

LARISSA FERRAZ REIS

COMPORTAMENTO SEXUAL DE RISCO E FATORES
ASSOCIADOS ENTRE ADOLESCENTES BRASILEIROS:
AVALIAÇÃO DE EFEITOS SECUNDÁRIOS DE UMA
INTERVENÇÃO

Tese apresentada à Universidade Federal de
São Paulo para obtenção do Título de Doutor
em Ciências.

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Orientadora: Prof^a. Dr^a. Zila van der Meer
Sanchez

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Sumário

DEDICATÓRIA.....	vii
AGRADECIMENTOS.....	viii
LISTA DE ABREVIATURAS E SIGLAS.....	xii
RESUMO.....	xiii
ABSTRACT.....	xiv
APRESENTAÇÃO.....	xv
1. INTRODUÇÃO.....	1
1.1 Comportamento sexual de risco na adolescência.....	1
1.2 Fatores de risco e proteção ao comportamento sexual de risco na adolescência.....	4
1.2.1 Uso de drogas: fator de risco para o comportamento sexual de risco na adolescência.....	5
1.2.2 Estilos parentais: fator de risco e proteção para o comportamento sexual de risco e uso de drogas na adolescência.....	7
1.3 Prevenção e promoção da saúde.....	8
1.3.1 A Escola como ambiente preventivo.....	10
1.3.2 Prevenção e promoção ao comportamento sexual de risco na adolescência.....	11
1.3.3 Programas escolares de prevenção ao comportamento sexual de risco.....	13
1.3.4 Programas escolares de prevenção com múltiplos desfechos.....	15
1.3.5 Programa escolar de prevenção ao uso de drogas Unplugged: a adaptação para o Brasil, #Tamojunto.....	16
1.4 Justificativa.....	18
2 OBJETIVOS.....	20
2.1 Objetivo Geral.....	20
2.2 Objetivos Específicos.....	20
3 METODOLOGIA.....	21
3.1 Desenho metodológico.....	21
3.2 Amostra.....	22
3.3 Coleta de dados do estudo.....	23
3.4 Instrumentos e medidas.....	24

3.5 Análise de dados.....	25
3.6 Ética.....	27
4 ARTIGO 1: Factors associated with early sexual initiation and unsafe sex in adolescents: Substance use and parenting style.....	29
5 ARTIGO 2: Effects of a school-based drug prevention program on sexual risk behavior among adolescents in Brazilian schools.....	48
6 ARTIGO 3: Risk factors for early sexual intercourse in adolescence: a systematic review of cohort studies.....	80
7 CONSIDERAÇÕES FINAIS.....	106
8 REFERÊNCIAS.....	113
ANEXOS.....	131
Anexo 1 – Descrição das 12 aulas do Programa <i>Unplugged</i> , com o título, atividades e metas	
Anexo 2 – Questionário de coleta de dados do programa #Tamojunto	
Anexo 3 – Artigo 1 versão publicada	
Anexo 4 – Artigo 2 carta de aceite	
Anexo 5 – Aprovação do Comitê de Ética em Pesquisa	

Lista de Abreviaturas e siglas

OMS	Organização Mundial de Saúde
UNIFESP	Universidade Federal de São Paulo
UNODC	United Nations Office on Drugs and Crime
WHO	World Health Organization
ECA	Estatuto da Criança e do Adolescente
UNICEF	Fundo das Nações Unidas para a Infância
YRBSS	Youth Risk Behavior Surveillance System
CDC	Centers for Disease Control and Prevention
IST	Infecção sexualmente transmissíveis
EU-Dap	European Drug Addiction Prevention Trial
IBGE	Instituto Brasileiro de Geografia e Estatística
PeNSE	Pesquisa Nacional de Saúde do Escolar
UBS	Unidade Básica de Saúde
GBD	Global Burden of Disease
UBS	Unidades Básicas de Saúde
Natsal	National Survey of Sexual Attitudes and Lifestyles
SBP	Sociedade Brasileira de Pediatria
ERICA	Estudo de Riscos Cardiovasculares em Adolescentes
SPE	Saúde e Prevenção nas Escolas
US	United States
UFSC	Universidade Federal de Santa Catarina
FIML	Full Information Maximum Likelihood
NOS	Newcastle-Ottawa Quality Assessment Scale
GSBHS	Global School-Based Health Survey

Resumo

Introdução: Comportamentos sexuais de risco entre adolescentes são considerados um problema de saúde pública mundial, pois desencadeiam uma série de problemas relacionados à saúde e à esfera social. Considerando que os comportamentos de risco tendem a ocorrer juntos, os comportamentos sexuais de risco estão intimamente relacionados ao uso de álcool, tabaco e outras drogas ilícitas, bem como aos estilos parentais. Devido à necessidade de proteger os adolescentes das consequências negativas da iniciação sexual precoce e do sexo desprotegido, esta tese teve como objetivo investigar os fatores de risco para comportamentos sexuais de risco, bem como verificar o efeito de um programa de prevenção do uso de drogas sobre tais comportamentos. **Metodologia:** Foram utilizados os dados de um ensaio controlado randomizado por cluster, realizado nos anos de 2014/2015, com 6.391 estudantes, com idades entre 11 e 15 anos, de 72 escolas públicas, em 6 cidades brasileiras, para avaliar os efeitos do programa escolar governamental de prevenção ao uso de drogas #Tamojunto (*Unplugged*). As turmas do grupo intervenção receberam as 12 aulas do #Tamojunto, aplicadas por professores da própria escola, sob supervisão da equipe do Ministério da Saúde. O grupo controle não recebeu nenhum programa de prevenção do uso de álcool e outras drogas neste período. Os dados foram coletados através de questionário anônimo de autopreenchimento, em 3 momentos: antes da intervenção, 9 meses e 21 meses depois. A análise dos dados foi realizada por meio de modelos de regressão logística ponderada. Também foram realizadas análises considerando a estrutura multinível dos dados. *Intention-to-treat* foi usada para avaliar as mudanças na prevalência de comportamentos sexuais de risco ao longo do tempo e entre os grupos. Ademais, uma revisão sistemática foi realizada para identificar os fatores de risco para a iniciação sexual precoce. Foram acessadas três bases de dados eletrônicas, PubMed, Embase e LILACS, buscando estudos de coorte publicados de 1999 a dezembro de 2020. **Resultados:** Os resultados sugerem que aqueles que fumavam tabaco e bebiam em excesso aumentaram significativamente a probabilidade de praticar sexo sem proteção. Estilos parentais permissivos e negligentes foram associados a maiores chances de atividade sexual. Adolescentes que fizeram uso de substâncias e relataram estilos parentais empobrecidos tiveram oito vezes mais probabilidade de fazer sexo sem proteção em comparação com adolescentes que não relataram uso de substâncias e que eram de famílias com estilos parentais autoritativos. O recebimento de #Tamojunto foi associado a um maior risco para sexo na vida aos 21 meses de acompanhamento. Entre meninas, aos 9 meses de acompanhamento, o programa foi associado a uma maior probabilidade de ter praticado sexo no último mês. Aos 21 meses de acompanhamento, meninas que receberam o programa foram mais propensas a relatar relações sexuais sem preservativo no último mês. Fatores de risco com associações mais fortes para iniciação sexual precoce foram: uso de substâncias por adolescentes e pais, problemas de conduta, vínculo familiar e acadêmico, não morar com os pais biológicos e baixa escolaridade materna. **Conclusões:** O #Tamojunto pode ser ineficaz e possivelmente prejudicial para a prevenção de comportamentos sexuais de risco, especialmente entre meninas. As intervenções preventivas no campo do comportamento sexual devem vincular os pais a programas de habilidades parentais. Finalmente, os programas de prevenção devem olhar com cuidado para a vinculação dos adolescentes com a escola e tentar aumentá-lo.

Palavras-chave: prevenção primária, adolescente, comportamento sexual de risco, consumo de drogas, estudo controlado randomizado, revisão sistemática.

Abstract

Introduction: Sexual risk behaviors among adolescents are considered a worldwide public health problem, as it triggers series of problems related to health and social sphere. Considering that risk behaviors tend to occur together, sexual risk behaviors are closely related to the use of alcohol, tobacco and other illicit drugs as well as parenting styles. In order to protect adolescents from negative consequences of early sexual intercourse and unprotected sex, this thesis aimed to investigate risk factors for sexual risk behaviors, as well as verified the effect of a drug use prevention program on these risky behaviors. **Methodology:** Data from a cluster randomized controlled trial of 6,391 students, aged 11 to 15 years, from 72 public schools in 6 Brazilian cities were used to assess the effects of the government's drug prevention program #Tamojunto (Unplugged). Those in the intervention group received the 12 #Tamojunto lessons applied by trained teachers, under the supervision of the Brazilian Ministry of Health. The control group did not receive any drug prevention program during this period. Data were collected through an anonymous selfadministered questionnaire, in 3 moments of time: before the intervention, 9 months and 21 months later. Data analyzes were performed using weighted logistic regression models. Additionally, analyses were performed considering the multilevel structure of the data. Intention-to-treat was used to evaluate changes in the prevalence of sexual risk behaviors over time and between groups. Furthermore, a systematic review was conducted to identified risk factors for early sexual intercourse. Three electronic databases were accessed, PubMed, Embase and LILACS, searching cohort studies released from 1999 through December 2020. **Results:** The results showed that Those who engaged in smoking tobacco and binge drinking had significantly increased likelihood of unsafe sex. Permissive and negligent parenting styles were associated with higher odds of adolescent sexual activity. Moreover, adolescents who engaged in substance use and who reported poor parenting styles were eight times more likely to have unsafe sex compared to adolescents who did not reported substance use and who were from families with authoritative parenting styles. Among all participants, receipt of #Tamojunto was associated with higher risk of lifetime sex at 21 months follow-up. Among girls, at 9 months follow-up, the program was associated with higher likelihood of having engaged in sex in the last month. At 21 months follow-up, girls receiving the program were more likely to report engaging in condomless sex in the last month. Risk factors with stronger associations for ESI were: adolescents' and parents' substance use, conduct problems, family and academic attachment, not living with both biological parents, and low maternal education. **Conclusions:** #Tamojunto may be ineffective and possibly harmful for preventing sexual risk behaviors, especially among girls. Prevention interventions in the field of sex behavior should link parents to parenting skills programs. Finally, prevention programs should look more carefully for adolescent's school attachment and try to raise it.

Keywords: primary prevention, adolescent, sexual risk behavior, drug use, randomized controlled trial, systematic review.

APRESENTAÇÃO

A presente tese, intitulada “Comportamento sexual de risco entre adolescentes brasileiros: Avaliação dos efeitos secundários de uma intervenção e fatores associados”, apresenta os resultados de um dos subprojetos da pesquisa “Avaliação de resultados do Programa Escolar de Prevenção ao Uso de Drogas #Tamojunto (*Unplugged*): um ensaio controlado randomizado em 6 cidades brasileiras”, coordenada pela Profa. Dra. Zila van der Meer Sanchez e financiada pelo Ministério da Saúde (TED 89-2014) e pela Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), através de duas bolsas de doutorado (regular e sanduíche no exterior). A referida pesquisa foi desenvolvida com a finalidade de analisar os resultados do programa de prevenção ao uso de drogas #Tamojunto para adolescentes do ensino fundamental II de escolas públicas, em 6 cidades do Brasil.

O projeto de pesquisa surgiu em um cenário de construção de políticas públicas voltadas para o enfrentamento das consequências deletérias oriundas do uso do crack e de outras drogas no Brasil. A esta iniciativa do governo, deu-se o nome “*Plano Crack é Possível Vencer*”, instituído em 2010 pelo Decreto 7.179 (Brasil, 2010) e alterado em 2011 pelo Decreto 7.637 (Brasil, 2011). Nesse sentido, com o objetivo de aprimorar as ações de prevenção ao uso de álcool e outras drogas, a Coordenação Nacional de Saúde Mental, Álcool e outras Drogas do Ministério da Saúde estabeleceu uma parceria com o Escritório das Nações Unidas sobre Drogas e Crime (UNODC). A partir desse momento, decidiu-se investir em programas de prevenção cuja efetividade fosse pautada em evidências científicas, e três programas foram escolhidos para compor o Plano. É nesse esteio que o Programa europeu *Unplugged* foi indicado para adaptação transcultural e aplicação no Brasil.

O estudo multicêntrico para aplicação do programa de prevenção ao uso de drogas #Tamojunto (*Unplugged*) teve como sujeitos de pesquisa adolescentes de sétimo e oitavo ano do ensino fundamental II de escolas públicas. O estudo foi desenvolvido nas cidades de São Paulo-SP, São Bernardo do Campo-SP, Distrito Federal-DF, Florianópolis-SC, Tubarão-SC e Fortaleza-CE, entre os anos de 2014 e 2015.

A literatura científica aponta que comportamentos de risco tendem a ocorrer juntos. Inclusive, há evidências de que a implementação de programas escolares de prevenção ao uso de drogas pode contribuir também para a redução de comportamentos sexuais de risco na adolescência. Por esta razão, à época, o Ministério da Saúde achou adequado investigar se o programa de prevenção ao uso de drogas também teria efeito no comportamento sexual de risco dos adolescentes, solicitando a inclusão de variáveis deste âmbito como desfechos secundários a serem analisados. Este foi o empuxo que deu origem à presente tese.

Os comportamentos sexuais de risco por adolescentes, tais como iniciação sexual precoce, sexo sem preservativo e múltiplos parceiros sexuais, engendram sérias consequências, tanto para esses jovens quanto para a sociedade. Desse modo, identificar os fatores associados a essas práticas é fundamental para o avanço da ciência da prevenção. Igualmente importante é avaliar o impacto que o programa de prevenção #Tamojunto teve sobre os comportamentos sexuais de risco para dar suporte às próximas ações de prevenção.

A presente tese foi estruturada conforme as orientações do Programa de Pós-Graduação em Saúde Coletiva vinculado ao Departamento de Medicina Preventiva da Universidade Federal de São Paulo, para tese em “formato alternativo”, ou seja, apresentando os artigos oriundos do projeto de tese do doutorando. Para tanto, dividiu-se a tese em três partes. A primeira parte é composta pela introdução, pelos objetivos e pela metodologia da pesquisa; a segunda parte compreende os três artigos científicos e explora os resultados da pesquisa; a terceira parte é constituída pelas considerações finais e conclusões da tese.

A Introdução descreve o fenômeno do comportamento sexual de risco entre adolescentes, considerando tanto o contexto brasileiro como o internacional; aborda o consumo de álcool e outras drogas por esses jovens; discorre sobre a escola como ambiente preventivo e versa sobre programas escolares de prevenção comportamento sexual de risco e, por fim; situa o Programa #Tamojunto no cenário das ações preventivas brasileira. Posteriormente, tem-se os objetivos do estudo, seguido pela metodologia, a qual delinea a estratégia geral do trabalho, esclarece os pormenores dos procedimentos e forma como os resultados foram analisados.

O primeiro artigo, intitulado “*Factors associated with early sexual initiation and unsafe sex in adolescents: Substance use and parenting style*” foi publicado em 2020

na revista *Journal of Adolescence*, indexada na PUBMED. Teve como objetivo examinar a iniciação sexual precoce e o sexo desprotegido entre adolescentes, em relação ao uso de substâncias e estilos parentais, considerando as interações entre dois possíveis fatores de risco.

O segundo artigo, “*Effects of a school-based drug prevention program on sexual risk behavior among adolescents in Brazilian schools*”, foi aceito para publicação em 2021 na revista *Archives of Sexual Behavior*, indexada na PUBMED. Desta vez, o objetivo foi avaliar os efeitos do programa #Tamojunto no comportamento sexual de risco dos adolescentes.

O terceiro artigo, “*Risk factors for early sexual intercourse in adolescence: a systematic review of cohort studies*”, está em fase final de escrita para submissão após a defesa da presente tese. Tem como objetivo investigar de forma sistemática os fatores de risco associados à iniciação sexual precoce entre adolescentes, considerando os estudos de coorte. Vale ressaltar que, parte deste doutorado foi realizada no exterior, na universidade *Johns Hopkins Bloomberg School of Public Health*, nos Estados Unidos, e os três artigos tiveram a participação da professora que me orientou ao longo deste estágio, a Dra. Pamela Surkan, filiada ao *Department of International Health*.

Finalmente, as considerações finais indicam os fatores de risco que tangenciam os comportamentos sexuais de risco entre os adolescentes, bem como sinaliza o efeito do programa #Tamojunto para esse desfecho. O resultado desta pesquisa anuncia desafios, mas também oferta um espaço para promover discussões acerca dos comportamentos de risco entre os adolescentes e estimula a pensar estratégias de prevenção que articulem os conhecimentos da saúde e educação.

1. INTRODUÇÃO

1.1 Comportamento sexual de risco na adolescência

A adolescência, período de transição entre a infância e a idade adulta, é marcada por impulsos no desenvolvimento físico, emocional, social e sexual (Liang et al., 2019). Diante de tantas mudanças, os adolescentes são considerados um grupo vulnerável (Larsen & Luna, 2018). De acordo com a Organização Mundial de Saúde (OMS) os limites cronológicos desta fase do desenvolvimento correspondem às idades de 10 e 19 anos (WHO - World Health Organization, 2008). No Brasil, esta etapa é definida pelo Estatuto da Criança e do Adolescente (ECA) como a faixa etária de 12 a 18 anos (Brasil, 2019).

Os comportamentos sexuais de risco na adolescência podem desencadear diversas consequências que se estendem ao longo da vida (Epstein et al., 2018). A iniciação sexual precoce tem sido associada a muitos desfechos negativos para a saúde (Boisvert et al., 2017). Além disso, adolescentes com menos de 16 anos de idade, particularmente, constituem um grupo de alto risco haja vista que são menos propensos a usar ou ter acesso a preservativos ou contraceptivos (Mathews et al., 2009; UNAIDS, 2012). O início precoce da atividade sexual, o uso inconstante do preservativo, relacionar-se com múltiplos parceiros e estar sob a influência de álcool ou outras drogas (Huibregtse et al., 2011) elevam o risco de infecções sexualmente transmissíveis (ISTs) – dentre as quais se encontra o HIV/Aids (WHO, 2016) – além de gravidez não planejada (Coll et al., 2019; Ramiro et al., 2015) e abortos, que contribuem para a mortalidade das adolescentes em todo o mundo (Hoggart & Phillips, 2011; Sedgh et al., 2015).

