overweight Adolescents. *Obesity*, *16*, S24–S29. https://doi.org/10.1038/oby.2008.455

Mason, T. B., & Heron, K. E. (2016). Do depressive symptoms explain associations between binge eating symptoms and later psychosocial adjustment in young adulthood? *Eating Behaviors*, *23*, 126–130. https://doi.org/10.1016/j.eatbeh.2016.09.003

Mason, T. B., Heron, K. E., Braitman, A. L., & Lewis, R. J. (2016). A daily diary study of perceived social isolation, dietary restraint, and negative affect in binge eating. *Appetite*, *97*, 94–100. https://doi.org/10.1016/j.appet.2015.11.027

Menzel, J. E., Schaefer, L. M., Burke, N. L., Mayhew, L. L., Brannick, M. T., & Thompson, J. K. (2010). Appearance-related teasing, body dissatisfaction, and disordered eating: A meta-analysis. *Body Image*, *7*(4), 261–270. https://doi.org/10.1016/j.bodyim.2010.05.004

Meyer, T. A., & Gast, J. (2008). The Effects of Peer Influence on Disordered Eating Behavior. *The Journal of School Nursing*, *24*(1), 36–42. https://doi.org/10.1177/10598405080240010601

Mitchell, K. S., & Mazzeo, S. E. (2005). Mediators of the association between abuse and disordered eating in undergraduate men. *Eating Behaviors*, *6*(4), 318–327. https://doi.org/10.1016/j.eatbeh.2005.03.004

Murray, S. B., Accurso, E. C., Griffiths, S., & Nagata, J. M. (2018). Boys, Biceps, and Bradycardia: The Hidden Dangers of Muscularity-Oriented Disordered Eating. *Journal of Adolescent Health*, *62*(3), 352–355. https://doi.org/10.1016/j.jadohealth.2017.09.025

Nabuco, H. C., Rodrigues, V., Fernandes, V. L., Ravagnani, F. C., Fett, C., Espinosa, M., & Ravagnani, C. F. (2016). Factors associated with dietary supplementation among Brazilian athletes. *Nutrición Hospitalaria*, *33*(3), 678–684. https://doi.org/10.20960/nh.278

Nagata, J. M., Garber, A. K., Tabler, J. L., Murray, S. B., & Bibbins-Domingo, K. (2018). Differential Risk Factors for Unhealthy Weight Control Behaviors by Sex and Weight Status Among U.S. Adolescents. *Journal of Adolescent Health*, *63*(3), 335–341. https://doi.org/10.1016/j.jadohealth.2018.03.022

Neumark-Sztainer, D., Falkner, N., Story, M., Perry, C., Hannan, P., & Mulert, S. (2002). Weight-teasing among adolescents: correlations with weight status and disordered eating behaviors. *International Journal of Obesity*, *26*(1), 123–131. https://doi.org/10.1038/sj.ijo.0801853

Neumark-Sztainer, D. R., Wall, M. M., Haines, J. I., Story, M. T., Sherwood, N. E., & van den Berg, P. A. (2007). Shared Risk and Protective Factors for Overweight and Disordered Eating in Adolescents. *American Journal of Preventive Medicine*, *33*(5), 359-369.e3. https://doi.org/10.1016/j.amepre.2007.07.031

Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). The Long-Term Health Consequences of Child Physical Abuse, Emotional Abuse, and Neglect: A Systematic Review and Meta-Analysis. *PLoS Medicine*, *9*(11), e1001349. https://doi.org/10.1371/journal.pmed.1001349

Oliveira, W. A. de, Silva, M. A. I., Mello, F. C. M. de, Porto, D. L., Yoshinaga, A. C. M., & Malta, D. C. (2015). The causes of bullying: results from the National Survey of School Health (PeNSE). *Revista Latino-Americana de Enfermagem*, *23*(2), 275–282. https://doi.org/10.1590/0104-1169.0022.2552

Patton, G. C., & Viner, R. (2007). Pubertal transitions in health. *The Lancet*, *369*(9567), 1130–1139. https://doi.org/10.1016/S0140-6736(07)60366-3