Nos Estados Unidos, o *Youth Risk Behavior Surveillance System* (YRBSS), pesquisa com amostragem nacional que consiste em todas as escolas regulares públicas e privadas com alunos dos anos 9-12 nos 50 estados e no Distrito de Columbia traz, bienalmente, informações sobre os comportamentos de risco dos adolescentes. Em 2019, o YRBSS mostrou que entre os estudantes sexualmente ativos do 9º ano, 19,2% já tinham tido relação sexual, 2,7% tiveram quatro ou mais parceiros sexuais ao longo da vida e 61,3% relataram o uso do preservativo durante a última relação sexual (CDC - Centers for Disease Control and Prevention, 2020).

Nesse sentido, é fundamental perseverar na conscientização dos adolescentes sobre a importância do uso do preservativo a fim de preservar a sua saúde e a do (a) parceiro (a).

No Brasil, de acordo com o Ministério da Saúde, entre 2006 e 2015 houve um aumento de casos de HIV/Aids entre jovens de 15 a 19 anos de idade para ambos os sexos. Entre os homens, a taxa mais que triplicou (de 2,2 para 6,9 casos/100 mil hab.), enquanto que para as mulheres houve 12,9% de aumento de casos para este período. A principal via para a infecção em indivíduos com 13 anos ou mais de idade foi a sexual, sendo de 92,9% para o sexo masculino e de 82,2% para o feminino. É importante salientar ainda que, para os sujeitos menores de 13 anos de idade, prevalece a transmissão vertical, ou seja, aquela que ocorreu durante a gestação ou parto, com 93,0% dos casos (Brasil, 2017).

Como fora mencionado anteriormente, o uso inconstante do preservativo pode implicar em gravidez indesejada que, por vezes, culmina no aborto (Connolly et al., 2014). Nessa perspectiva e, considerando o bem-estar mais global de crianças e adolescentes, em 2007, o Fundo das Nações Unidas para a Infância (UNICEF) realizou uma avaliação na qual foi constatado que aproximadamente 40% dos adolescentes até os 15 anos de idade do Reino Unido já haviam tido relações sexuais. Posteriormente, em 2013, a questão da gravidez na adolescência ainda mostrou-se preocupante, uma vez que dentre os 29 países avaliados, o Reino Unido permaneceu na 27ª posição, apresentando a terceira maior taxa de fertilidade para esses jovens (UNICEF, 2013).

O campo da prevenção ao comportamento sexual de risco é permeado por desafios. Seja por diferenças culturais, que muitas vezes denunciam as iniquidades sociais (Speizer & Pearson, 2011); por diferenças de gênero, que remetem a um passado que ainda insiste em se presentificar (Wood & Rogow, 2015); seja pelas interações sexuais através das plataformas digitais, que até pouco anos atrás eram pouco prováveis de acontecer (Murta et al., 2020; Rice et al., 2014).

Segundo a OMS, metade de todos os nascimentos oriundos da gravidez na adolescência ocorre em apenas sete países: Bangladesh, Brasil, República Democrática do Congo, Etiópia, Índia, Nigéria e Estados Unidos. Destes, três países apresentam um número expressivo de meninas que se casam antes dos 18 anos de idade: Bangladesh, Etiópia e Índia (WHO, 2011). Nesse contexto, o Brasil faz parte do

grupo de países em que pelo menos 20% das adolescentes se casam precocemente (WHO, 2006), ocupando o primeiro lugar no ranking de países da América Latina (Costa & Freitas, 2019). Segundo o Sistema de Informação sobre Nascidos Vivos (SINASC), em 2019, houve no Brasil 2.849.146 nascimentos, dos quais 399.922 (14,4%) eram de adolescentes de 15 a 19 anos e 19.330 (0,7%) eram de meninas de 10 a 14 anos (Brasil, 2021). Nessa fase do desenvolvimento, a gravidez está associada a alguns fatores, a saber: iniciação precoce da atividade sexual e da menarca, baixo nível socioeconômico, não uso ou uso incorreto dos métodos contraceptivos, violência sexual, baixa autoestima, uso de álcool e outras drogas, dentre outros (Connolly et al., 2014; Ganchimeg et al., 2014; Papri et al., 2016; Raj et al., 2010).

O Brasil se destaca ainda em relação à iniciação sexual precoce: segundo a Pesquisa Nacional de Saúde do Escolar-PENSE 2015 (IBGE - Instituto Brasileiro de Geografia e Estatística, 2016), entre os escolares de 13 a 15 anos de idade, a taxa da iniciação sexual foi de 34,5% (95IC 31.6-37.4) para os meninos e 19,3% (95%IC 17.3-21.2) para as meninas. Para o contexto brasileiro, a prova de masculinidade, expressa pelo ato sexual, marca uma diferença de gênero significativa. As meninas são mais propensas a iniciar a atividade sexual mais tarde e em relações mais estáveis (Oliveira-Campos et al., 2014). É importante sublinhar que a literatura tende a considerar o termo “precoce” à iniciação sexual com base na idade cronológica do sujeito (Boisvert et al., 2017; Espada et al., 2015; Peltzer & Ramlagan, 2010; Price & Hyde, 2011). Entretanto, o estudo *National Survey of Sexual Attitudes and Lifestyles* (Natsal-3) adverte que esta pode ser uma medida reducionista do comportamento e utiliza o termo “competência sexual” para operacionalizar suas análises sobre a iniciação sexual. Esse constructo considera os seguintes elementos: proteção contraceptiva, autopercepção de consensualidade (disposição igual de ambos os parceiros), autopercepção de autonomia (não devido a influências externas, como álcool ou pressão de grupo) e autopercepção de tempo aceitável (sensação de que a atividade sexual ocorreu no “momento certo”) (Palmer et al., 2017).

1.2 Fatores de risco e proteção ao comportamento sexual de risco na adolescência

Caracterizada como um campo interdisciplinar, a ciência da prevenção avança na medida em que recebe contribuições de diversas áreas do conhecimento (Iglesias, 2002). A epidemiologia, especificamente, tem como uma de suas funções dar suporte na identificação de população-alvo, períodos vulneráveis do ciclo de vida, distribuição da doença, fatores etiológicos de risco e proteção (Cordova et al., 2014). A etiologia é uma linha de pesquisa da epidemiologia responsável por estudar as causas e/ou origens das doenças ou transtornos, ou seja, investiga os fatores que favorecem a ocorrência de determinado agravo à saúde (Scheier, 2010). Nesse sentido, compreender os fatores associados a um determinado comportamento de risco é primordial para que se possa desenvolver intervenções preventivas eficazes (Robertson, 2015).

O envolvimento em comportamentos considerados "de risco", como iniciar precocemente a atividade sexual, participar de sexo desprotegido e se envolver com múltiplos parceiros sexuais é relativamente comum no início da adolescência (Brooks et al., 2012). Levando em consideração a relação dialética existente entre os âmbitos individual, social e ambiental, há uma concordância que a causa para os comportamentos sexuais de risco na adolescência é multifatorial (Govender et al., 2019; Mmari & Sabherwal, 2013).

Este cenário permite vislumbrar duas possibilidades para direcionar os programas de prevenção: a primeira refere-se a ações que visem a redução dos fatores de risco, ao passo que a segunda foca em aumentar os fatores de proteção (Catalano et al., 2002; Sanchez et al., 2017; Shek & Yu, 2011a). Os fatores podem ser caracterizados como fatores de risco se aumentarem a probabilidade de comportamentos negativos que podem levar à gravidez ou IST. De forma análoga, os fatores podem ser identificados como protetores se desencorajarem comportamentos negativos ou encorajarem comportamentos positivos que possam vir a prevenir desfechos como a gravidez ou IST, como o adiamento da iniciação sexual e o uso de preservativos (Mmari & Sabherwal, 2013). Para ilustrar, um estudo multinacional com adolescentes europeus evidenciou que entre aqueles que se envolveram em brigas, a chance de iniciação sexual foi maior (OR = 2.20, 95%IC 1.59-3.04), para o grupo

que a associou a outros fatores de risco (inconstância no uso do preservativo, múltiplos parceiros), quando comparada ao grupo que não apresentou estes fatores (OR =1.49, 95%IC 1.09-2.02) (Gambadauro et al., 2018). Vale ressaltar que, embora um fator de risco sugira uma maior vulnerabilidade do sujeito para um determinado agravo à saúde, não determina-o (Faggiano et al., 2008).

Dentre os preditores para comportamento sexual de risco identificados na literatura científica, alguns exemplos de fatores de risco são: uso de drogas, violência no namoro, baixo rendimento escolar, coerção sexual, estar empregado e status socioeconômico mais baixo (Connell et al., 2009; Sieving et al., 2002; Vagi et al., 2015; Vasilenko et al., 2016). Entre os fatores protetivos estão uso de preservativo, boa comunicação sobre sexo com os pais, boa conexão com o professor e apoio entre membros da comunidade (Brooks et al., 2012; Govender et al., 2019). Não obstante, há de se recordar que fatores como autoestima e “sexting” – ato de enviar e receber mensagens de conteúdo sexual através do celular – ainda estão inconclusivos ou foram pouco investigados (Meier, 2007; Price & Hyde, 2009; Ybarra & Mitchell, 2014).

1.2.1 Uso de drogas: fator de risco para o comportamento sexual de risco na adolescência

O estudo *Global Burden of Disease* (GBD) sugere que os prejuízos decorrentes do uso de drogas aumentam consideravelmente entre adolescentes e adultos jovens (GBD 2019 Collaborators, 2020). A preocupação se intensifica porque populações mais vulneráveis e populações de países com baixa e média renda têm taxas mais altas em relação as mortes e hospitalizações provenientes do uso de álcool (Grittner et al., 2012). A classificação por DALYS (*Disability Adjusted Life Years*), que mensura o tempo perdido em função de incapacitação e morte precoce, aponta o uso de álcool e outras drogas como um dos principais fatores de risco acidentais em adolescentes (10-24 anos) e reitera as consequências perniciosas do uso dessas substâncias (Gore et al., 2011).

Alguns comportamentos de risco associados ao uso de álcool e outras drogas são, por exemplo, violência (Duke et al., 2011), evasão escolar (Weybright et al., 2017), acidentes de trânsito (Coomber et al., 2017) e comportamento sexual de risco (US - Department of Health and Human Services, 2007). Além disso, o consumo das

substâncias psicoativas prejudica o desenvolvimento do cérebro de adolescentes (OMS, 2011) e aumenta os riscos de desencadear problemas de saúde a longo prazo, como doenças crônicas (WHO, 2018), dependência química na idade adulta, mais danos à saúde mental e social (Marshall, 2014).

O YRBSS verificou que entre os estudantes do 9º ano 21,0% consumiram bebida alcoólica ou usaram drogas antes da última relação sexual (CDC, 2020). O uso do álcool também foi investigado como um mediador para os comportamentos sexuais de risco entre as adolescentes. Com amostra constituída por 499 participantes do estudo “Pittsburgh Girls Study”, as meninas foram entrevistadas anualmente, entre os 11 e 16 anos de idade. O uso de álcool apareceu como mediador entre a menarca precoce e atitudes sexuais de risco a posteriori (Hipwell et al., 2012). Desta forma, o uso dessa substância expõe as garotas a esses comportamentos de risco em função dos efeitos adversos do álcool sobre a tomada de decisão, a consciência das normas sociais ou percepções do comportamento adequado. Além disso, numa investigação que comparou dois estudos de coorte foi sinalizado que a associação entre o uso de drogas ilícitas e o comportamento sexual de risco tanto no início quanto no final da adolescência foi mais forte entre as meninas do que os meninos (Jackson et al., 2015).

De acordo com os dados da PENSE, o sexo sem preservativo na última relação foi relatado por 11,2% (IC95% 10,5 – 12,0) dos adolescentes que usaram álcool, 21,3% (IC95% 19,9 – 22,7) dos que fumam e 19% (IC95% 17,8 – 20,1) dos que experimentaram outras drogas (Oliveira-Campos et al., 2014). Essa estreita relação entre uso de drogas e sexo desprotegido pode ser uma estratégia utilizada pelos adolescentes como facilitador para o ato sexual (Sanchez et al., 2013). Contudo, é importante considerar também o risco de violência ou o remorso posterior, como aponta Connel et al. (2009). Nessa perspectiva, um desafio para prevenir comportamentos sexuais de risco entre os adolescentes ainda hoje, mesmo no contexto brasileiro, reside no fato de que o uso de álcool e outras drogas despertam grande satisfação no sujeito (Bellis et al., 2008).

Uma característica de transição de desenvolvimento da adolescência é o exercício da autonomia. No entanto, os pais ainda desempenham um papel fundamental nas experiências dos adolescentes e podem influenciar o uso álcool e outras drogas (Patrick & Schulenberg, 2013). Fatores como uso frequente e excessivo de álcool, níveis mais baixos de supervisão dos pais, exposição a um membro próximo

da família que bebe e fica intoxicado, fácil acesso ao álcool e expectativas positivas em relação à substância estão relacionados ao consumo de álcool por adolescentes (Bremner et al., 2011).

1.2.2 Estilos parentais: fator de risco e proteção para o comportamento sexual de risco e uso de drogas na adolescência

Ao pensar sobre os comportamentos sexuais de risco na adolescência, é preciso olhar para esses jovens e tentar compreender a dinâmica dos seus relacionamentos: com os familiares em casa; os educadores na escola e; os pares na vida. A família tem uma influência significativa na construção da identidade dos jovens (Pratta & Santos, 2007), tendo alguns estudos revelado que o monitoramento parental está associado ao atraso da iniciação sexual e a práticas sexuais protegidas (Epstein et al., 2014).

A relação existente entre pais e filhos ganhou especial atenção do mundo acadêmico quando Baumrind (1966) desenvolveu um modelo no qual classificou os estilos de parentalidade, considerando aspectos comportamentais e afetivos envolvidos no processo de criação. Para esta tipologia, foram cunhados três estilos parentais: autoritário, autoritativo e permissivo. Os pais autoritários seguem um estilo educacional guiado pelo cumprimento rígido das regras, restrição do diálogo e ênfase na coerção como forma de reiterar seu poder. Os pais autoritativos dão grande importância à relação com os filhos e marcam o controle parental através do diálogo, explicando à criança o raciocínio que orienta suas ações. Sobressaem atitudes compreensivas, apoio emocional e bidirecionalidade na comunicação. Nos pais permissivos há uma falta de controle parental sobre os comportamentos dos filhos. Desse modo, não os influenciam de maneira ativa e responsável, se esquivando da utilização do poder e da conduta punitiva.

Ulteriormente, o estilo parental negligente foi acrescentado ao modelo de Baumrind pelos estudiosos Maccoby e Martin (1983). Arelado a isso, incluíram um esquema quádruplo de classificação dos estilos parentais, fundamentado na combinação de dois níveis: exigência (*demandingness*) e responsividade (*responsiveness*). Neste novo enquadre, tem-se as seguintes formulações: Pais autoritários, que apresentam elevada exigência e baixa responsividade. Demandam obediência às regras e ofertam

espaços pouco calorosos, com pouca comunicação e castigo físico rotineiro. Pais permissivos, com baixa exigência e alta responsividade. Apresentam poucas regras, se esquivam da punição e são altamente tolerantes com as atitudes dos filhos, afastando de condutas de controle. Pais autoritativo, que se configuram pela alta exigência e alta responsividade, nota-se uma reciprocidade. Nesta relação, filhos respondem às exigências dos pais e estes, na medida do possível, aceitam a responsabilidade de responderem às questões e exigências dos filhos. Por fim, pais negligentes apresentam baixa exigência e baixa responsividade. Não se disponibilizam para as responsabilidades e tarefas da parentalidade.

Na literatura encontra-se que meninas com mães autoritativas (alto suporte e alto controle) foram menos propensas a terem feito sexo e com menos probabilidades de alguma vez estarem grávidas (Pittman & Chase-Lansdale, 2001). Isso se justifica em função dos pais que têm conhecimento e controle sobre as atividades sociais de seus filhos restringir as oportunidades desses adolescentes se envolverem em situações de risco, o que pode retardar a iniciação sexual e aumentar o uso de preservativos (Crosby et al., 2006). Além disso, existem estilos parentais relacionados com taxas mais elevadas do consumo de drogas, como o negligente (baixo suporte e baixo controle) (Chassin et al., 2005).

1.3 Prevenção e promoção da saúde

O paradigma da prevenção como estratégia para intervenção aos comportamentos de risco foi se modificando ao longo do tempo. Na década de 50, o primeiro modelo conceitual postulou a prevenção com base em três níveis: primária, secundária e terciária. No contexto do comportamento sexual de risco, a prevenção primária é destinada aos sujeitos que ainda não se engajaram na atividade sexual e tem o objetivo de adiar este início. A prevenção secundária, por sua vez, é voltada para os sujeitos que já iniciaram a atividade sexual e tem como objetivo evitar que a prática sexual ocorra sem proteção. Por fim, a prevenção terciária é destinada aos sujeitos que já tiveram a atividade sexual desprotegida e apresentam algum agravo à saúde, por exemplo ISTs, e objetiva reduzir os danos associados à prática sexual sem preservativo (Leavell & Clark, 1958). Esta classificação, orientada pela sequência de

prevenir, curar e reabilitar, sugere uma tipologia baseada na lógica de evitar a ocorrência de doenças (Iglesias, 2002).

Posteriormente, o *Institute of Medicine* propôs outra classificação tipológica, baseada na população que se pretende alcançar e nos grupos de riscos. Também se organiza em três níveis: universal, seletiva e indicada (Sloboda et al., 2004; Stone et al., 2012). A prevenção universal é dirigida à população em geral, sem qualquer estratificação por fatores de risco, e por isso tem uma melhor relação custo-benefício. Como exemplo tem-se os programas de prevenção escolares, cujas intervenções se destinam a todos os alunos de uma escola ou sala de aula, sem a preocupação de selecionar apenas alunos em situação de maior risco para o comportamento sexual de risco. A prevenção seletiva é voltada para subgrupos da população que tem mais risco de se envolver em comportamento sexual de risco. Um exemplo pode ser um programa ser realizado numa região em que as pessoas tem um status socioeconômico mais baixo, o que sugere um ambiente mais permissivo para iniciação sexual precoce e uso de drogas. Finalmente, a prevenção indicada abrange intervenções voltadas para pessoas em que já é possível identificar comportamentos de risco relacionados, direta ou indiretamente, ao comportamento sexual de risco, como é o caso de adolescentes grávidas. Nesse caso, a proposta é reduzir a chance para o sexo desprotegido, mas também os riscos aos quais as adolescentes estão expostas, com especial atenção a sua inserção social, objetivando a melhora da qualidade de vida dessas jovens (Kellam et al., 2014).

Em meados da década de 80, em resposta às mobilizações por uma nova saúde pública, ocorreu a Primeira Conferência Internacional sobre Promoção de Saúde, realizada em Ottawa, Canadá. Nesta conferência, as discussões versaram sobre os cuidados primários em saúde e as ações intersetoriais necessárias para o setor. O evento é um marco para o campo da saúde pública pois registra a Carta de Ottawa, documento no qual se defende a promoção da saúde como um aspecto essencial para a melhoria da qualidade de vida das populações. O conceito de promoção da saúde diz respeito à qualificação da comunidade para que possa atuar na direção de uma melhor qualidade de vida e saúde (OMS Organização Mundial de Saúde, 1986). Essa concepção anuncia dois posicionamentos importantes: a horizontalidade das relações, na medida em que estimula as ações intersetoriais; e a

autonomia do sujeito, uma vez que desperta o indivíduo para reconhecer suas necessidades e suas aspirações (Czeresnia & Freitas, 2009).

Para a promoção da qualidade de vida dos adolescentes é preciso que os múltiplos setores se articulem. São necessárias iniciativas de prevenção para a gravidez e ISTs e, atrelado a isso, propostas com o intuito de reduzir o uso do álcool logo no início da adolescência. Vale lembrar que, os jovens estão inseridos numa determinada cultura e, nessa relação dialética, é pouco provável que intervenções isoladas, distante das suas reais necessidades e aspirações, permitam que se identifiquem com a propostas. Dessa forma, o trabalho em rede é crucial (Costa & Bigras, 2007).

1.3.1 A Escola como ambiente preventivo

A escola tem um grande poder de influência no desenvolvimento do sujeito, sendo então um ambiente privilegiado para a divulgação e aquisição de conteúdos, além dos programas de prevenção aos comportamentos de risco (WHO, 2016). Os pais, inclusive, concordam que este é o ambiente ideal para apreensão de conteúdos que abordem os comportamentos de risco, entretanto, entendem que essas temáticas devem ser transmitidas para os alunos do ensino médio (Borawski et al., 2015). Neste ponto, cabe salientar a necessidade de disponibilizar as informações também para os discentes mais novos, haja vista que as intervenções preventivas devem alcançar seu público-alvo antes que os eventos ocorram (CDC, 2012). Nessa perspectiva, a escola pode ser considerada um ambiente privilegiado para os programas de prevenção voltados para os adolescentes, fundamentalmente, por duas razões: possibilidade de acesso a esses jovens e o ato de educar como seu escopo de trabalho (Masia-Warner et al., 2006).

Especificamente em relação as condutas sexuais de risco, um dos grandes entraves da ação preventiva em diversos países, mesmo no Brasil, refere-se ao fato de que as políticas públicas não consideram a cultura sexual das populações e sub-populações em questão (Camargo & Botelho, 2007). Essa postura gera uma inquietude, haja vista que a adoção de medidas preventivas entre os adolescentes não depende apenas do acesso à informação. Um exemplo é o uso de preservativo, qual envolve crenças, valores e afetos (Morales et al., 2018). Desta forma, é

necessário problematizar as políticas que engessam as práticas ao deixar de contemplar os múltiplos fatores – psicossocial e histórico-cultural – que podem influenciar nos comportamentos dos adolescentes.

1.3.2 Prevenção e promoção ao comportamento sexual de risco na adolescência

A sexualidade é um componente normativo e fisiológico do desenvolvimento da adolescência. Entretanto, no que tange os comportamentos sexuais de risco, adolescentes incautos podem sofrer tanto com prejuízos à saúde quanto à inserção social (Gambadauro et al., 2018). Não por acaso, as Nações Unidas incluíram o acesso universal aos serviços de saúde sexual e reprodutiva como um dos Objetivos de Desenvolvimento Sustentável para a agenda 2030. Essa iniciativa inclui planejamento familiar, informação e educação, e integração da saúde reprodutiva a estratégias e programas nacionais (UNO - United Nations, 2018). Para atingir esse objetivo, são importantes as estratégias de prevenção que reduzem ou retardam a iniciação sexual precoce e o sexo desprotegido.

Ao se debater sobre a prevenção aos comportamentos sexuais de risco na adolescência, duas abordagens emergem à discussão: a primeira recomenda exclusivamente a abstinência sexual como forma de adiar o início da vida sexual (programas abstinence-only), ao passo que a segunda propõe a abstinência sexual em associação à educação e ao uso de contraceptivos, como preservativos e métodos hormonais (programas abstinence-plus) (Chin et al., 2012). Por conseguinte, a *Society for Adolescent Health and Medicine* (SAHM), uma sociedade científica preocupada com a saúde sexual e reprodutiva do adolescente, após um acumulado de resultados com base em evidência científica, estabeleceu alguns pressupostos com o intuito de orientar as práticas de prevenção aos comportamentos sexuais de risco por esses jovens (Santelli et al., 2017). São eles:

- 1) Os jovens têm direito a informações precisas e completas para proteger suas vidas e sua saúde;
- 2) A abstinência pode ser uma escolha saudável, mas os adolescentes devem decidir por si próprios quando estão prontos para iniciar o sexo.

A escolha de abstinência ou atividade sexual de um adolescente nunca deve ser coagida;

- 3) Os jovens devem ter autonomia para se tornarem parceiros plenos no desenvolvimento e implementação de programas abrangentes de educação sexual;
- 4) A educação para adolescentes com relação à abstinência é melhor fornecida em programas de educação em saúde que fornecem aos adolescentes informações completas e precisas sobre saúde sexual e reprodutiva;
- 5) A educação em sexualidade deve ser de fácil entendimento, abrangente, medicamente precisa e culturalmente competente e preparar os jovens para tomar decisões sexuais saudáveis. Deve incluir questões como orientação sexual, identidade de gênero e dinâmica de poder, violência de parceiro íntimo e exploração sexual;
- 6) Educadores e profissionais de saúde devem fornecer informações de forma compreensível aos jovens;
- 7) Governos e escolas devem eliminar a censura de informações relacionadas à sexualidade humana, incluindo orientação sexual e identidade de gênero;
- 8) Os currículos e programas de educação sexual devem ser baseados em princípios científicos e evidências de pesquisas. A política governamental em relação à educação em saúde sexual e reprodutiva deve ser baseada na ciência. Os governos devem aumentar o apoio ao desenvolvimento e a avaliação de programas para promover a saúde sexual e reprodutiva do adolescente, incluindo intervenções nas escolas, esforços da mídia e intervenções clínicas.
- 9) Programas governamentais que promovem apenas a abstinência são eticamente falhos, não são baseados em evidências e interferem com os direitos humanos fundamentais para obter informações de saúde completas e precisas;
- 10) A abstinência exclusiva como base para as políticas e programas de saúde do adolescente devem ser abandonados.

Um dos importantes fatores de prevenção é a educação (SBP - Sociedade Brasileira de Pediatria, 2020). Nesse contexto, o Estudo de Riscos Cardiovasculares em Adolescentes (ERICA), estudo transversal nacional de base escolar, reafirma a importância de considerar a prevalência de iniciação sexual entre adolescentes de 12 e 14 anos de idade ao pensar em intervenções preventivas para esses jovens. Frisa que a educação para a sexualidade deve ocorrer desde os primeiros anos da adolescência e constar em políticas e programas na área da saúde do adolescente a fim de proteger seus direitos sexuais e reprodutivos e contribuir para o início da vida sexual saudável, responsável e livre de qualquer coerção (Borges et al., 2016).

Considerando que na adolescência os indivíduos estão mais propensos a desenvolver novas habilidades, e que nessa fase o comportamento é mais passível de mudança, a implementação de programas de prevenção em uma idade precoce tende a produzir melhores resultados do que intervenções que sejam administradas quando padrões rígidos de cognição e comportamento já foram estabelecidos e estão enraizados (Craske & Zucker, 2001; Gladstone et al., 2011).

1.3.3 Programas escolares de prevenção ao comportamento sexual de risco

Programas de prevenção ao comportamento sexual de risco têm por objetivo evitar ou retardar práticas sexuais precoces e/ou desprotegidas a fim de minimizar a intensidade das consequências negativas que podem advir do ato sexual em si, como gravidez indesejada e ISTs, ou de um contexto mais vulnerável, como situações de violência (Tortolero et al., 2010). Como as escolas são espaços de aprendizagem, podem oferecer aos adolescentes oportunidades para desenvolverem habilidades e estratégias de enfrentamento às situações de risco. Programas escolares de prevenção integrados ao currículo escolar também apresentam maior facilidade para execução e menor gasto financeiro (Barrett & Pahl, 2006; NIDA, 2003). Adotar uma abordagem de prevenção nas escolas também promove o trabalho em rede, uma vez que este ambiente tem potencial para articular ações com os pais, as famílias e os dispositivos comunitários (Uhl, 2010).

É importante frisar que um programa de prevenção ao comportamento sexual de risco está para além de qualquer atividade isolada que aborde o tema da sexualidade. Um programa tem um objetivo claro a ser alcançado e é composto por

um conjunto de atividades planejadas e sistemáticas (Royse et al., 2015). Desse modo, a elaboração de um programa de prevenção preconiza planejamento, coordenação de atividades previstas, período de tempo previamente determinado e objetivo definido (Sudbrack et al., 2014).

A respeito da efetividade dos programas para reduzir a gravidez na adolescência, as infecções sexualmente transmissíveis e os comportamentos sexuais de risco associados, foi realizada nos Estados Unidos uma revisão sistemática com 88 pesquisas. Embora tenha na maioria dos estudos incluídos ambos os sexos em seu planejamento, quando é abordado apenas um gênero, o feminino se destaca. A revisão demonstrou que 29% programas eram realizados nas escolas, dos quais 2%, 20% e 7% eram aplicados para os ensinos primário, fundamental e médio, respectivamente (Goesling et al., 2014). Em relação aos efeitos do programa de prevenção *It's Your Game: Keep It Real (IYG)*, os resultados para o público feminino foram mais efetivos. Realizado em 10 escolas com uma coorte de 1445 estudantes do sétimo ano acompanhados até o nono ano, demonstrou que a intervenção pode atrasar a iniciação sexual em até 24 meses, e pode ter impacto sobre tipos específicos de comportamento sexual, tais como início de sexo oral e anal, especialmente entre as meninas (Tortolero et al., 2010).

No Brasil ainda não foram encontrados programas de prevenção aos comportamentos sexuais de risco para os adolescentes nas escolas. A partir de uma iniciativa do Ministério da Saúde em parceria com o Ministério da Educação surgiu o projeto *Saúde e Prevenção nas Escolas (SPE)*, lançado em 2006, com o objetivo central de promover a saúde sexual e reprodutiva, reduzindo a vulnerabilidade de adolescentes e jovens às IST, ao HIV e à gravidez não-planejada. Movimenta-se através do desenvolvimento articulado de ações no contexto das escolas e das unidades básicas de saúde (UBS). Tendo em vista a extensão continental do país, vê-se a necessidade de novas propostas de intervenção para conscientizar os adolescentes sobre os comportamentos sexuais que podem trazer riscos à saúde (Brasil, 2006).

1.3.4 Programas escolares de prevenção com múltiplos desfechos

Os comportamentos de risco do adolescente, como uso de substâncias, problemas de conduta, sexo desprotegido e evasão escolar tendem a ocorrer conjuntamente (Shek & Yu, 2011b). Esse fenômeno é uma preocupação pois um comportamento de risco amplifica a chance de ocorrência dos outros (US - Department of Health and Human Services, 2007) e aumenta a probabilidade de adversidade em muitos domínios da vida: saúde física, bem-estar psicológico e desenvolvimento psicossocial, bem como a estabilidade da sociedade (CDC, 2018).

Pensando nesse imbricado padrão de comportamento dos adolescentes, os programas de prevenção têm sido desenvolvidos nos últimos anos com o objetivo de alcançar mais de um comportamento de risco. Dentre os programas escolares de prevenção com múltiplos desfechos pode-se citar: *Life Skills Training (LST)*, *Positive Action (PA)* e *All Stars*. Os três programas foram realizados nos Estados Unidos e orientados pela lógica da prevenção universal. O primeiro, *Life Skills Training (LST)* também engloba uso de tabaco, álcool e maconha, além de condução arriscada e violência. O programa fornece aos alunos de ensino médio formação em auto-gestão pessoal, habilidades sociais e de resistência social. A intervenção teve um efeito protetor direto sobre o comportamento de risco para o HIV (Griffin et al., 2006). O segundo programa de prevenção tem uma proposta semelhante e chama *Positive Action (PA)*. É disponibilizado para alunos de sétimos e oitavos anos e que foca na importância de manter atitudes positivas para consigo e com os outros, desenvolvendo as habilidades necessárias para tomar decisões e lidar com as situações adversas. Mostrou que a atividade sexual foi menor entre aqueles que participaram da intervenção (Beets et al., 2009). O terceiro é um programa escolar de prevenção ao uso de drogas. Com participantes de 11 a 13 anos de idade, o programa trabalha crenças normativas sobre comportamentos de risco, estilo de vida, compromisso manifesto para evitar comportamentos de risco, vínculo com a escola e tomada de decisão. Indicou êxito para o adiamento da atividade sexual (McNeal et al., 2004).

Diante deste cenário, fica clara a necessidade de implementar nas escolas, programas de prevenção aos comportamentos de risco mais abrangentes e que estejam conectados à realidade dos adolescentes. É fundamental que se leve em

consideração o contexto em que estão inseridos para que eles, de fato, possam se identificar, respeitar e participar.

1.3.5 Programa escolar de prevenção ao uso de drogas *Unplugged*: a adaptação para o Brasil, #Tamojunto

No Brasil, o fenômeno do consumo de álcool e outras drogas por crianças e adolescentes tem sido amplamente discutido na esfera da saúde nos últimos anos (Brasil, 2011). Nesse sentido, com o intuito de conscientizar a população – em especial os jovens – sobre o impacto que essas substâncias podem ter em suas vidas, intervenções preventivas vão sendo propostas. Entretanto, essas ações ainda são predominantemente pontuais e com resultados pouco sistematizados. Diante deste cenário, e a partir da iniciativa do governo “Plano Crack é Possível Vencer” é que a Coordenação Nacional de Saúde Mental, Álcool e outras Drogas do Ministério da Saúde estabeleceu uma parceria com o Escritório das Nações Unidas sobre Drogas e Crime (UNODC). Esta união possibilitou adaptar o Programa de Prevenção às Drogas *Unplugged*, que foi escolhido por evidenciar, através de um estudo multicêntrico, eficácia em retardar o início do uso de álcool, tabaco e maconha entre os estudantes de 12 a 14 anos de idade, quando aplicado, inicialmente, em 7 países europeus: Itália, Espanha, Suécia, Bélgica, Grécia, Áustria e Alemanha e, posteriormente, na República Tcheca (Faggiano et al., 2010; Gabrhelik, Duncan, Miovsky, et al., 2012). A versão brasileira do *Unplugged* chama-se “#Tamojunto” e foi implantada em escolas públicas (Medeiros et al., 2016; Pedroso et al., 2015).

O programa escolar de prevenção ao uso de drogas *Unplugged* (#Tamojunto) foi desenvolvido pelo *European Drug Addiction Prevention Trial* (EU-Dap) com o propósito de atrasar o início e desacelerar consumo do uso das drogas. Seu arcabouço teórico, baseado em evidências, compreende o “Modelo Influência social Global”, o qual busca promover, junto com os adolescentes: o desenvolvimento de habilidades pessoais que os ajudem a manejar as influências sociais, o pensamento crítico diante das crenças normativas e a reflexão sobre os contextos de uso e o conhecimento acerca das drogas e suas consequências para a saúde (Sussman et al., 2014; Vadrucchi et al., 2016). Ao dilatar essas habilidades é possível fortalecer a autonomia do adolescente, permitindo-o sustentar suas decisões e, dessa forma,

resistir à pressão social, um real fator de risco para o uso de drogas (Tobler & Stratton, 1997).

O *Unplugged* (#Tamojunto) é organizado em 12 aulas semanais com duração de 1 hora, durante 3 meses, a partir da orientação de professores treinados. Além disso, possui uma dinâmica mais interativa que preza o respeito entre os pares, estimula o diálogo e facilita reflexões sobre as responsabilidades e potencialidades de cada adolescente para lidar com as decisões (Caria et al., 2011). Fundamentado em evidências científicas, contempla os seguintes eixos temáticos: habilidades pessoais e sociais, conhecimento e crenças normativas. As habilidades trabalhadas durante os encontros são: desenvolvimento de pensamento crítico, tomada de decisões, solução de problemas, pensamento criativo, comunicação eficaz, habilidade interpessoal, autopercepção, empatia e manejo de emoções (Kreeft et al., 2009). Desenvolver essas habilidades é importante quando se pensa em prevenção ao comportamento sexual de risco porque, em suas relações afetivas muitas vezes os adolescentes se deparam com situações que podem causar estranhamento e são convocados a fazer escolhas. Saber manejar situações conflituosas, comunicar os desejos de forma eficaz – e sustentá-los em sua decisão, assim como ser empático com as inseguranças do outro e saber regular as próprias emoções são habilidades que devem fazer parte do repertório do adolescente.