Pearce, M. J., Boergers, J., & Prinstein, M. J. (2002). Adolescent Obesity, Overt and Relational Peer Victimization, and Romantic Relationships. *Obesity Research*, *10*(5), 386–393. https://doi.org/10.1038/oby.2002.53

Ramirez, M., Wu, Y., Kataoka, S., Wong, M., Yang, J., Peek-Asa, C., & Stein, B. (2012). Youth Violence across Multiple Dimensions: A Study of Violence, Absenteeism, and Suspensions among Middle School Children. *The Journal of Pediatrics*, *161*(3), 542-546.e2. https://doi.org/10.1016/j.jpeds.2012.03.014

Rodgers, R. F., Paxton, S. J., & Chabrol, H. (2010). Depression as a Moderator of Sociocultural Influences on Eating Disorder Symptoms in Adolescent Females and Males. *Journal of Youth and Adolescence*, *39*(4), 393–402. https://doi.org/10.1007/s10964-009-9431-y

Roy, M., & Gauvin, L. (2013). Associations between different forms of body dissatisfaction and the use of weight-related behaviors among a representative population-based sample of adolescents. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *18*(1), 61–73. https://doi.org/10.1007/s40519-013-0007-1

Royston, P., & White, I. (2011). Multiple Imputation by Chained Equations (MICE): Implementation in *Stata*. *Journal of Statistical Software*, *45*(4). https://doi.org/10.18637/jss.v045.i04

Santos, S. J. dos, Hardman, C. M., Barros, S. S. H., Santos, C. F. B. F & Barros, M. V. G. de. (2015). Association between physical activity, participation in Physical Education classes, and social isolation in adolescents. *Jornal de Pediatria (Versão em Português)*, *91*(6), 543–550. https://doi.org/10.1016/j.jpedp.2015.07.019

Sarmento, A. S. L., Schoen-Ferreira, T. H., Medeiros, É. H., & Cintra, I. de P. (2010). Avaliação dos sintomas emocionais e comportamentais em adolescentes obesos. *Estudos e Pesquisas em Psicologia*, (3), 833–847.

Sharpe, H., Schober, I., Treasure, J., & Schmidt, U. (2014). The role of high-quality friendships in female adolescents' eating pathology and body dissatisfaction. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *19*(2), 159–168. https://doi.org/10.1007/s40519-014-0113-8

Som, N., & Mukhopadhyay, S. (2015). Body weight and body shape concerns and related behaviours among Indian urban adolescent girls. *Public Health Nutrition*, *18*(06), 1075–1083. https://doi.org/10.1017/S1368980014001451

StataCorp. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP; 2013.

Stice, E. (1998). Modeling of eating pathology and social reinforcement of the thin-ideal predict onset of bulimic symptoms. *Behaviour Research and Therapy*, *36*(10), 931–944. https://doi.org/10.1016/S0005-7967(98)00074-6

Stice, E., & Bearman, S. K. (2001). Body-image and eating disturbances prospectively predict increases in depressive symptoms in adolescent girls: A growth curve analysis. *Developmental Psychology*, *37*(5), 597–607. https://doi.org/10.1037//0012-1649.37.5.597

Striegel-Moore, R. H., Dohm, F.-A., Pike, K. M., Wilfley, D. E., & Fairburn, C. G. (2002). Abuse, Bullying, and Discrimination as Risk Factors for Binge Eating Disorder. *American Journal of Psychiatry*, *159*(11), 1902–1907. https://doi.org/10.1176/appi.ajp.159.11.1902

Thompson, J. K., Fabian, L. J., Moulton, D. O., Dunn, M. E., & Altabe, M. N. (1991). Development and Validation of the Physical Appearance Related Teasing Scale.

Journal of Personality Assessment, *56*(3), 513–521. https://doi.org/10.1207/s15327752jpa5603_12

UNESCO. (2017). *School Violence and Bullying: Global Status Report*. Paris: United Nations Educational, Scientific and Cultural Organization.

USP. (2015). *Relatório mundial sobre a prevenção da violência 2014* (p. 288). Universidade de São Paulo: Organização Mundial de Saúde.