Os programas de prevenção ao uso de drogas em que se têm constatado mais eficácia são executados em escolas (Hanley et al., 2010). Nesse sentido, com o intuito de otimizar os recursos e o tempo de aula em programas que forneçam resultados adequados, existe hoje um movimento que promove o desenvolvimento e a implantação de programas de prevenção baseados em evidências científicas que tenham demonstrado reduzir ou retardar o consumo de drogas através de ensaios controlados randomizados (Pentz, 2003). Além disso, levando em consideração que o uso de drogas é considerado um indicador para comportamentos sexuais de risco (iniciação sexual precoce, múltiplos parceiros, não uso do preservativo) (Currie, 2008), a literatura defende que as intervenções preventivas devem ser pensadas e delineadas de forma integral para atingir de forma mais eficiente uma série de comportamentos relacionados, como o uso de drogas, o comportamento sexual de risco e a violência (Botvin et al., 2006). É neste contexto que o programa de prevenção *Unplugged* (#Tamojunto) foi inserido e, portanto, foi avaliado em seu processo de

adaptação a cultura brasileira (Medeiros et al., 2016). Ulteriormente, estudos que avaliaram o efeito do programa #Tamojunto encontraram efeitos iatrogênicos para a iniciação ao uso do álcool, com a participação levando a um aumento de 30% aos 9 meses (Sanchez et al., 2017) e um aumento de 13% aos 21 meses de acompanhamento (Sanchez et al., 2018). Esse efeito indesejado proveniente da primeira edição do #Tamojunto ocorreu possivelmente devido a uma modificação na seção que abordava o uso do álcool. Tendo, posteriormente, seu efeito revertido em uma nova versão do programa, o #Tamojunto 2.0 (Sanchez et al, 2021).

1.4 Justificativa

O alto consumo de álcool e outras drogas por adolescentes tem despertado a preocupação das autoridades do Brasil e do mundo, haja vista que os prejuízos psicossociais decorrentes desse uso afetam, em grande escala, o desenvolvimento dos jovens. Levando em consideração, também, que os adolescentes mantêm um estreito contato com a sexualidade, é necessário desvelar a relação entre os seus comportamentos sexuais de risco e o uso de substâncias a fim de reduzir eventos como iniciação sexual precoce, gravidez indesejada e infecção por ITSs.

Nessa perspectiva, os programas de prevenção a comportamentos de risco são essenciais, uma vez que propõem intervenções direcionadas ao grupo desejado. Como o público-alvo deste projeto é o adolescente, vê-se o ambiente escolar como um fértil espaço para as intervenções preventivas. Nesse sentido, esta pesquisa orienta-se pelo programa #Tamojunto, que visa a redução ou o adiamento do uso de drogas pelos adolescentes. Como os comportamentos de risco por adolescentes tendem a ocorrer concomitantemente, propõe-se uma discussão a respeito da influência deste consumo sobre os comportamentos sexuais de risco desses jovens, na qual será avaliada o efeito do programa #Tamojunto para o comportamento sexual e os fatores associados à iniciação sexual precoce. Essa abordagem é coerente com a proposta, fundamentalmente, por dois motivos: primeiro, a carência na literatura brasileira sobre a temática da sexualidade na adolescência em associação com o uso de drogas e; segundo, o déficit de programas de prevenção aos comportamentos sexuais de risco nas escolas.

Conhecer o fenômeno dos comportamentos sexuais de risco a partir do âmbito escolar, de forma mais profunda, permite: melhorar o arcabouço teórico para a

realidade brasileira; qualificar os profissionais da educação/saúde; elaborar programas de prevenção consistentes e, por fim; aperfeiçoar uma política pública que aborde esse tema de modo mais adequado e efetivo.

2. OBJETIVOS

2.1 Objetivo Geral

Analisar a associação dos comportamentos sexuais de risco entre adolescentes e o uso de álcool e outras drogas entre estudantes de 7º e 8º ano do ensino fundamental II.

2.2 Objetivos Específicos

1. Investigar a associação dos estilos parentais e do uso de álcool e outras drogas por adolescentes à iniciação sexual precoce e ao sexo desprotegido;
2. Avaliar a efetividade do Programa Escolar de Prevenção ao Uso de Drogas #Tamojunto para o comportamento sexual de risco de estudantes;
3. Identificar os fatores de risco associados à iniciação sexual precoce.

3. METODOLOGIA

3.1 Desenho metodológico

O presente estudo decorre do projeto financiado pelo Ministério da Saúde “Avaliação de resultados do programa escolar de prevenção ao uso de drogas #Tamojunto (*Unplugged*): um ensaio controlado randomizado em 6 cidades brasileiras”. Trata-se de um ensaio controlado randomizado entre alunos de 7º e 8º anos do ensino fundamental II de escolas públicas de 6 cidades brasileiras.

Esta pesquisa pretende analisar os dados secundários resultantes desse estudo, fundamentalmente, no que diz respeito aos comportamentos sexuais de risco. Esta imersão nos dados permite compreender de forma mais expressiva tais condutas de risco, potencializando, desta forma, as discussões e auxiliando na elaboração de intervenções preventivas sobre esta temática. Além disso, pode contribuir com a avaliação da efetividade do programa com base na seguinte pergunta: Qual o impacto que uso de álcool e outras drogas tem sobre os comportamentos sexuais de risco dos adolescentes?

Os artigos oriundos desta pesquisa foram os seguintes: 1) “*Factors associated with early sexual initiation and unsafe sex in adolescents: Substance use and parenting style*” publicado em 2020 na revista *Journal of Adolescence*, indexada na PUBMED. Teve como objetivo examinar a iniciação sexual precoce e o sexo desprotegido entre adolescentes, em relação ao uso de substâncias e estilos parentais, considerando as interações entre dois possíveis fatores de risco; 2) “*Effects of a school-based drug prevention program on sexual risk behavior among adolescents in Brazilian schools*”, aceito para publicação em 2021 na revista *Archives of Sexual Behavior*, indexada na PUBMED. Desta vez, o objetivo foi avaliar os efeitos do programa #Tamojunto no comportamento sexual de risco dos adolescentes; 3) “*Risk factors for early sexual intercourse in adolescence: a systematic review of cohort studies*”, o qual está em revisão final de escrita para submissão. Tem como objetivo investigar de forma sistemática os fatores de risco associados à iniciação sexual precoce entre adolescentes, considerando os estudos de coorte.

3.2 Amostra

A amostra desta pesquisa foi composta por 6.658 educandos com idades entre 11-15 anos, estudantes do 7º e 8º anos de 72 escolas públicas de ensino fundamental das cidades de São Paulo-SP, São Bernardo do Campo-SP, Distrito Federal-DF, Florianópolis-SC, Tubarão-SC, Fortaleza-CE. O grupo intervenção foi composto por 3.340 adolescentes pertencentes a 130 turmas de 38 escolas e o grupo controle por 3.318 adolescentes de 131 turmas divididas em 34 escolas.

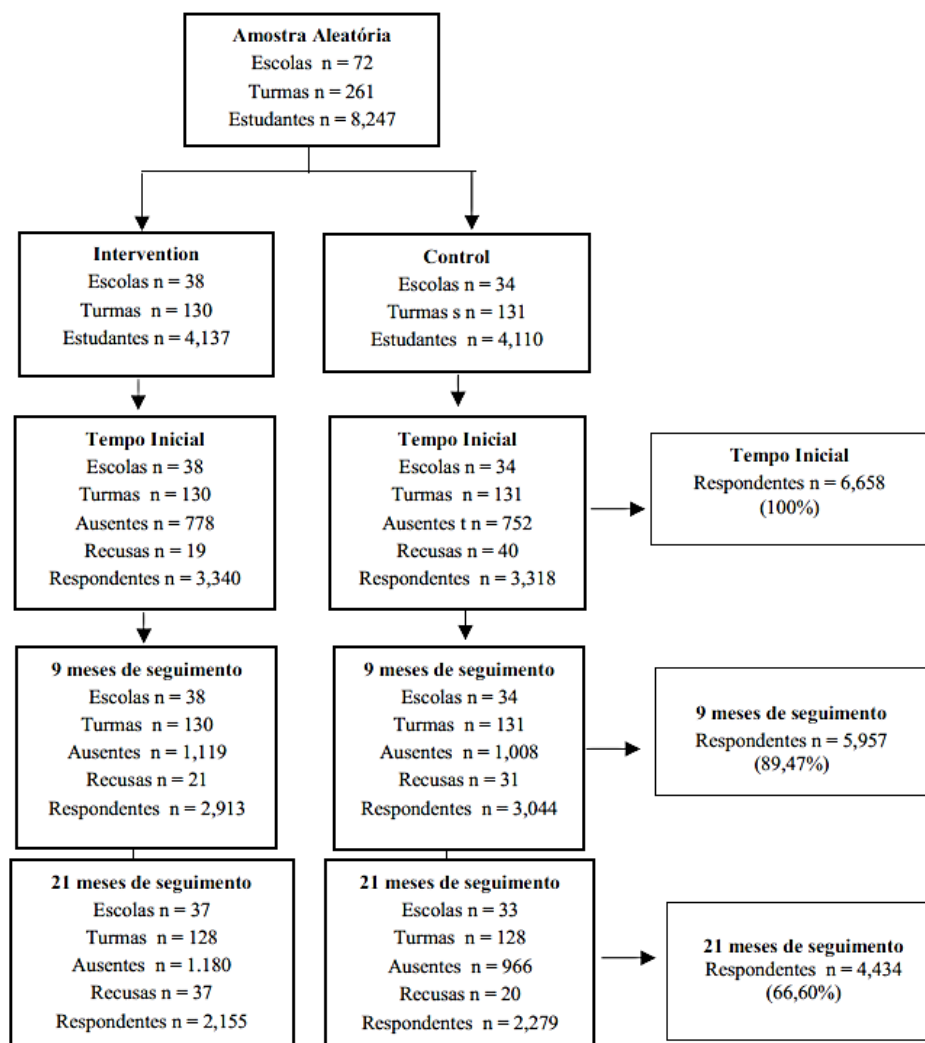


Figura 1: Fluxograma do ensaio controlado randomizado do programa #Tamojunto, Brasil, 2014/2015.

Legenda: Ausentes = ausente da escola no momento da avaliação

Recusas = sujeitos que se recusaram a participar da avaliação

Respondentes = participantes que consentiram em participar e forneceram dados.

3.3 Coleta de dados do estudo

A avaliação dos padrões de consumo de drogas e potenciais fatores mediadores para tal foram avaliados nos dois grupos através de um questionário estruturado, anônimo e de autopreenchimento. Dados de tempo inicial (*baseline*) foram coletados simultaneamente nas escolas controles e experimentais, duas semanas antes do início da implantação do programa. Foram realizados dois acompanhamentos (*follow-ups*) com preenchimento do mesmo questionário pelos alunos, sendo o primeiro deles 9 meses após a coleta do tempo inicial e o segundo 21 meses após. Desta maneira este estudo possui três pontos de coleta: mês 0 (fevereiro 2014), mês 9 (novembro 2014) e mês 21 (novembro 2015).

Antes de administrar o questionário aos alunos, foi preenchido um código de sala e escola pelos pesquisadores envolvidos. Este código permitiu análises de cluster em dois níveis (escola e classe). Para garantir redução no viés de informação, os seguintes procedimentos de campo foram adotados: 1) anunciar aos estudantes de classe que receberiam um questionário sobre saúde e comportamentos, evitando relacionar o questionário à aplicação do programa de prevenção; 2) 1 ou 2 investigadores treinados estiveram presentes na sala de aula durante todo o processo de preenchimento dos questionários pelos alunos e a presença de qualquer professor foi evitada; 3) os questionários foram depositados num envelope pardo para evitar contato entre os pesquisadores e os questionários preenchidos, garantindo ainda maior sigilo da informação; 4) em nenhum momento os pesquisadores de campo perguntaram o nome dos alunos e deixaram claro sempre que o questionário é anônimo e que o código secreto criado para permitir a conexão dos 3 bancos de dados (0, 9 e 21) é apenas passível de decodificação pelo próprio aluno.

Para pareamento dos questionários nos três tempos do estudo, os alunos preencheram um código secreto na primeira página do questionário que envolve a geração de letras e números a partir das seguintes informações: nome, sobrenome, data de nascimento, nome da mãe, nome do pai e nome da avó materna. Desta maneira, cada código foi composto por 5 letras e 1 número e só poderia ser decodificado pelo próprio aluno. Esses códigos permitem que os pesquisadores pareiem os questionários individuais nos diferentes tempos do estudo e ao mesmo

tempo protejam os participantes, oferecendo anonimato e confidencialidade essencial a um estudo sobre comportamentos ilícitos (Galanti et al., 2007).

Após a coleta, os questionários foram etiquetados com o número da escola e turma para evitar extravios ou trocas durante o período de digitação. Após separação dos questionários deixados em branco (recusa), os dados foram inseridos em sistema personalizado de digitação, em modelo utilizado em estudos prévios do CEBRID. A plataforma criada em sql permite acesso online de inúmeros digitadores simultaneamente, além de permitir controle em tempo real do trabalho de cada digitador e da qualidade da digitação, através de interface de conferência da digitação. Após inserção virtual dos dados, a coerência interna das respostas foi testada através de análises de consistência, no intuito de identificação de questionário incompletos ou mal preenchidos propositalmente. Caso o aluno deixasse mais de 30% do questionário em branco, ele era excluído.

3.4 Instrumentos e medidas

Os dados que serão utilizados neste projeto foram coletados por meio de instrumento (ANEXO II) desenvolvido e testado pela EU-DAP e utilizado nos estudos prévios de efetividade do *Unplugged* (Faggiano et al, 2008). No Brasil foi utilizada uma versão traduzida e adaptada para o português, com algumas perguntas substituídas por perguntas feitas a partir de dois questionários amplamente utilizados em diversos estudos entre estudantes no Brasil: o questionário da Organização Mundial da Saúde, utilizado pelo CEBRID (CEBRID et al, 2010) e o questionário da PENSE, utilizado pelo Ministério da Saúde (IBGE, 2012). O questionário foi adaptado numa fase piloto do projeto (em 2013) e foi validado psicometricamente em uma parceria entre a UNIFESP (Universidade Federal de São Paulo) e a UFSC (Universidade Federal de Santa Catarina), em fase de publicação.

O questionário possui módulos sobre o uso no mês, ano e vida das seguintes drogas: álcool, tabaco, maconha, inalantes, cocaína e crack. Além disso, avalia *binge drinking*, dados sociodemográficos e fatores associados ao uso de drogas (estilos parentais; crenças normativas; ambiente escolar, *bullying*, comportamento sexual de risco, intenções no uso de drogas, percepção de risco e habilidade de tomada de

decisão). A avaliação da classe socioeconômica foi feita através da escala da ABEP (Associação Brasileira de empresas de Pesquisa).

Como desfechos foram avaliados os comportamentos sexuais de risco (idade de início da atividade sexual e uso do preservativo) os quais foram incluídos a partir do questionário da PENSE (IBGE, 2013) e como variáveis explicativas foram analisados uso de drogas, estilo parental, classe socioeconômica e sexo.

3.5 Análise de dados

Abaixo serão descritas brevemente as análises utilizadas em cada um três dos artigos científicos que foram produzidos para responder aos objetivos propostos na presente tese.

No artigo 1, a abordagem estatística envolveu a geração de características descritivas dos alunos que eram sexualmente ativos e que relataram sexo desprotegido, usando proporções ponderadas (wgt%). Ajustou-se para cidade, escola e alunos, com a escola pertencendo ao estágio 1 e os alunos pertencendo ao nível estágio 2. Como houve grandes quantidades de dados faltantes relacionados aos estilos parentais (22,8%), os dados faltantes foram imputados por meio de imputação múltipla, que usa as intercorrelações de dados de variáveis que não estão ausentes para estimar valores plausíveis para eles. A imputação foi realizada no Stata 14 assumindo um padrão aleatório de valores ausentes apenas para estilos parentais. Um método iterativo foi usado para preencher os valores perdidos, o método mvn (*mi impute mvn*), que usa aumento de dados normais multivariados para imputar valores perdidos de variáveis de imputação contínua. As variáveis utilizadas no modelo de imputação incluíram sexo, faixa etária, cidade, consumo excessivo de álcool, tabaco, inalantes, maconha e cocaína e classificação socioeconômica. A próxima etapa envolveu modelos de regressão logística para calcular os odds ratios (OR) brutos e ajustados. Pesos amostrais foram usados para corrigir a estimativa da amostra para a população da qual foi extraída. Para tanto, considerou-se a população estimada no sorteio inicial, as faltas no dia da coleta de dados e o universo amostral de cada cidade. Para essas análises, usamos o software STATA / SE 14 com o

procedimento *svyset* para determinar a variância estimada para levantamentos de amostras complexas.