Utter, J., Denny, S., Percival, T., Crengle, S., Ameratunga, S., Dixon, R., … Hall, A. (2012). Prevalence of weight-related concerns and behaviours among New Zealand young people: Dieting among New Zealand adolescents. *Journal of Paediatrics and Child Health*, *48*(11), 1021–1028. https://doi.org/10.1111/j.1440-1754.2012.02587.x

WHO - World Health Organization (2004) Global school-based student health survey. http://www.who.int/chp/gshs/en///www.who.int/mediacentre/news/releases/2004/pr81/en/ Acesso em 10 out 2018.

Table A1. Description of the sample (9th grade students), PeNSE 2015.

	Female % (95% CI) 51.3%	**Male % (95% CI)** 48.7%	**Total % (95% CI)**
Sociodemographic variables			
Age (years)			
11-15	91.1 (90.4 - 91.7)	86.9 (86.2 - 87.6)	89.0 (88.4 - 89.6)
16-19	8.9 (8.3 - 9.6)	13.1 (12.4 - 13.8)	11.0 (10.4 - 11.5)
Race/color			
White	35.0 (33.8 - 36.2)	37.4 (36.2 - 38.5)	36.1 (35.1 - 37.2)
Black	11.3 (10.7 - 12.0)	15.5 (14.8 - 16.3)	13.4 (12.9 - 13.9)
Asian	4.6 (4.3 - 5.0)	3.6 (3.3 - 3.9)	4.1 (3.9 - 4.4)
Brown or mixed-race	46.0 (44.9 - 4.1)	39.9 (38.9 - 41.0)	43.0 (42.2 - 43.9)
Native Brazilian indian	3.0 (2.7 - 3.3)	3.6 (3.3 - 3.9)	3.3 (3.1 - 3.5)
Maternal educational level			
Incomplete middle school	35.9 (34.6 - 37.1)	31.7 (30.5 - 33.0)	33.9 (32.8 - 34.9)
Complete middle school	16.9 (16.1 - 17.7)	17.4 (16.6 - 18.2)	17.1 (16.5 - 17.7)
Complete high school	30.2 (29.2 - 31.3)	31.5 (30.5 - 32.5)	30.9 (30.0 - 31.7)
Complete higher education	17.0 (15.8 - 18.3)	19.4 (18.0 - 20.8)	18.1 (16.9 - 19.4)
Interpersonal violence			
Family physical violence			
No	84.9 (84.2 - 85.5)	86.2 (85.5 - 86.7)	85.5 (85.0 - 85.9)
Yes	15.1 (14.5 - 15.7)	13.8 (13.2 - 14.4)	14.5 (14.0 - 15.0)
Bullying			
No	54.6 (53.7 - 55.4)	53.6 (52.6 - 54.6)	54.1 (53.4 - 54.8)
Body appearance	7.8 (7.4 - 8.2)	6.5 (6.1 - 6.9)	7.1 (6.8 - 7.5)
Other reasons	37.6 (36.8 - 38.4)	39.9 (39.0 - 40.8)	38.7 (38.1 - 39.3)
Social isolation			
No	71.3 (70.5 - 72.0)	81.7 (80.9 - 82.4)	76.3 (75.8 - 76.9)
Yes	28.7 (27.9 - 29.5)	18.3 (17.6 - 19.0)	23.6 (23.0 - 24.2)
Unhealthy weight control practices			
Self-induced vomiting/taking laxatives			
No	92.5 (92.0 - 92.9)	93.5 (93.0 - 94.0)	93.0 (92.7 - 93.3)
Yes	7.5 (7.1 - 8.0)	6.5 (6.0 - 7.0)	7.0 (6.7 - 7.3)
Taking any diet pills, powders, or liquids to lose weight			
No	94.8 (94.4 - 95.1)	93.2 (92.6 - 93.6)	94.0 (93.7 - 94.3)
Yes	5.2 (4.9 - 5.6)	6.8 (6.4 - 7.3)	6.0 (5.7 - 6.3)
Taking any diet pills, powders, or liquids to gain weight/muscle mass			
No	94.4 (94.0 - 94.7)	91.4 (90.8 - 91.9)	92.9 (92.5 - 93.3)
Yes	5.6 (5.2 - 6.0)	8.6 (8.1 - 9.2)	7.1 (6.7 - 7.4)

Table A2. Odds ratio (OR) for association between interpersonal violence, social isolation and unhealthy weight control practices (PeNSE 2015), according to gender.