No artigo 2, a integração dos três bancos de dados, do primeiro momento da coleta aos seguimentos foi realizada pareando um código secreto composto por sete letras e um número. Inicialmente, realizou-se estatísticas descritivas incluindo frequências e percentuais para variáveis sociodemográficas, uso de álcool e comportamentos sexuais. Testes de qui-quadrado foram usados para comparar os grupos. As análises foram realizadas levando-se em consideração a estrutura de vários níveis dos dados para comparar os efeitos dos grupos de controle e intervenção sobre as variáveis de comportamento sexual de risco aos 9 e 21 meses de acompanhamento, ajustando para idade, grupo, série, local, classe socioeconômica, status de comportamento sexual de risco no primeiro momento da coleta de e coocorrência com consumo de álcool. Além disso, examinou-se o uso de álcool como mediador do efeito da intervenção nos comportamentos sexuais de risco. Empregou-se um procedimento denominado *Full Information Maximum Likelihood* (FIML) para lidar com a falta de dados e levar em conta o paradigma de intenção de tratar, o que significa que o efeito foi estimado entre todos os participantes que iniciaram o estudo, independentemente de sua perda de acompanhamento durante Tempo. As análises foram estratificadas por sexo. Em seguida, para lidar com a estrutura multinível dos dados (crianças aninhadas nas escolas), usou-se uma abordagem de modelagem multinível. Foi utilizado o estimador de máxima verossimilhança para todas as análises com erros padrão robustos (MLR). O MLR é responsável pela estrutura hierárquica dos dados e agrupamento de alunos dentro das escolas. Utilizou-se o software Mplus versão 8.4.

No artigo 3, para ser incluído na revisão sistemática os artigos deveriam: apresentar achados de estudos de coorte; incluir adolescentes entre 10 e 19 anos na amostra do estudo; ser em inglês, francês, português ou espanhol e; ser publicado entre 1999 e 2020. De cada artigo, foram extraídas as seguintes informações: autores do estudo, ano de publicação, país do estudo, tamanho da amostra, desenho do estudo, duração do acompanhamento, técnicas analíticas estatísticas, variáveis independentes, medida de desfecho, principais resultados e limitações do estudo. Usou-se a *Newcastle-Ottawa Quality Assessment Scale* (NOS) para estudos de coorte para avaliar a qualidade dos artigos. Estudos com escores mais altos indicaram maior

qualidade. O NOS possui três parâmetros de qualidade: seleção, comparabilidade e resultado. O primeiro autor revisou todos os artigos selecionados para a análise de texto completo. Estes foram examinados usando um formulário de extração de dados e uma escala de qualidade do estudo. Um segundo revisor independente verificou a pontuação de extração de dados e avaliação de qualidade para cada artigo, e quaisquer discrepâncias foram resolvidas por meio de discussão. Todos os artigos que não atenderam aos critérios de inclusão após a revisão do texto completo foram excluídos.

3.6 Ética

Este estudo foi registrado no Ministério da Saúde Brasileiro no Registro Brasileiro de Ensaios Clínicos da Saúde Ensaios clínicos brasileiros (REBEC) sob o número RBR-4mnnv5g. Esta pesquisa foi aprovada pelo Comitê de Ética em Pesquisa (CEP) da Universidade Federal de São Paulo (UNIFESP) sob o protocolo #473.498. Em virtude da intervenção ser inserida na escola como parte do currículo pelo governo federal, a participação nas aulas não foi optativa. No entanto, a participação na pesquisa, caracterizada pela resposta aos questionários nos 3 tempos, não foi obrigatória.

4 ARTIGO 1: Factors associated with early sexual initiation and unsafe sex in adolescents: Substance use and parenting style [publicado na *Journal of Adolescence* (2020) 79: 128-135]

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Abstract

Introduction: This study examines early sexual initiation and unsafe sex among adolescents in relation to substance use and parenting styles, considering the interactions of these two potential risk factors. **Methods:** We used baseline data from the randomized controlled trial of the #Tamojunto adolescent substance use prevention program. The sample included 6,285 seventh and eighth grade adolescents from 72 public schools in six Brazilian cities. Weighted logistic regression models were used to examine substance use and parenting style as predictors of sexual behavior. **Results:** Over 13% of students reported prior sexual activity. The mean age was 12.4 years and unsafe sex was reported by 5.3% of adolescents. Those who engaged in smoking tobacco (aOR=3.22, 95% CI:1.92-5.39) and binge drinking (aOR=2.08 95% CI:1.29-3.37) had significantly increased likelihood of unsafe sex. Permissive (aOR=2.14 95% CI 1.40-3.28) and negligent (aOR=2.02 95% CI 1.41-2.92) parenting styles were associated with higher odds of adolescent sexual activity. Moreover, adolescents who engaged in substance use and who reported poor parenting styles were eight times more likely to have unsafe sex compared to adolescents who did not reported substance use and who were from families with authoritative parenting styles (aOR= 8.09, 95% CI 4.16-15.75). **Conclusions:** Efforts to reduce early sexual initiation should consider addressing joint risk behaviors and linking parents to parenting skills programs.

Keywords: Adolescence, Alcohol, Safer sex, Drug abuse.

INTRODUCTION

Early sexual initiation is an important risk factor for later drug use (1), delinquency (2), intimate partner violence (3), depression, anxiety and eating disorders (4,5). Early sexual initiation is also associated with unsafe sex (6) and youth who engage in early sexual activity are more likely to have multiple partners (7). These behaviors can result in higher risk of sexually transmitted diseases (STDs) (8), unplanned pregnancies (9) and abortions (10). Because youth less than 16 years old are less likely to use or have access to contraception, they are at a high risk for STDs and unintended pregnancy (11).

Global research on sexual and reproductive health indicates that the prevalence of sexual activity varies markedly between boys and girls and across countries (12,13). In 2015, a national survey in Brazil found that 34.5% of boys and 19.3% of girls between ages 13 and 15 had engaged in sexual intercourse. Younger adolescents are also at higher risk for unsafe sex at first sexual intercourse compared to older adolescents; In Brazil, condom use was less prevalent among adolescents aged 13 and 15 (59.7%) when compared to 16 and 17 year old adolescents (68.2%) (National Survey of School Health; PENSE)(14). Unsafe sex is also more frequent among Brazilian adolescents from households with few socio-economic assets (15).

Both substance use and parenting styles influence early sexual initiation. US studies show that alcohol, tobacco and marijuana use were associated with sexual activity at the age of 15 (16). At the same time, research suggests adolescents with authoritative mothers are less likely to have had sexual intercourse when compared to adolescents with any other parenting style (17). However, few studies have examined these risk behaviors in the Brazilian context where norms around parenting and drug use may be distinct or have examined the combined effects of these risk factors on sexual risk behaviors. Therefore, we aimed to investigate how substance use and parenting styles were related to early sexual initiation and

of unsafe sex among adolescents. As a secondary aim, we studied how combinations of parenting style and substance use were associated with these outcomes.

METHODS

This cross-sectional study was nested within a randomized controlled trial (RCT) of a drug prevention program. The trial included 7th to 8th grade middle school students at public schools in six Brazilian cities. The National Coordination of Mental Health, Alcohol, and Other Drugs of the Ministry of Health partnered with the United Nations Office on Drugs and Crime (UNODC) to adapt and implement the European drugprevention program *Unplugged*; the Brazilian version of it is called *#Tamojunto*, (18).

We analyzed baseline data from the trial that evaluated the effects of the *#Tamojunto* drug prevention program on adolescent substance use. The study is registered at the Brazilian Registry of Clinical Trials (Registro Brasileiro de Ensaios Clínicos-REBEC) with registration number RBR-4mnv5g. The Ethics Committee of the Federal University of São Paulo approved this study (protocol #473.498).

Sampling

The sample included 6,285 students aged 11-15 in the seventh and eighth grades in 72 public middle schools in the cities of São Paulo-SP, São Bernardo do Campo-SP, Federal District-DF, Florianópolis-SC, Tubarão-SC, and Fortaleza-CE.

Based on a sample size calculation (Lwanga & Lemeshow, 1991) for a longitudinal study with 80% power, a 5% significance level, and a difference between groups of 1.5% points (5% to 3.5%), the sample size required for each study group was 2835 participants. With a projected loss of 50%, 4253 participants were included in each group. The parameters used for the

calculation were based on a pilot study (20) and on the expected results of the RCT. Sampling details have been published previously (21).

Instruments

Data collection was performed using a questionnaire developed and tested by the European Drug Addiction Prevention trial (EU-DAP) that was used in previous effectiveness studies for *Unplugged* (22). An anonymous self-reported structured questionnaire was administered by trained researchers without the presence of a teacher in the classroom. The version that was translated and adapted to Portuguese had some question substitutions that were guided by standard questionnaires on adolescent drug use and risk behaviors used in Brazil (e.g. from the World Health Organization questionnaire (23) and the Brazilian Ministry of Health's Pesquisa Nacional de Saúde do Escolar questionnaire(24). The complete questionnaire was adapted in a pilot phase in 2013 and validated (25).

The questionnaire included sociodemographic questions and questions about the use of alcohol, tobacco, marijuana, inhalants, cocaine, and crack in the past month, year, and ever during one's lifetime. It also assessed questions on binge drinking (consumption of five or more doses of alcohol in two hours) and factors associated with substance use, such as, parenting styles (26), normative beliefs (27), school environment (28), bullying (29), sexual risk behaviors, decision-making ability (30), intention to use drugs (31) and risk perception (32). To maintain confidentiality, the questionnaires were deposited in a brown envelope after being completed. At no time did researchers ask the students' names and it was made clear that the questionnaire was anonymous.

Sexual risk behavior

The sexual risk behavior section of the questionnaire covered sexual initiation, frequency of recent sexual activity, condom use and pregnancy. The sexually active group was defined as the students who reported any lifetime sexual intercourse. That means, they had positive responses to the question 'Have you ever had sex?' (no/yes). Lifetime unsafe sex was measured with the question: "When you have sex, do you use condoms?" Responses included "never had sex", "always use", "sometimes use" and "never use" and were dichotomized into no/yes by grouping "never had sex" and "always use" as "No", and grouping "sometimes use" and "never use" as "Yes".

Parenting styles

Data on parenting styles were collected through the Demand and Responsiveness Scale (33), which includes four parenting styles: authoritarian, authoritative, negligent, and permissive (34). The instrument reflects adolescent perceptions of parenting and includes two scales corresponding to demand (6 items) and responsiveness (10 items) dimensions, that were translated and adapted for the Brazilian context (35). These two dimensions combined were used to make the four parenting categories: authoritative (high scores on demandingness and responsiveness), authoritarian (high scores on demandingness and low scores on responsiveness), indulgent (low scores on demandingness and high scores on responsiveness) and negligent (low scores on both demandingness and responsiveness). Responses were noted on a three-point Likert scale, with scores closer to three indicating greater perceived demand and responsiveness. The scale cutoff was based on the median scores for each subscale, with the parents who scored at or above the median for demandingness or responsiveness classified as high in demandingness or responsiveness, respectively, whereas parents who scored at or below the median were classified as low in demandingness or responsiveness (36). Responses are indicated on a three-point Likert scale,

with scores closer to three indicating greater perceived demand and responsiveness. For instance, “To what extent do your parents really know what you do with your free time?” can be answered with, “Do not know”, “Know little”, or “Know enough.” Also, a question about fictitious drugs (Holoten and Carpinol) was included and questionnaires with positive answers on this question (n=49) were excluded from the analysis.

Combined risk variable: Substance Use and Parenting Style

To evaluate the joint effect of substance use and parenting style we combined each of these variables into on binary (no/yes) categories. Regarding substance use, answers indicating lifetime substance use of at least one of the following: binge drinking, use of tobacco, marijuana, inhalants or cocaine were considered ‘yes’. Regarding parenting style, as authoritative had higher scores in both demand and responsiveness domains, we used it as a reference category. Authoritarian, negligent and permissive styles were grouped into a “poor parenting” category.

Socioeconomic status

Socioeconomic status (SES) was evaluated using the Brazilian Association of Research Companies scale (37), which reflects consumer goods and education level of the head of the household. Of its five categories, “A” and “E” correspond to highest and lowest SES, respectively. Student demographic data, including age and gender, were self-reported. Information on city, school, and grade were obtained from school records.

Two outcomes were evaluated: lifetime sex and lifetime unsafe sex (having sexual intercourse without a condom). Independent variables substance use - binge drinking and use of tobacco, inhalants, marijuana, and cocaine - and parenting styles (authoritative, authoritarian, permissive, and negligent). We considered early sexual initiation to be when

sexual intercourse occurred before the age of 15. Other covariates included gender, age, socioeconomic status and city.

Statistical analysis

Our statistical approach involved generating descriptive characteristics of students who were sexually active and who reported unsafe sex, using weighted proportions (wgt%). We adjusted for city, school, and students, with the school as a stage 1 cluster and students as a stage 2 cluster. Because there were large amounts of missing data related to the parenting styles (22.8%), missing data were imputed through multiple imputation, which uses the intercorrelations of data from variables that are not missing to estimate plausible values for the missing data (38). Imputation was performed in Stata 14 assuming a random pattern of missing values for parenting styles only. An iterative method was used to fill in the missing values, the mvn method (mi impute mvn), that uses multivariate normal data augmentation to impute missing values of continuous imputation variables (39). First, we imputed missing values and randomly created five imputation datasets. After that, we fit the model: [mi estimate] fits the specified model (logistic regression models) on each of the imputation datasets (five) and then combined the results into one MI inference (39). The variables used in the imputation model included gender, age group, city, binge drinking, tobacco, inhalants, marijuana, and cocaine, and ABEP classification.

The next step involved logistic regression models to calculate both crude and adjusted odds ratios. Sampling weights were used to correct the sample estimate for the population from which it was extracted. To do this, we considered the population estimated in the initial draw, the absences on the day of data collection, and the sample universe in each city. For these analyses we used STATA/SE 14 software with the svyset procedure to determine the estimated

variance for complex sample surveys. A p-value of <0.05 was considered statistically significant.

Data cleaning involved two steps, first impossible values were changed to missing, that is, if a student had written that he was 100 years old, then that value was deleted and was considered missing. The same procedure was performed for the number of household items such as TVs, bathrooms, etc. (impossible variables were deleted, resulting in missing values). For example, if a student stated that he/she had used alcohol in the past month but did not drink alcohol in the past year or in his/her lifetime, this inconsistency was noted and replaced by a missing value. In addition, all data from questionnaires in which students answered 'yes' to a fictitious drug (holoten or carpinol) were excluded, to avoid false response profiles.

RESULTS

Sexual initiation was reported by 13.3% (95% CI 11.8-15.0) of the students. The mean age of first sexual intercourse was 12.4 years (SD = 0.33). Additionally, 5.3% (95% CI: 4.3-6.4) of the participants reported unsafe sex. Lifetime sex and unsafe sex were more prevalent among boys, older students, and those who used any substances. Permissive and negligent parenting styles were associated with higher risk of sexual activity and unsafe sex, with the negligent parenting style being the most prevalent of the two behaviors evaluated. To illustrate, in the unsafe sexual activity group, 69.6% were boys, 67.3% were between 13 and 15 years of age, and 59.6% experienced the negligent parenting style ($p<0.001$). Among the students who engaged in sexual activity, 46.8% were involved in binge drinking, whereas in the non-sexually active group prevalence of sexual activity was 14.2% (Table 1). In relation to unsafe sexual activity, the prevalence of substance use was also higher among adolescents who reported sexual intercourse without condoms compared with those who used condoms. Tobacco use was reported by 33.6% of the students who practiced unsafe sex and by 6.4% of the students

who used condoms ($p<0.001$). In addition, marijuana use was reported by 22.5% of students who practiced unsafe sex and by 3.3% of the students who used condoms ($p<0.001$) (Table 1).

Sexual activity was 51% more likely to occur among boys (Adjusted OR=1.51, 95% CI: 1.22-1.88) and age 13 and 15 years old was associated with over a two-fold higher likelihood of sexual intercourse (aOR=2.57, 95% CI:2.03-3.26). Engaging in binge drinking (aOR=3.24, 95% CI:2.49-4.22) and marijuana smoking (aOR=3.22, 95% CI:2.08-5.00) increased the chance of sexual activity three-fold even after adjustment for sex, age, SES and city. Moreover, children of permissive parents (aOR=2.14, 95% CI:1.40-3.28) and negligent parents reported approximately twice the risk of sexual activity (aOR=2.02, 95% CI:1.41-2.92) (Table 2).

In relation to the practice of unsafe sexual activity, adolescents aged 13 to 15 years old were 98% (aOR=1.98, 95% CI:1.37-2.85) more likely to engage in unsafe sex compared with 11 to twelve-year olds. Engaging in smoking tobacco (aOR=3.22, 95% CI 1.92-5.39), binge drinking (aOR=2.08 95% CI 1.29-3.37) and using cocaine (aOR=2.55, 95% CI:1.02-6.38) were associated with increased risk of unsafe sex. The negligent parenting style was the only style associated with unsafe sex, increasing the odds of unsafe sex by 99% (aOR=1.99, 95% CI:1.20-3.27) (Table 2).

When examining the combined substance use and parenting style variable, students who had poor parenting but did not use substances had a two-fold higher risk of sexual activity (aOR=2.03, 95% CI:1.25-3.31). On the other hand, adolescents in families with poor parenting styles and who used substances had 7.5 times higher odds of engaging in sexual activity (aOR=7.53, 95% CI:5.01-11.31)(Table 3).

Regarding unsafe sexual activity, adolescent substance use and being in a family with an authoritative parenting style increased the chance of unsafe sex four-fold (aOR=4.54, 95% CI:1.96-10.50). Adolescents who engaged in substance use from households with poor

parenting styles were eight times more likely to have unsafe sex compared to adolescents who did not reported substance use and who were from families using an authoritative parenting style (aOR=8.09, 95% CI: 4.16-15.75)(Table 3).

DISCUSSION

In this study we analyzed risk factors associated with early sexual initiation and adolescent unsafe sex, namely substance use and parenting styles, along with the combination of these risk factors together. We found that binge drinking, tobacco and illicit drug use were associated with early sexual intercourse in adolescents. Second, the use of psychoactive substances was also related to unsafe sex. Though the age range was narrow, older male students stood out for having higher levels of lifetime sex and lifetime unsafe sex. Further, negligent parenting was associated with early sexual initiation and unsafe sex, while permissive parenting was only associated with early sexual activity. Finally, we found that adolescents who simultaneously used illicit substances and who experienced negligent, authoritarian or permissive parenting were at a substantially higher risk of both early initiation and unsafe sex outcomes.