	Unhealthy weight control practices Self-induced vomiting/taking laxatives			
	Female		**Male**	
Interpersonal violence	Crude OR (95% CI)	*Adjusted OR (95% CI)	Crude OR (95% CI)	*Adjusted OR (95% CI)
Family physical violence				
No	1	1	1	1
Yes	2.90 (2.55 - 3.29)	**2.22 (1.89 - 2.60)**	5.21 (4.56 - 5.95)	**4.55 (3.92 - 5.28)**
Bullying				
No	1	1	1	1
Body appearance	2.58 (2.15 - 3.09)	**2.29 (1.87 - 2.81)**	1.12 (0.85 - 1.48)	0.72 (0.54 - 0.96)
Other reasons	1.56 (1.38 - 1.75)	**1.32 (1.14 - 1.52)**	1.34 (1.19 - 1.52)	1.18 (1.00 - 1.38)
Social isolation				
No	1	1	1	1
Yes	2.53 (2.26 - 2.83)	**2.12 (1.85 - 2.42)**	1.60 (1.39 - 1.83)	**1.34 (1.11 - 1.63)**
	Taking any diet pills, powders, or liquids to lose weight			
Interpersonal violence	Crude OR (95% CI)	*Adjusted OR (95% CI)	Crude OR (95% CI)	*Adjusted OR (95% CI)
Family physical violence				
No	1	1	1	1
Yes	2.73 (2.35 - 3.18)	**2.24 (1.86 - 2.69)**	5.07 (4.40 - 5.84)	**4.83 (4.06 - 5.76)**
Bullying				
No	1	1	1	1
Body appearance	2.20 (1.79 - 2.69)	**1.92 (1.50 - 2.46)**	1.57 (1.18 - 2.08)	1.16 (0.84 - 1.59)
Other reasons	1.55 (1.32 - 1.83)	**1.38 (1.15 - 1.65)**	1.29 (1.12 - 1.47)	1.14 (0.96 - 1.36)
Social isolation				
No	1	1	1	1
Yes	1.97 (1.73 - 2.25)	**1.68 (1.42 - 1.99)**	1.62 (1.38 - 1.91)	**1.37 (1.12 - 1.68)**
	Taking any diet pills, powders, or liquids to gain weight/muscle mass			
Interpersonal violence	Crude OR (95% CI)	*Adjusted OR (95% CI)	Crude OR (95% CI)	*Adjusted OR (95% CI)
Family physical violence				
No	1	1	1	1
Yes	2.72 (2.34 - 3.16)	**2.31 (1.90 - 2.81)**	4.40 (3.85 - 5.03)	**4.09 (3.50 - 4.78)**
Bullying				
No	1	1	1	1
Body appearance	1.80 (1.46 - 2.21)	**1.51 (1.17 - 1.93)**	1.11 (0.87 - 1.42)	0.85 (0.63 - 1.15)
Other reasons	1.41 (1.19 - 1.67)	**1.26 (1.04 - 1.51)**	1.17 (1.04 - 1.31)	0.97 (0.84 - 1.13)
Social isolation				
No	1	1	1	1
Yes	1.48 (1.29 - 1.69)	**1.28 (1.08 - 1.50)**	1.64 (1.44 - 1.87)	**1.30 (1.09 - 1.55)**

*adjusted by sociodemographic variables (age, race/color and maternal educational level) and administrative status of school.

REFERÊNCIAS

AIMÉ, A. et al. Developmental pathways of eating problems in adolescents. **International Journal of Eating Disorders**, v. 41, n. 8, p. 686–696, dez. 2008. https://doi.org/10.1002/eat.20561

AZEREDO, C. M. et al. Individual and contextual factors associated with verbal bullying among Brazilian adolescents. **BMC Pediatrics**, v. 15, n. 1, dez. 2015. https://doi.org/10.1186/s12887-015-0367-y

BALDRY, A. Bullying in schools and exposure to domestic violence. **Child Abuse & Neglect**, v. 27, n. 7, p. 713-732, 2003. https://doi.org/10.1016/S0145-2134(03)00114-5