The association we observed between psychoactive substances and early sexual initiation echoes the results of other studies. A study in Europe found that alcohol and other drug use before age 16 was associated with an increased odds of early sexual initiation (40). In Finland, alcohol substantially increased the likelihood of engaging in risky sexual behaviors; among individuals who did not drink or rarely drank, 19% of girls had engaged in sexual intercourse versus 25% for boys, however, among those who drink a few times per month, the percentages increased to 38% and 31%, respectively (41). The effects of substance use on behavior, affecting critical judgment, reducing inhibition, and interfering with decision-making and planning, may explain its association with early sexual initiation (15). Early sexual initiation

leaves adolescents more vulnerable to exposure to violence or subsequent regret (16) and to not use condoms (15).

Our findings reinforce the association between substance use and unsafe sex that has been documented in Brazil as well as in other contexts. A survey with adolescents from public schools in the state of Minas Gerais, Brazil, found that substance use was a factor determining condom use among boys (42). For boys who had already used illicit drugs, consistent use of condoms was reported by 42.7% whereas for boys who had never used substances the rate was 64.1% (42). In a nationally representative sample from the US, the 2013 Youth Risk Behavior Survey (YRBS) showed that among 34.0% of sexually active students, only 59.1% reported condom use during last sexual intercourse. In addition, 20.8% of these students engaged in at least one episode of binge drinking in the month prior to the study (13). In the UK, adolescents who regularly used alcohol, cigarettes, or marijuana were less likely to use condoms than non-regular users of these substances (43). In Finland, a national survey also highlighted the association between weekly drunkenness-related drinking between boys and girls and involvement in unprotected sex and multiple sexual partners (41).

Parenting styles are thought to influence adolescent sexual behaviors insofar as they mirror attitudes that they learn from their relationships with their parents (44). Parenting styles reflect social values and norms and are therefore fundamental to shaping social norms in their children (45). Parents often encourage their sons to be fearless and to engage in risky behaviors, whereas girls are protected and taught to avoid risks (46). Thus, in the quest to reaffirm masculinity, boys may become more susceptible, for example, to substance use (47). Our findings showing the negligent parenting style to be associated with the unsafe sex and early sexual initiation support prior studies (48). This may suggest that parents with negligent styles may overlook values and social norms (45). Others have found an association between parental monitoring, which is absent in the negligent parenting style, and delayed sexual

initiation, few sex partners (49), increases in condom use and decreases of sexual risk behaviors in general (50).

Recent literature highlights the protective role of family communication, which is also absent in the negligent parenting style, for early and risky sexual involvement (51). Monitoring and family support encourage autonomy and self-discovery and are associated with the development of social and emotional competencies (50). By providing an environment that promotes dialogue and trust, parents have more knowledge and greater control over the social activities of their children and can thus restrict the opportunities of adolescents to engage in risky behaviors, which may delay sexual initiation and increase the use of condoms (44).

The fact that adolescents who simultaneously used substances and who experienced poor parenting were at a substantially higher risk of unsafe sex and early sexual initiation illustrates that sexual risk behaviors are complex and influenced by several factors across individual, interpersonal and community domains (52). In this sense, it is fundamental to promote adolescent development of social and emotional skills in order to protect them from engaging in risky behaviors such as substance use and involvement in early and risky sexual activity. Thus, prevention programs that focus on early sexual initiation and substance use that take in account the family need to be incorporated into the broader context of school health education curricula, including for younger adolescents (53).

One limitation of this study was use of a self-reported questionnaire, which could lead to information bias through either failure in interpretation of the questions or because of social desirability. However, the question about a fictitious drug allowed us to discard questionnaires that appeared to be biased. Also, the fact that it was a cross-sectional study limits our ability to make causal inferences.

The results of this study highlight the association between alcohol use and other drugs, early sexual initiation and the practice of unsafe sex, and the importance of the family in this

context. We found a markedly increased risk of initiation in sex and unsafe sex among youth who both experienced poor parenting and who engaged in substance use. Based on these results, we suggest that school-based prevention programs take a family-based approach to address substance use and sexuality simultaneously. Future interventions should consider strategies focused on strengthening parental skills to prevent or reduce risky behaviors in their children.

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Table 1: Distribution of lifetime sex and lifetime unsafe sex according to sociodemographic variables, substance use and parenting style among students.

	Lifetime Sex (N = 6,285)					Lifetime Unsafe Sex (N = 6,266)				
	Yes		No		p	Yes		No		p
	N	%wgt 95% CI	N	%wgt 95% CI		N	%wgt 95% CI	N	%wgt 95% CI	
Sex					< 0.001					< 0.001
Male	477	62.4 (58.5, 66.1)	2570	46.2 (44.4, 48.11)		192	69.6 (62.3, 76.0)	2850	47.2 (45.5, 48.9)	
Female	302	37.6 (33.9, 41.6)	2932	53.8 (51.9, 55.6)		96	30.4 (24.0, 37.8)	3124	52.8 (51.1, 54.5)	
Age					< 0.001					< 0.001
11-12	240	31.3 (26.9, 36.1)	3052	57.4 (54.5, 60.2)		97	32.7 (26.2, 39.8)	3172	54.8 (52.0, 57.6)	
13-15	539	68.7 (63.9, 73.1)	2450	42.6 (39.8, 45.5)		191	67.3 (60.2, 73.8)	2802	45.2 (42.4, 48.0)	
Socio-economic Status^b					0.003					0.240
A	48	6.5 (4.3, 9.6)	192	3.4 (2.4, 4.8)		17	5.7 (3.1, 10.1)	223	3.7 (2.7, 5.1)	
B	279	33.7 (29.2, 38.6)	2150	37.0 (33.9, 40.3)		99	32.1 (26.3, 38.5)	2317	36.8 (33.7, 40.0)	
C	395	52.7 (47.6, 57.7)	2892	54.2 (50.5, 57.9)		153	57.0 (50.3, 63.4)	3128	53.9 (50.3, 57.4)	
D/E	55	7.2 (5.5, 9.4)	259	5.4 (4.3, 6.7)		17	5.2 (3.1, 8.8)	297	5.6 (4.6, 6.9)	
City					0.004					0.034
Brasília	68	10.0 (6.6, 15.1)	484	10.9 (8.0, 14.7)		30	11.6 (5.9, 21.4)	522	10.8 (8.0, 14.4)	
Florianópolis	87	1.8 (1.2, 2.6)	773	2.5 (1.9, 3.3)		16	0.8 (0.6, 1.2)	835	2.5 (1.9, 3.2)	
Fortaleza	103	13.5 (9.3, 19.1)	432	8.4 (6.9, 10.1)		43	14.5 (8.8, 22.9)	493	8.8 (7.2, 10.7)	
SBC	105	4.4 (2.9, 6.7)	840	5.6 (4.0, 7.7)		46	5.1 (3.6, 7.4)	898	5.4 (4.0, 7.4)	
São Paulo	392	70.1 (62.8, 76.4)	2674	72.1 (67.5, 76.2)		147	67.7 (57.1, 76.8)	2910	72.0 (67.4, 76.1)	
Tubarão	24	0.3 (0.2, 0.4)	299	0.6 (0.4, 0.9)		6	0.2 (0.0, 0.5)	316	0.6 (0.4, 0.8)	
Substance Use										
Binge drinking	361	46.8 (43.1, 50.6)	763	14.2 (12.8, 15.8)	< 0.001	138	45.9 (40.3, 51.6)	983	17.1 (15.5, 18.8)	< 0.001
Tobacco use	230	28.1 (24.1, 32.4)	255	4.7 (3.9, 5.5)	< 0.001	100	33.6 (28.5, 39.0)	382	6.4 (5.5, 7.3)	< 0.001
Inhalant use	211	26.7 (23.1, 30.6)	897	15.9 (14.7, 17.2)	< 0.001	99	31.9 (25.5, 39.0)	1003	16.4 (15.3, 17.7)	< 0.001
Marijuana use	145	19.3 (15.6, 23.4)	109	2.0 (1.5, 2.5)	< 0.001	65	22.5 (17.6, 28.3)	190	3.3 (2.7, 3.9)	< 0.001
Cocaine use	17	2.4 (1.6, 3.5)	16	0.3 (0.2, 0.5)	< 0.001	13	4.5 (2.6, 7.6)	20	0.4 (0.2, 0.6)	< 0.001
Parenting Style^a					< 0.001					< 0.001
Authoritative	97	15.0 (11.7, 19.1)	1337	30.8 (28.7, 33.0)		26	14.0 (9.0, 21.0)	1407	29.6 (27.5, 31.7)	
Authoritarian	75	12.9 (10.4, 15.9)	875	20.6 (19.4, 21.9)		25	11.1 (7.0, 17.0)	922	20.0 (18.8, 21.3)	
Permissive	86	16.5 (13.1, 26.6)	563	13.3 (12.2, 14.5)		29	15.4 (10.3, 22.4)	620	13.7 (12.6, 15.0)	
Negligent	325	55.6 (49.7, 61.2)	1518	35.3 (33.0, 37.6)		129	59.6 (51.9, 66.8)	1706	36.7 (34.5, 39.0)	

^a This variable presented 22.8% of the *missing* data and was imputed in the inferential analyses ^b SES - Socioeconomic classification based on ABEP.

Table 2: Logistic regression for lifetime sex and lifetime unsafe sex in relation to sociodemographic data, parenting style and substance use among students.

	Lifetime Sex (N = 6,285)		Lifetime Unsafe Sex (N = 6,266)	
	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95%CI)	Adjusted OR (95% CI)
Sex				
Female	Reference			
Male	1.93 (1.60, 2.31)	1.51 (1.22, 1.88)	2.55 (1.84, 3.54)	1.82 (1.31, 2.56)
Age				
11 to 12	Reference			
13 to 15	2.95 (2.44, 3.57)	2.57 (2.03, 3.26)	2.50 (1.88, 3.33)	1.98 (1.37, 2.85)
Socio-economic Status^b	1.00 (0.99, 1.02)	.	1.00 (0.98, 1.02)	.
City	1.04 (0.95, 1.14)	.	1.07 (0.95, 1.21)	.
Binge drinking	5.31 (4.45, 6.35)	3.24 (2.49, 4.22)	4.11 (3.11, 5.43)	2.08 (1.29, 3.37)
Tobacco use	7.94 (6.42, 9.81)	2.53 (1.77, 3.62)	7.41 (5.82, 9.43)	3.22 (1.92, 5.39)
Inhalant use	1.92 (1.54, 2.40)	0.68 (0.47, 1.00)	2.38 (1.71, 3.30)	.
Marijuana use	12.01 (8.51, 16.96)	3.22 (2.08, 5.00)	8.62 (6.40, 11.60)	1.86 (1.03, 3.67)
Cocaine use	7.98 (4.18, 15.25)	.	13.11 (6.13, 28.01)	2.55 (1.02, 6.38)
Parenting Style^a				
Authoritative	Reference			
authoritarian	1.28 (0.93, 1.77)	1.14 (0.79, 1.67)	1.17 (0.58, 2.37)	1.00 (0.47, 2.14)
Permissive	2.55 (1.76, 3.71)	2.14 (1.40, 3.28)	2.38 (1.21, 4.67)	1.79 (0.85, 3.79)
Negligent	3.23 (2.30, 4.54)	2.02 (1.41, 2.92)	3.43 (2.11, 5.58)	1.99 (1.20, 3.27)

^a Missing data was imputed^b SES - Socioeconomic classification based on ABEP**Table 3:** Logistic regression for lifetime sex and lifetime unsafe sex in relation to sociodemographic data and interaction between substance use and parenting style among students.

	Lifetime Sex (N = 6,285)		Lifetime Unsafe Sex (N = 6,266)	
	Crude OR (95%CI)	Adjusted OR (95% CI)	Crude OR (95%CI)	Adjusted OR (95% CI)
Sex				
Female	Reference			
Male	1.93 (1.60, 2.31)	1.60 (1.31,1.96)	2.55 (1.84, 3.54)	2.00 (1.48,2.69)
Age				
11 to 12	Reference			
13 to 15	2.95 (2.44, 3.57)	2.97(2.39,3.71)	2.50 (1.88, 3.33)	2.39 (1.69,3.39)
Socio-economic Status^a	1.0 (0.99,1.02)	.	1.0 (0.98,1.02)	.
City	1.04 (0.95, 1.14)	.	1.07 (0.95, 1.21)	.
Combined Risk Factors				
No Substance Use and Authoritative Parenting	Reference			
No Substance Use and Poor Parenting	2.22 (1.38, 3.57)	2.03 (1.25, 3.31)	2.12 (1.02, 4.42)	1.97 (0.94,4.12)
Substance Use and Authoritative Parenting	4.61 (2.73, 7.77)	4.36 (2.56, 7.42)	4.84 (2.08, 11.25)	4.54 (1.96,10.50)
Substance Use and Poor Parenting	8.72 (5.75, 13.26)	7.53 (5.01, 11.31)	9.42 (4.94, 17.92)	8.09 (4.16,15.75)

Substance use was defined as lifetime binge drinking, tobacco, inhalant use, marijuana or cocaine use.

Poor parenting was defined as authoritarian, permissive and negligent, versus authoritative parenting.

^a SES - Socioeconomic classification based on ABEP (numerical variable).

5 ARTIGO 2: Effects of a school-based drug prevention program on sexual risk behavior among adolescents in Brazilian schools [aceito para publicação na *Archives of Sexual Behaviors* (2021), *in press*]

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Abstract

Sexual risk behaviors are closely related to the use of alcohol, tobacco and other illicit drugs as well as teen dating violence. School-based drug prevention programs that teach social and personal skills could potentially also reduce sexual risk behaviors. We examined the effects of the *#Tamojunto* program on youth sexual risk behaviors. A randomized controlled trial was conducted with 6,391 7th and 8th grade students in 72 public schools in six Brazilian cities. Baseline data were collected prior to program implementation. Two waves of follow-up assessments occurred after 9 and 21 months. Analyses were performed considering the multilevel structure of the data. We used intention-to-treat to evaluate changes in the prevalence of sexual risk behaviors over time and between groups. Adolescent age ranged from 11 to 15 years old, with a mean of 12.6 ± 0.8 years, and 51.0% were female. Among all participants, receipt of *#Tamojunto* was associated with higher risk of lifetime sex at 21 months follow-up (OR=1.27, 95% CI:[1.03,1.56]). Among girls, at 9 months follow-up, the program was associated with higher likelihood of having engaged in sex in the last month (OR=1.76, 95% CI:[1.13,2.74]). At 21 months follow-up, girls receiving the program were more likely to report engaging in condomless sex in the last month (OR=1.64, 95% CI:[1.07,2.50]). *#Tamojunto* may be ineffective and possibly harmful for preventing sexual risk behaviors, especially among girls. We suggest further investigation of the possible mediating role of life skills intervention components on girl's sexual behaviors.

Keywords: Sex risk behavior; School prevention; Adolescence; Drug use; Randomized controlled trial.

Introduction

Adolescence is an important developmental stage in which youth may engage in sexual risk behaviors. Monitoring sexual behaviors during this vulnerable period is necessary to control sexually transmitted diseases (STDs) and unplanned pregnancies (1). Also, early initiation of sexual intercourse is associated with condomless sex and with having multiple partners (2). According to national data from Brazil, 28.7% of ninth-grade students (mean age 14 years old) reported lifetime sex. Among these sexually active adolescents, 24.7% didn't use condoms during the last sexual encounter (3).

Teen dating violence is a type of intimate partner violence (IPV) that includes several forms of aggression (e.g. physical, psychological, sexual or stalking). It is also associated with sexual risk behaviors, such as early initiation of sex, condomless sex and increased number of partners (4). Adolescent victims of dating violence report higher risk of depression, future IPV victimization (5,6) and increased risk of alcohol and tobacco use (7,8). Substance use is a predictor of early initiation of sex before age 15 (9) as well as condomless sex, HIV infection and dating violence (10,11).

In fact, deviant behaviors are usually associated with each other, which means that participating in one deviant behavior increases the possibility of engaging in another (12). One reason could be related to sensation seeking, a personality characteristic reflecting an individual's tendency to pursue new and exciting stimuli that seems to be associated with most risk behaviors (13). Brain development may also explain how adolescents behave. On one hand, we have the prefrontal cortex, the area of executive control function (e.g. self-control) that requires a long time to develop, finally finishing in adulthood (14). On the other hand, the limbic system, which develops more quickly compared to the prefrontal cortex, supports emotion and pleasure-seeking. The imbalance between these two regions during adolescence may lead to

emotional as opposed to rational reactions (14). In these circumstances, risk-taking in adolescents may be accentuated (14). Notably, substance use and sexual risk behaviors tend to co-occur among adolescents, which amplifies the effects of both phenomena (15). Research suggests that substance use during adolescence facilitates risk of other outcomes, such as risky sexual behavior and violence, and could possibly predict substance misuse later in life (16). This is also consistent with previous research from two cohort studies that found strong associations between drinking, illicit drug use and sexual risk behaviors, mostly among girls (17). Consequently, programs for adolescent drug abuse and sexual risk behaviors have been developed in different contexts: Familias Unidas (18) (family-based), Keep Safe (19) (foster-care) and Positive Action (20) (school-based).

Research suggests that school-based programs are most effective when teaching social and personal skills, such as improvement of communication, assertiveness, decision-making, self-control (in conflict situations), coping skills (21), moral development and clear identification of which behaviors are positive, rather than focusing solely on negative aspects of adverse situations (20). To make best use of limited human and financial resources, research emphasizes the importance of school-based preventive interventions that are evidence-based. This means that an evaluation study has been conducted that indicates the program's effectiveness (22). A European prevention program, *Unplugged* was adapted for implementation in Brazilian public schools as part of a joint initiative overseen by the Brazilian Ministry of Health (BMH) and the United Nations Office of Drugs and Crime (UNODC) (23). The program, based on the Model of Global Social Influence (24), sought to prevent alcohol and other drug use by enhancing personal and interpersonal skills while trying to minimize the impact of social influences by transforming beliefs and normative perceptions (25).

Even though school-based prevention programs can be valuable to reach a large number adolescents before the onset of substance use and sexual activity, their effectiveness still engenders a lot of discussion (26). Multiple studies on drug prevention programs have reported effects on sexual behavior worldwide (16,27–31). However, research has found inconsistent or limited effects of these kinds of school-based interventions (32). In Brazil, little is known about evidence-based drug use prevention programs in the school environment (33). At first, the *#Tamojunto* program found an adverse effect on reported rates of alcohol consumption (34,35). To addresses this need for further evidence, this study evaluated the effects of *#Tamojunto* on the prevalence of sexual risk behaviors among adolescents in a large sample. We hypothesized that this school-based program would protect adolescents from engaging in condomless sex, compared to adolescents who did not receive the prevention program.

Methods

Study design

The present study uses data from a randomized controlled trial of the school-based drug prevention program *#Tamojunto*, funded by the BMH. *#Tamojunto* was conducted with a representative sample of 7th and 8th-grade students (ages 11-15) from 72 public elementary schools in six Brazilian cities between 2014 and 2015. The cities and the surrounding areas included the Federal District, Florianópolis, Fortaleza, São Bernardo do Campo (SBC), São Paulo e Tubarão, located in four states of Brazil. The trial was registered at the Brazilian Ministry of Health's Register of Clinical Trials (REBEC), number RBR-4mnv5g. The protocol is publicly available at

(<http://www.ensaiosclinicos.gov.br/rg/?q=tamojunto>). The study protocol was reviewed and approved by the Ethics Committee of the Universidade Federal de São Paulo (CEP protocol: #473.498). This study was financed by the Brazilian Ministry of Health (TED 89/2014) and in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brasil (CAPES) – Finance Code 001.

Schools were randomized into intervention and control groups. Students in intervention schools received twelve *#Tamojunto* sessions during the first semester of 2014, while the control schools did not offer any program. Sexual risk behaviors, drug use and sociodemographic characteristics were evaluated in both groups using a structured, anonymous and self-reported questionnaire. For this study, we analyzed secondary data related to sexual risk behaviors. Baseline data were collected concomitantly in both groups of schools two weeks before program implementation (February 2014). After completion of the program, there were two follow-up assessments with the same questionnaire completed by all students. The two follow-ups were 9 months (November 2014) and 21 months after the baseline assessment (November 2015), respectively. The *#Tamojunto* program was based on the European program called *Unplugged* (36). As in the previous international *Unplugged* study, the same follow up points (at 9 and 21 months) were used (37). A school year (equivalent to 9 months) was chosen since it was the maximum time interval within the same school year. For the second follow up point, 21 months was chosen in order to establish a regular period of a year (12 months) after the first follow up.

Sampling

Depending on the size of the city in each of the participating municipalities, between 4 and 30 schools were randomly selected from all public middle schools in these locations. To identify schools, we used a list of nationally registered schools from

the Instituto Nacional de Estudos e Pesquisas Educacionais (38). From the selected schools, a second simple random selection process was used to designate the control and intervention schools with a ratio of 1:1 by county.

The sample size was based on an equation from Lwanga and Lemeshow (39) for the purpose of estimating power for recent binge drinking, the primary outcome of the *#Tamojunto* trial. For power of 80%, a significance level of 5% and a difference between groups of 1.5 percentage points (i.e., from 5% to 3.5%), we estimate that the sample size needed for each study arm was 2,835. To account for loss-to-follow-up and for a high intraclass correlation, the sample was increased by 50%. This was based on results of a previously conducted pilot study on absences of enrolled middle school students (40). The resulting sample consisted of 4,253 participants in each arm, totaling 8,506 adolescents.

At each of the intervention schools, all 8th-grade classes were invited to participate in the *#Tamojunto* program and one teacher for each class received training. In Fortaleza, Santa Catarina and Tubarão, 7th-grade classes from the selected schools were also included for two reasons: first, these cities were in the process of changing the age of students assigned to each grade and; secondly, the State Education Secretariat requested the inclusion of the 7th-grade classes in the study. Details on sampling methods have been published previously (34,35) (See Figure 1).

Intervention

The schools in the intervention group received twelve once a week *#Tamojunto* sessions, while the control schools received no intervention. The twelve fifty-minute *#Tamojunto* classroom sessions were guided by trained teachers. The *Unplugged*

program is a drug prevention program developed by researchers from the European Drug Addiction Prevention Trial (EU-DAP) group (23). It uses a social influence approach and addresses social and personal skills, knowledge, and normative beliefs (41). Of the 12 sessions, four classes focused on attitudes and knowledge about drugs, four classes on interpersonal skills (e.g. expression of feelings) and four classes on intrapersonal skills (e.g. practicing assertiveness and coping strategies) (23). A teacher's manual provided information about class procedures, objectives, required materials, as well as tips and activities to be followed. A student manual outlined activities to be covered by the teacher in each class. Both manuals are freely available in several languages from the website www.eudap.net.

The English materials were translated and adapted into Brazilian Portuguese, with adaptations made to idiomatic expressions and to some activities. The BMH team performed the transcultural adaptation and was responsible for implementation of the program, which was not supervised by the European developers.

Middle school teachers delivered the intervention. As a first step, BMH staff attended an *Unplugged* program training session that was conducted by the European developers (the master trainers from the EU-DAP Intervention Planning Group) at an international workshop. Subsequently, the BMH team conducted a 16-hour long training with the teachers (34). At the end of each class, the teachers completed a fidelity questionnaire to monitor the amount of the program that was offered in each class. To guarantee fidelity, teachers received monthly supervision from coaches from the BMH who delivered the initial training. Supervision was carried out by e-mail, telephone or in person with the goal of assisting in class preparation, verifying program classes were delivered and troubleshooting any possible difficulties encountered by the teachers. All twelve lessons in the program were completed by 89% of the classes.

The other 11% of the classes received between four and eleven lessons (42). All classrooms were included in the analysis.

Measures

Data collection related to drug use and the mediators was carried out using an instrument developed and tested by EU-DAP that has been used in prior studies of *Unplugged* (43). In our translated and adapted version to Portuguese there were substitutions of some questions. The replacements were based on questions from standard questionnaires used in Brazil. These questionnaires included the World Health Organization's questionnaire for drug use among students (44) and the Brazilian Ministry of Health's Pesquisa Nacional de Saúde do Escolar questionnaire, which is used regularly to evaluate middle school students' health risk behaviors, such as sexual behaviors and bullying (45). Because we used single questions (not scales) about substance use and sexual behaviors, it was not possible to evaluate their reliability. Despite this, we culturally adapted these questions in order to improve their validity (46). For substance use, our questionnaire was used to assess alcohol, tobacco, marijuana, and inhalant use. Also, we assessed binge drinking (the use of ≥ 5 doses of alcohol during a two-hour period) (34).

Sexual Risk Behaviors

Our primary topic of interest was sexual risk behaviors, which was measured with four items. Lifetime sex was measured by asking "Have you ever had a sexual relationship?" (yes/no). condomless sex was measured by "When you have sex, do you use condoms?" with responses "I have never had sex", "always", "sometimes" and "never", which was collapsed into binary responses (yes/no) by grouping "sometimes"

and “never” as “yes” and “I have never had sex” and “always use” as “no”. We added the response “sometimes” into the “yes” group because it reflects irregular condom use behavior, which is an unsafe behavior. Non-cases were both students who never engaged in sexual activity and students who had used condoms (as use of condoms represents the absence of risk). Sex in the past month was measured by “In the past 30 days, how many times have you had sex?” with responses “I have never had sex”, “not once”, and “__number of times”. In this case we also used the response “__number of times” to form the “yes” group and merged the responses “I have never had sex” and “not once” to form the “no” group. Finally, condomless sex in the past month was measured by “In the past 30 days, have you ever had sex without a condom?” with response categories “I have never had sex”, “no” and “yes” grouped into a binary response (yes/no). Responses “I have never had sex” and “no” represented the “no” group.

Socioeconomic status

Socioeconomic status (SES) was evaluated using the Associação Brasileira de Empresas de Pesquisa scale (47), which considers consumer goods and head of the family’s education level. This scale categorizes the student into socioeconomic status categories from “A” to “E”, where “A” is the highest.

For the follow-up assessments, questionnaires were matched using each student’s secret code. These codes allowed the researchers to compare individual questionnaires at different follow-up points in the study, but protect participants by preserving anonymity and confidentiality, which is essential when studying illicit behaviors (48). It is important to note that participation was not mandatory. Students could choose to return a blank questionnaire. At the end, to avoid being identified, all the students from the same classroom placed their questionnaires inside a brown

envelope. In addition, in order to reduce information bias (false positives), a question related to the use of fictitious drugs (Holoten and Carpinol) was included in the questionnaires. This precaution led to the elimination of 49, 70, and 25 students from the analyses at baseline, first follow-up (at 9 months) and second follow-up (at 21 months), respectively.

Statistical analysis

The integration of the three databases from baseline and follow-ups was performed by pairing a secret code composed of seven letters and one number. Each code combined the following information: name, surname, date of birth, mother's, father's and maternal grandmothers' names. Given that the code included this personal information, it could be decoded only by the student. We matched the secret codes using Levenshtein's algorithm, which identifies similarities among a set of characters (Levenshtein, 1965). School and class codes were included in the matching process.

We first performed descriptive statistics including frequencies and percentages for sociodemographic variables, alcohol use and sex behaviors. Chi-square tests were used to compare groups. Analyses were performed taking into account the multilevel structure of the data to compare the effects of the control and intervention groups on sexual risk behavior variables at 9 and 21 months follow-up, adjusting for age, group, grade, site, SES, baseline sexual risk behavior status, and co-occurrence with alcohol consumption. Also, we examined alcohol use as a mediator of the intervention's effect on sexual risk behaviors. We employed a procedure called Full Information Maximum Likelihood (FIML) to handle missing data and account for the intention-to-treat paradigm, which means that the effect was estimated among all participants who started the study regardless of their loss to follow-up over time. FIML

estimates a likelihood function for each individual based on the variables that are present so that all the available data are used. The analyses were stratified by gender.

To deal with the multilevel structure of the data (children nested in schools) we used a multilevel modeling approach (50). The maximum likelihood estimator was used for all the analyses with robust standard errors (MLR). The MLR accounts for the hierarchical structure of the data and clustering of students within schools (51). Subsequently, the standard error was computed taking into account non-independence of observations due to cluster sampling using a sandwich estimator (52) with the TYPE = Complex command in the analysis command in conjunction with the CLUSTER options of the variable command in Mplus version 8.4.(52). The level of significance was set at 5%.

Results

Descriptive characteristics of students participating at baseline (n=6,391) are presented by group in **Table 1**. Significant differences between the intervention and control groups were observed for age, grade in school and intervention sites ($p < 0.05$). Both groups were homogenous with respect to gender and socioeconomic classification on the ABEP scale at baseline ($p > 0.05$). The adolescents' ages ranged from 11 to 15 years old, with a mean age of 12.6 ± 0.8 years, and 51.0% were female.

Table 2 displays results related to the prevalence of sexual risk behaviors at each follow-up period by group. The prevalence of lifetime sex at baseline was almost identical, 12.39% and 12.43% in the intervention and control groups, respectively. Over time, the prevalence for this outcome reached 16.7% and 14.7% at 9 months and 27.4% and 23.2% at 21 month follow-up, in the intervention and control groups,

respectively. #*Tamojuntó* was associated with a higher likelihood of lifetime sex at 21 months (OR=1.27, 95% CI [1.03, 1.56]).

The results of the stratified analyses by gender indicated that the prevalence of reported sex was higher among boys than among girls (**Table 3**). For instance, regarding lifetime sex, in the intervention group, the prevalence at baseline, 9 month follow-up and 21 month follow-up were 15.3%, 24.9%, 36.4% for boys and 9.7%, 8.4%, 18.9% for girls, respectively. Also, the likelihood of lifetime sex for girls was 33% (OR=1.33, 95% CI:[1.00, 1.76]) higher at 21-month follow-up in the intervention group when compared to students in the control group.

Other results presented in **Table 3** display unintended effects of the #*Tamojuntó* program on girls. Among girls, being in the intervention group was associated with a 76% and 64% higher likelihood (OR=1.76, 95% CI:[1.13, 2.74] at 9 months; OR=1.64, 95% CI:[1.07, 2.50], at 21 months) of having had sex in the last month, as measured at 9 months and having condomless sex in the last month at the 21 month follow-up assessment, compared to the control group.

Attrition

As expected, students who missed both follow-up assessments showed a significantly higher prevalence of all sexual risk behaviors at baseline compared to students who were participated in at least one follow-up assessment. For instance, while the prevalence of lifetime sex was 20.3% among students whose data did not have follow-up data, it was 10.2% among students with data from at least one follow up point ($p < 0.001$). For sex in the past month, the prevalence ranged from 6.8% among students who participated in at least one follow up to 12.9% among students only participating at baseline ($p < 0.001$). Alcohol use in the past month was more

common among students with only baseline data compared to students with paired data, except for students who reported not having drunk in the last month. Regarding differences between the intervention and control groups, there were more students who could not be followed up from the intervention group than from the control group (56.6% vs. 43.4%). Regarding age group, younger students (11-12 years old) had more data both at baseline and at least one follow-up point than did the older students (13-15 years old). Finally, no differences were found by gender. In the supplementary material, we present information about regular alcohol consumption and sexual risk behaviors (Table S1), an analysis of the pattern of participant attrition (Table S2) and, analyses in which alcohol use is tested as a potential mediator of the intervention's effect on sexual risk behaviors (Table S3). Regarding the missing data on students who could not be followed up, data were not imputed since they were not missing at random.

Discussion

In this study, we found an iatrogenic effect of the intervention on engaging in lifetime sex at 21 month follow-up. Additionally, the study suggested a potential detrimental effect of the program on girls. Girls in the intervention group reported a higher likelihood of having engaged in sex in the last month as well as engaging in condomless sex in the last month. Taking these results together, the implementation of this school-based program as a potential policy initiative of the Brazilian government triggers concerns due to potential increases in girls' sexual behaviors and condomless sex behaviors following participation.

The *#Tamojunto* program in Brazil also found negative effects on non-sexual behavioral outcomes in previously published studies, with participation leading to a

30% increase in alcohol initiation at 9 month follow up (34) and a 13% increase at 21 month follow up. The results also showed significant differences between the intervention and control groups in the use of inhalants (35). Another study with high school students, in the United States, also found that, when associated with substance use, sexual risk behaviors were more likely to occur among females (53). For adolescents, this co-occurrence may reflect a strategy to manage distress in their relationships, e.g. due to lack of bonding with peers or to cope with feelings of inadequacy (54). These findings suggest that it is possible that between-group differences in sexual behaviors could be causally related, in part, due to the intervention's adverse effect on substance use behaviors. In our study, we tested alcohol use as a mediator of the effect of the intervention on sexual behavior. However, alcohol use was not a statistically significant mediator, and we could not confirm the hypothesis that there was an indirect effect. Therefore, we conclude that it is more likely that the program is causally associated with these negative changes in sexual behaviors.

An evaluation of *#Tamojunto's* fidelity through semi-structured interviews with the teachers who taught the program showed that they were struggling to deliver the lessons in the regular fifty-minute classroom period and took the liberty to make program adaptations, omitting important content, which could have compromised the expected results (55). Complaints regarding the amount of time needed to implement the intervention were not surprising. However, despite a large proportion of teachers who implemented the *Positive Action Program* in Chicago and reported that they also struggled to deliver the lessons as intended, that program had positive effects on sexual behavior (31). In addition, another program called *All Star* investigated if different delivery conditions would affect their results. Neither the schools that received

the program delivered by teachers or by specialists showed much impact on postponing the initiation of students drinking alcohol or engaging in sexual intercourse (28).

Furthermore, it is important to consider the fact that many Brazilian students have poor reading skills. According to the Programme for International Student Assessment, an international comparative study, 50.1% of 15 years old Brazilian students attained level 2 or above in reading skills. In contrast, only 13% of students in Finland were below level 2 in reading skills. The scale consists of 7 levels (1b, 1a, 2, 3, 4, 5 and 6) in ascending order of proficiency. At level 2, readers are able, when explicitly asked, to reflect on the general objective, or on the objective of specific details, in brief passages of text. Levels 3, 4, 5 and 6 capture students' abilities to assess the quality and credibility of information. At these levels, readers are also able to reflect and to compare the views of several authors. Regarding the “comprehension” subscale, the average for Brazil (409 points) is well below the average for the Organization for Economic Cooperation and Development (OECD) (56). It is possible that Brazilian adolescents also struggled to respond to the questionnaire.

Sexual behaviors are commonly initiated during early adolescence, and tend to increase over time with age, as part of normal development (57). However, it is important to note that engaging in sexual intercourse before the age of 16 has important implications for adolescent health (58). In terms of reproductive outcomes, the practice of sexual intercourse during early adolescence puts this population at higher risk of unwanted pregnancy, abortion, and STDs (1), likely due to having more sexual partners (59). In terms of social implications, teenage pregnancy has been associated with school dropout for girls after becoming mothers, which has serious consequences for educational attainment, income, and social mobility (60). A Youth

Risk Behavior Survey in Korea found that early initiation of sexual intercourse was associated with alcohol and drug abuse, which tend to put teenagers at higher risk for not only those outcomes (stated above) but also to develop antisocial characteristics which, together, potentially lead them to consider and/or to attempt suicide (61). Therefore, from a public policy perspective, it is crucial to consider these findings when implementing school programs intended to prevent related risk behaviors (such as drug use and violence), but that could simultaneously have a negative impact on sexual health outcomes.

No clear effects of *#Tamojunto* were observed for lifetime condomless sex. To our knowledge this outcome was not evaluated when the *Unplugged* program was implemented in Europe, in spite of the fact that Problem Behavior Theory (the most influential theory guiding *Unplugged*) states that early sexual intercourse is closely related to the use of alcohol, tobacco and other illicit drug use as well as other deviant behaviors (12). Also, a number of studies have demonstrated associations between sexual risk behaviors and substance use during adolescence (17,63).