BODELL, L. P. et al. The impact of perceived social support and negative life events on bulimic symptoms. **Eating Behaviors**, v. 12, n. 1, p. 44–48, jan. 2011. https://doi.org/10.1016/j.eatbeh.2010.11.002

BRADY, S. S. Lifetime family violence exposure is associated with current symptoms of eating disorders among both young men and women. **Journal of Traumatic Stress**, v. 21, n. 3, p. 347–351, jun. 2008. https://doi.org/10.1002/jts.20335

CASLINI, M. et al. Disentangling the Association Between Child Abuse and Eating Disorders: A Systematic Review and Meta-Analysis. **Psychosomatic Medicine**, v. 78, n. 1, p. 79–90, jan. 2016. https://doi.org/10.1097/PSY.0000000000000233

CASPI, A. et al. Socially Isolated Children 20 Years Later: Risk of Cardiovascular Disease. **Archives of Pediatrics & Adolescent Medicine**, v. 160, n. 8, p. 805, 1 ago. 2006. https://doi.org/10.1001/archpedi.160.8.805

COPELAND, W. E. et al. Does childhood bullying predict eating disorder symptoms? A prospective, longitudinal analysis: Eating Disorders and Bullying. **International Journal of Eating Disorders**, v. 48, n. 8, p. 1141–1149, dez. 2015. https://doi.org/10.1002/eat.22459

EISENBERG, M. E.; WALL, M.; NEUMARK-SZTAINER, D. Muscle-enhancing Behaviors Among Adolescent Girls and Boys. **Pediatrics**, v. 130, n. 6, p. 1019–1026, 1 dez. 2012. https://doi.org/10.1542/peds.2012-0095

ENGSTRÖM, I.; NORRING, C. Estimation of the population “at risk” for eating disorders in a non-clinical Swedish sample: A repeated measure study. **Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity**, v. 7, n. 1, p. 45–52, 2002. https://doi.org/10.1007/BF03354429

FARROW, C. V.; FOX, C. L. Gender differences in the relationships between bullying at school and unhealthy eating and shape-related attitudes and behaviours: Bullying, emotional symptoms, and eating. **British Journal of Educational Psychology**, v. 81, n. 3, p. 409–420, set. 2011. https://doi.org/10.1348/000709910X525804

FERREIRA, K. M. M. Violência doméstica/intrafamiliar contra crianças e adolescentes - nossa realidade. In: SILVA, L. M. P., et al. **Violência doméstica contra crianças e adolescentes**. Brasília: Ministério da Saúde; 2002. p. 19-39.

FOX, B. H. et al. Trauma changes everything: Examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. **Child Abuse & Neglect**, v. 46, p. 163–173, ago. 2015. https://doi.org/10.1016/j.chiabu.2015.01.011

FRIEDLER, B.; CRAPSER, J.; MCCULLOUGH, L. One is the deadliest number: the detrimental effects of social isolation on cerebrovascular diseases and cognition. **Acta Neuropathologica**, v. 129, n. 4, p. 493–509, abr. 2015. https://doi.org/10.1007/s00401-014-1377-9

GERNER, B.; WILSON, P. H. The relationship between friendship factors and adolescent girls' body image concern, body dissatisfaction, and restrained eating. **International Journal of Eating Disorders**, v. 37, n. 4, p. 313–320, maio 2005. https://doi.org/10.1002/eat.20094

GROFF STEPHENS, S.; WILKE, D. J. Sexual violence, weight perception, and eating disorder indicators in college females. **Journal of American College Health**, v. 64, n. 1, p. 38–47, 2 jan. 2016. https://doi.org/10.1080/07448481.2015.1074237

HAWKLEY, L. C.; CACIOPPO, J. T. Loneliness and pathways to disease. **Brain, Behavior, and Immunity**, v. 17, p. 98–105, 2003. https://doi.org/10.1016/S0889-1591(02)00073-9

HAWKLEY, L. C.; CACIOPPO, J. T. Loneliness Matters: A Theoretical and Empirical Review of Consequences and Mechanisms. **Annals of Behavioral Medicine**, v. 40, n. 2, p. 218–227, out. 2010. https://doi.org/10.1007/s12160-010-9210-8

HELWEG-LARSEN, K.; FREDERIKSEN, M. L.; LARSEN, H. B. Violence, a risk factor for poor mental health in adolescence: A Danish nationally representative youth survey. **Scandinavian Journal of Public Health**, v. 39, n. 8, p. 849–856, dez. 2011. https://doi.org/10.1177/1403494811421638

HICKS WHITE, A. A.; PRATT, K. J.; COTTRILL, C. The relationship between trauma and weight status among adolescents in eating disorder treatment. **Appetite**, v. 129, p. 62–69, out. 2018. https://doi.org/10.1016/j.appet.2018.06.034

KIRSCH, A. C. et al. Explaining the pathway from familial and peer social support to disordered eating: Is body dissatisfaction the link for male and female adolescents? **Eating Behaviors**, v. 22, p. 175–181, ago. 2016. https://doi.org/10.1016/j.eatbeh.2016.06.018

KRUG, E. G. et al. (EDS.). **World report on violence and health**. Geneva: World Health Organization, 2002.

LAMPARD, A. M. et al. Weight-Related Teasing in the School Environment: Associations with Psychosocial Health and Weight Control Practices Among Adolescent Boys and Girls. **Journal of Youth and Adolescence**, v. 43, n. 10, p. 1770–1780, out. 2014. https://doi.org/10.1007/s10964-013-0086-3

LANDSTEDT, E.; GILLANDER GÅDIN, K. Experiences of violence among adolescents: gender patterns in types, perpetrators and associated psychological distress. **International Journal of Public Health**, v. 56, n. 4, p. 419–427, ago. 2011. https://doi.org/10.1007/s00038-011-0258-4

LASGAARD, M. et al. Different sources of loneliness are associated with different forms of psychopathology in adolescence. **Journal of Research in Personality**, v. 45, n. 2, p. 233–237, abr. 2011. https://doi.org/10.1016/j.jrp.2010.12.005

LEE, K. S.; VAILLANCOURT, T. Longitudinal Associations Among Bullying by Peers, Disordered Eating Behavior, and Symptoms of Depression During Adolescence. **JAMA Psychiatry**, v. 75, n. 6, p. 605, 1 jun. 2018. https://doi.org/10.1001/jamapsychiatry.2018.0284

LIBBEY, H. P. et al. Teasing, Disordered Eating Behaviors, and Psychological Morbidities Among Overweight Adolescents. **Obesity**, v. 16, p. S24–S29, nov. 2008. https://doi.org/10.1038/oby.2008.455

MAHFOUD, Z.R., et al. Prevalence and determinants of suicide idetion among Lebanese adolescents: results of the GSHS Lebanon 2005. **Journal of Adolescence**, v. 34, p. 379-384, 2010. https://doi.org/10.1016/j.adolescence.2010.03.009

MASON, T. B. et al. A daily diary study of perceived social isolation, dietary restraint, and negative affect in binge eating. **Appetite**, v. 97, p. 94–100, fev. 2016. https://doi.org/10.1016/j.appet.2015.11.027

MELTZER, H. et al. Mental health of children and adolescents in Great Britain. **International Review of Psychiatry**, v. 15, n. 1–2, p. 185–187, jan. 2003. https://doi.org/10.1080/0954026021000046155

MENZEL, J. E. et al. Appearance-related teasing, body dissatisfaction, and disordered eating: A meta-analysis. **Body Image**, v. 7, n. 4, p. 261–270, set. 2010. https://doi.org/10.1016/j.bodyim.2010.05.004

NICHOLSON JR., N. R. Social isolation in older adults: an evolutionary concept analysis. **Journal of Advanced Nursing**, v. 65, n. 6, p. 1342–1352, jun. 2009. https://doi.org/10.1111/j.1365-2648.2008.04959.x

NORMAN, R. E. et al. The Long-Term Health Consequences of Child Physical Abuse, Emotional Abuse, and Neglect: A Systematic Review and Meta-Analysis. **PLoS Medicine**, v. 9, n. 11, p. e1001349, 27 nov. 2012. https://doi.org/10.1371/journal.pmed.1001349

O'BRIEN, B. S.; SHER, L. Child sexual abuse and the pathophysiology of suicide in adolescents and adults. **International Journal of Adolescent Medicine and Health**, v. 25, n. 3, 1 jan. 2013. https://doi.org/10.1515/ijamh-2013-0053

OLWEUS, D., Bullying at school: what we know and what we can do (Understanding Children's Worlds). **Wiley-Blackwell**, 1993.

PELLS, K.; PORTELA, M. J. O.; REVOLLO, P. E. **Experiences of peer bullying among adolescents and associated effects on young adult outcomes: longitudinal evidence from Ethiopia, India, Peru and Viet Nam**. Florence: UNICEF Office of Research – Innocenti, 2016.

PRADO, M. DO C. C. DE A.; PEREIRA, A. C. C. Violências sexuais: incesto, estupro e negligência familiar. **Estudos de Psicologia (Campinas)**, v. 25, n. 2, p. 277–291, jun. 2008. https://doi.org/10.1590/S0103-166X2008000200012

REICHENHEIM, M. E. et al. Violence and injuries in Brazil: the effect, progress made, and challenges ahead. **The Lancet**, v. 377, n. 9781, p. 1962–1975, jun. 2011. https://doi.org/10.1016/S0140-6736(11)60053-6

RAY, J. **Implicit and Explicit Social Isolation in Eating Disordered Individuals**. 2012. Tese (Doutorado em Artes) - Bowling Green State University, Ohio, 2012.

RIGGS, S. A. Childhood emotional abuse and the attachment system across the life cycle: what theory and research tell us. **Journal of Aggression, Maltreatment and Trauma**, v. 19, n. 1, 2010. https://doi.org/10.1080/10926770903475968

RUDATSIKIRA, E., et al. Prevalence and associated factors of suicidal ideation among school-going adolescents in Guyana: results from a cross sectional study. **Clinical Practice and Epidemiology in Mental Health**, v. 3, n. 13, 2007. https://doi.org/10.1186/1745-0179-3-13

SANTOS, S. J. DOS et al. Association between physical activity, participation in Physical Education classes, and social isolation in adolescents. **Jornal de Pediatria (Versão em Português)**, v. 91, n. 6, p. 543–550, nov. 2015. https://doi.org/10.1016/j.jped.2015.01.008

SCHWARTTZ, D., et al. The early socialization of aggressive victims of bullying. **Child Development**, v. 68, n. 4, p. 665- 675, 1997. https://doi.org/10.2307/1132117

SHARPE, H. et al. The role of high-quality friendships in female adolescents' eating pathology and body dissatisfaction. **Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity**, v. 19, n. 2, p. 159–168, jun. 2014. https://doi.org/10.1007/s40519-014-0113-8

SOM, N.; MUKHOPADHYAY, S. Body weight and body shape concerns and related behaviours among Indian urban adolescent girls. **Public Health Nutrition**, v. 18, n. 06, p. 1075–1083, abr. 2015. https://doi.org/10.1017/S1368980014001451

UNESCO. **School Violence and Bullying: Global Status Report**. Paris: United Nations Educational, Scientific and Cultural Organization, 2017.

UNICEF. **A familiar face: violence in the lives of children and adolescents**. New York: United Nations Children's Fund, 2017.

USP. **Relatório mundial sobre a prevenção da violência 2014**. São Paulo: Organização Mundial de Saúde, 2015.

UN SPECIAL REPRESENTATIVE OF THE SECRETARY - GENERAL ON VIOLENCE AGAINST CHILDREN. **Bullying and Cyberbullying.** Disponível em: <https://violenceagainstchildren.un.org/content/bullying-and-cyberbullying-0> Acesso em: 30 nov. 2018.

WHO. **Report of the WHO global consultation on violence and health**, Geneva, december 1996. Unpublished report.

WHO (ED.). **World report on violence and health: summary**. Geneva: World Health Organization, 2002a.

WHO. **Guide to United Nations resources and activities for the prevention of interpersonal violence**. Geneva: World Health Organization, 2002b.

WHO. **Global Health Observatory data repository**. Geneva, World Health Organization, 2014. Disponível em: <http://apps.who.int/gho/data/node.main.codnumber?lang=em>. Acesso em: 27 nov. 2018.