Another school-based drug abuse prevention program called *Life Skills Training*, was evaluated for subsequent sexual risk behaviors. It showed that students who received the intervention were less likely to engage in HIV risk behaviors (21). Additionally, the *Positive Action Program*, a multicomponent school-based social and character development program, was developed to address risk behaviors, such as, substance use, violence and voluntary sexual activity. It revealed that lifetime sexual activity was lower for students attending the intervention schools (20). Those findings contrast with our study that suggested negative effects on engagement in sex in the last month and condomless sex in the last month among girls. Social Learning Theory, the basis of the interactive methods used in working groups in *Unplugged*, postulates

a dialectical relationship between the environment, behavior and psychological processes. When students in our program were in small working groups, they experienced difficulties in sharing emotions. Learning to express divergent opinions in groups may have led the adolescents to reflect on social pressures they face and to improve their skills in managing such situations. Additionally, concepts from the Health Belief Model were used to structure activities about decision making (12). It is possible that these activities also improved participants' self-confidence, which may have carried over to other contexts, such as in their sexual lives.

Topics such as sex and drugs are considered sensitive health behaviors (64). For this reason, sometimes adolescents may have concerns and/or feel shy talking about intimate aspects of their lives. Thus, one explanation of these findings could be that *#Tamojuntó* increased students' willingness to open up and therefore increased the likelihood of reporting their own sexual behaviors, i.e. exposure to *#Tamojuntó* might have led to more open, truthful and less taboo-affected reporting at the follow-up assessments. Furthermore, our study also used confidential self-report questionnaires, which are the golden standard for data collection in effectiveness studies that evaluate behaviors among students. *#Tamojuntó* was an effectiveness study, which means that the study was conducted under real life conditions. Moreover, the *#Tamojuntó* program was carried out as a government initiative, through an official agreement between the Ministry of Health and the Education Departments of each state and municipality, though they had little control over its implementation. Although these real life conditions resulted in several obstacles to its implementation, identifying them is important to improving prevention programs.

Some limitations merit attention. Of central concern are the participation rates; there were a large number of students who were absent at baseline and/or at follow

up. A national survey conducted in Brazil revealed that approximately 20% of public school students are absent each day (45). Furthermore, there was attrition throughout the study and therefore results cannot be extrapolated to all students. However, attrition is an expected limitation in RCTs, and has also been a common problem in other school-based prevention studies (65,66). Another potential limitation is that self-reported responses may be subject to social desirability bias. Also, a follow up assessment at the time of intervention completion would have been desirable. Nonetheless, a question about a fictitious drug allowed us to discard questionnaires with over-reporting bias from the analysis. Lastly, our study does not explain how differences in boys' and girls' behaviors may have influenced these findings; future studies could shed more light on reasons for the gender differences we observed. Despite these limitations, strengths include the randomized nature of the study and the involvement of six cities in different regions of Brazil increases the generalizability of the findings.

In summary, the results indicate that *#Tamojuntó* may not be effective for the prevention of sexual risk behaviors, especially among girls. Future research that builds from these findings should prioritize the development and evaluation of other sexual risk prevention programs in the Brazilian context.

Compliance with ethical standards

Conflict of interest: On behalf of all authors, the corresponding author states that there is no conflict of interest.

Human participants and/or animal subjects: All procedures in the present study were in accordance with the ethical standards of the institutional and/or national

research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. This study was approved by the Ethics in Research Committees at the University of São Paulo (#473.498) and the Federal University of Santa Catarina (#711.377).

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Figure 1: Flowchart of the #Tamojuntó controlled randomized trial, 2014/2015.

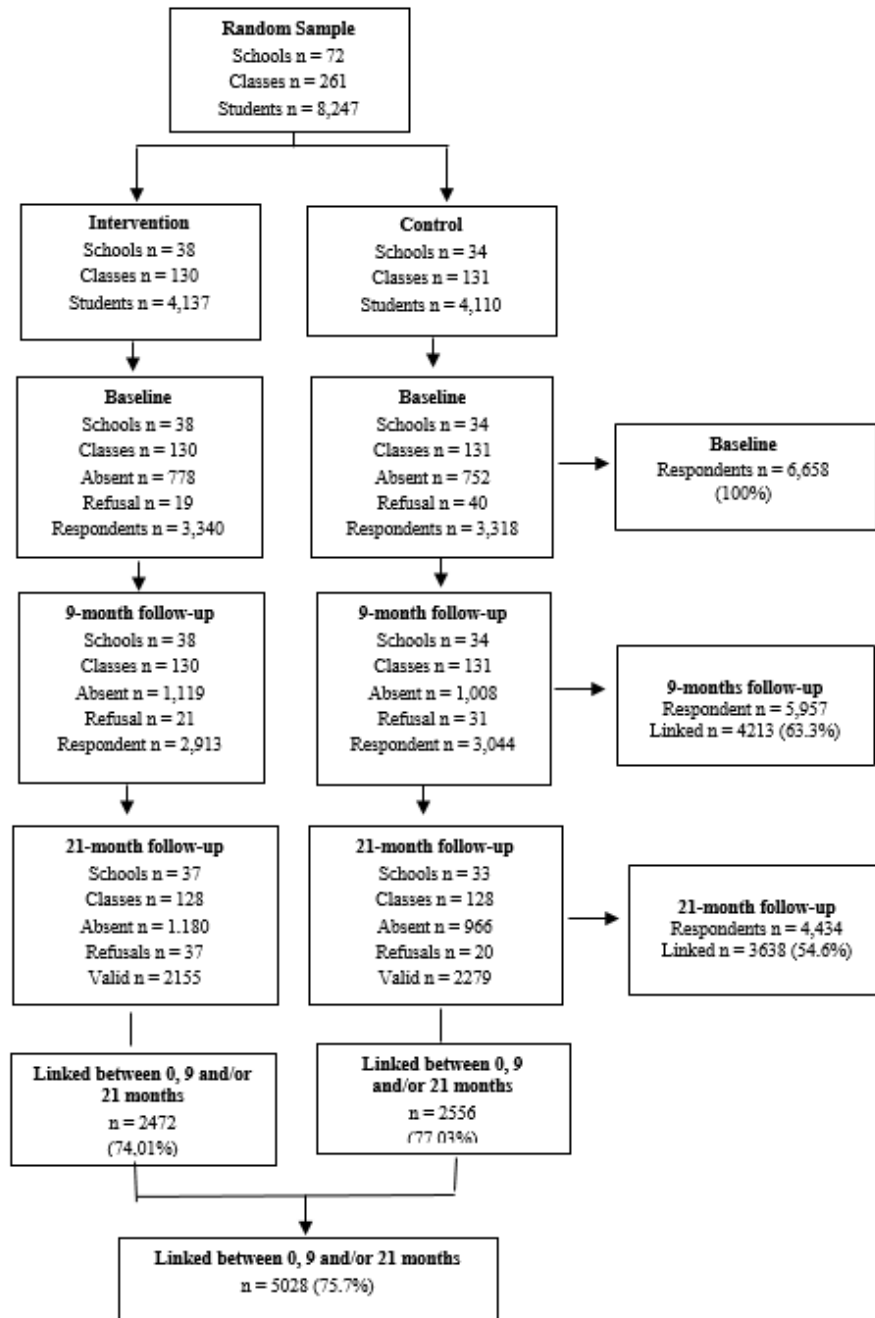


Table 1: Distribution of baseline sociodemographic characteristics among students participating in the #Tamojunto randomized controlled trial from 2014 to 2015 (N=6,391).

	TOTAL (N=6.391)	INTERVENTION (n=3.243)	CONTROL (n=3.148)	P ^a
Sex				0.56
Male	3130 (49.0%)	1600 (49.3%)	1530 (48.6%)	
Female	3261 (51.0%)	1643 (50.1%)	1618 (51.4%)	
Age Group				0.01
11-12	3343 (52.3%)	1643 (50.7%)	1700 (54.0%)	
13-15	3048 (47.7%)	1600 (49.3%)	1448 (46.0%)	
Socioeconomic Status*				0.22
A	244 (3.8%)	125 (3.9%)	119 (3.8%)	
B	2467 (38.7%)	1261 (39.0%)	1206 (38.4%)	
C	3343 (52.4%)	1704 (52.7%)	1639 (52.2%)	
D/E	322 (5.1%)	145 (4.5%)	177 (5.6%)	
Grade in school				<0.01
7th	964 (15.1%)	411 (12.7%)	553 (17.6%)	
8th	5427 (84.9%)	2832 (87.3%)	2595 (82.4%)	
Site				<0.01
Brasília	557 (8.7%)	283 (8.7%)	274 (8.7%)	
Florianópolis	885 (13.9%)	397 (12.2%)	488 (15.5%)	
Fortaleza	543 (8.5%)	288 (7.0%)	315 (10.0%)	
SBC**	954 (14.9%)	534 (16.5%)	420 (13.3%)	
São Paulo	3122 (48.9%)	1630 (74.3%)	1492 (69.6%)	
Tubarão	330 (5.1%)	171 (5.3%)	159 (5.1%)	

Comparisons between groups were calculated using the Chi-square test.

*SES - Socioeconomic status was classified according to ABEP, in which A is higher status and D/E status lower status.

** São Bernardo do Campo

Table 2: Effects of a randomized controlled trial of the #*Tamojuntto* program on the distribution of adolescent **sexual behaviors** in 2014 and 2015.

	Time												Effect of #Tamojuntto	
	Baseline				9 months				21 months				9 months	21 months
	INTERVENTION		CONTROL		INTERVENTION		CONTROL		INTERVENTION		CONTROL		Odds Ratio ^a (95% CI)	Odds Ratio ^a (95% CI)
	N	%	N	%	N	%	N	%	N	%	N	%		
Ever had sex (lifetime)	395	12.39	385	12.43	336	16.7	318	14.7	480	27.4	426	23.2	0.99 (0.76-1.30)	1.27 (1.03- 1.56)
Ever had condomless sex (lifetime)	142	4.5	146	4.7	110	5.5	124	5.7	143	8.2	140	7.6	0.87 (0.64-1.18)	1.08 (0.78-1.48)
Sex in past month	256	8.1	254	8.3	212	10.6	182	8.5	266	15.3	250	13.7	1.19 (0.90-1.58)	1.14 (0.87-1.49)
Condomless sex in past month	119	3.7	130	4.2	94	4.7	93	4.3	148	8.5	125	6.8	0.97 (0.69-1.38)	1.31 (0.90-1.90)

Bold font indicates statistical significance $p < 0.05$

Sex in lifetime – defined as “yes” to the question “Have you ever had sexual intercourse?”; Condomless sex in lifetime – referred to “sometimes use” or “never use” in response to the question “When you have sexual intercourse, do you use condom?”; Sex in the past month – defined as “yes” to the question “Have you had sex at the last month?”; Condomless sex in month – indicated by “yes” to the question “Have you had sex without condom at the last month?”; Unsafe sex was based on students who were already sexually active; ^a Included the total sample in the analysis. The analysis was conducted with Full Information Likelihood, while adjusting for age group, grade, site, socioeconomic status and baseline sexual status and alcohol use.

Table 3: Sex stratified results of the effects of the #Tamojuntó program on the distribution of adolescent **sexual behaviors** in 2014 and 2015.

		Time								Effect of #Tamojuntó							
		Baseline				9 months				21 months				9 months		21 months	
		INTERVENTION		CONTROL		INTERVENTION		CONTROL		INTERVENTION		CONTROL		Odds Ratio ^a (95% CI)	Odds Ratio ^a (95% CI)		
	Gender	N	%	N	%	N	%	N	%	N	%	N	%				
Ever had sex (lifetime)	Male	237	15.3	241	16.1	241	24.9	231	23.2	300	36.4	278	31.8	0.99 (0.75-1.30)	1.19 (0.90-1.57)		
	Female	158	9.7	144	9.0	83	8.4	83	7.5	169	18.9	137	14.9	0.97 (0.62-1.53)	1.33 (1.00-1.76)		
Ever had condomless sex (lifetime)	Male	91	5.8	101	6.8	79	8.1	91	9.1	88	10.7	90	10.3	0.88 (0.63-1.24)	1.00 (0.70-1.44)		
	Female	51	3.2	45	2.8	27	2.7	33	3.0	50	5.6	44	4.8	0.79 (0.44-1.41)	1.17 (0.75-1.83)		
Sex in past month	Male	161	10.5	151	10.2	142	14.8	133	13.4	158	19.2	161	18.5	1.00 (0.73-1.35)	1.00 (0.70-1.29)		
	Female	95	5.9	103	6.5	62	6.3	47	4.2	100	11.3	81	8.8	1.76 (1.13-2.74)	1.45 (0.97-2.18)		
Condomless sex in past month	Male	71	4.6	72	4.8	55	5.7	63	6.4	76	9.2	74	8.4	0.78 (0.52-1.18)	1.06 (0.63-1.80)		
	Female	48	2.9	58	3.6	35	3.5	30	2.7	69	7.7	45	4.9	1.41 (0.90-2.21)	1.64 (1.07-2.50)		

Bold font indicates statistical significance $p < 0.05$

Sex in lifetime – defined as “yes” to the question “Have you ever had sexual intercourse?”; Condomless sex in lifetime – referred to “sometimes use” or “never use” in response to the question “When you have sexual intercourse, do you use condom?”; Sex in the past month – defined as “yes” to the question “Have you had sex at the last month?”; Condomless sex in month – indicated by “yes” to the question “Have you had sex without condom at the last month?”; Unsafe sex was based on students who were already sexually active; ^a Included the total sample in the analysis. The analysis was conducted with Full Information Likelihood, while adjusting for age group, grade, site, socioeconomic status and baseline sexual status and alcohol use.

Supplementary File

Table S1: Distribution of baseline alcohol use, pregnancy and sexual violence among students participating in the #Tamojuntto randomized controlled trial from 2014 to 2015 (N=6,391).

	INTERVENTION (n=3,243)	CONTROL (n=3,148)	P*
Alcohol use/days in a year			0.674
Yes	1014 (31.5%)	1001 (32.0%)	
No	2203 (68.5%)	2126 (68.0%)	
Alcohol use/days in a month			0.196
None	2700 (83.7%)	2662 (84.8%)	
1-5	456 (14.1%)	405 (12.9%)	
6-19	43 (1.3%)	34 (1.1%)	
>19	27 (0.8%)	37 (1.2%)	
Binge drinking/days in a year			0.511
Yes	519 (16.2%)	487 (15.6%)	
No	2682 (83.8%)	2633 (84.4%)	
Binge drinking/events in a month ^b			0.14
None	2785 (86.9%)	2752 (88.3%)	
1-2	234 (10.4%)	300 (9.6%)	
3-5	42 (1.31%)	39 (1.25%)	
>5	45 (1.4%)	27 (0.9%)	
Pregnancy			0.302
Yes	11 (0.4%)	16 (0.5%)	
No	3144 (99.7%)	3059 (99.5%)	
Suffer sexual violence			0.005
Yes	84 (2.7%)	50 (1.6%)	
No	3089 (97.3%)	3032 (98.4%)	
Practice sexual violence			0.225
Yes	69 (2.2%)	54 (1.8%)	
No	3108 (97.8%)	3038 (98.2%)	

* Comparisons between groups were calculated using the Chi-square test.

Table S2: Distribution of sociodemographic variables and **sexual behavior** patterns among students followed up in the longitudinal analysis and those lost in the follow up (N = 6,391).

Sociodemographic variables and sexual behavior at baseline	Not followed up** (N = 1.384)		Followed up* (N = 5.007)		p ^a
	N	%	N	%	
Group					
Control	601	43.4	2547	50.9	<0.001
Intervention	783	56.9	2459	49.1	
Gender					
Boy	671	48.5	2459	49.1	0.679
Girl	713	51.5	2548	50.9	
Age Distribution (years)					
11 – 12	531	38.4	2812	56.2	<0.001
13 – 15	853	61.6	2195	43.8	
Grade in School					
7th	246	17.8	718	14.3	0.002
8th	1138	82.2	4289	85.6	
Alcohol use/Month					
None	1120	80.9	4417	89.4	<0.001
1-2	198	14.3	436	8.8	
3-5	27	2.0	54	1.1	
>5	39	2.8	33	0.7	
Sexual Behaviors					
Lifetime sex	281	20.3	499	10.2	<0.001
Lifetime condomless sex	104	7.5	184	3.8	
Sex in past month	178	12.9	332	6.8	
Condomless sex in past month	96	6.9	153	3.1	

* Students who responded at baseline and at 9 and / or 21 months and presented information on gender and age <16 years.

** Students only responded to the questionnaire at baseline and presented information on gender and age <16 years.

a. Cluster corrected Chi-square test

Table S3: Effect of alcohol use as a mediator of sexual risk behaviors among student participating in the #Tamojuntto randomized controlled trial from 2014 to 2015 (N=6,391).

	Outcomes	<u>Direct effects of the intervention through alcohol use</u>			<u>Indirect effects of the intervention through alcohol use</u>		
		Estimate	95% CI	P-value	Estimate	95% CI	P-value
CC	Ever had sex (lifetime)	0.250	0.001; 0.499	0.049	0.010	-0.008; 0.027	0.280
	Ever had condomless sex (lifetime)	0.217	-0.127; 0.562	0.216	0.024	-0.008; 0.056	0.135
	Sex in past month	0.049	-0.278; 0.375	0.771	0.001	-0.022; 0.024	0.930
	Condomless sex in past month	0.398	0.004; 0.729	0.048	0.008	-0.022; 0.038	0.600
FIML	Ever had sex (lifetime)	0.239	0.020; 0.458	0.032	0.004	-0.008; 0.016	0.526
	Ever had condomless sex (lifetime)	0.087	-0.224; 0.398	0.584	0.018	-0.004; 0.040	0.105
	Sex in past month	0.088	-0.187; 0.363	0.531	0.000	-0.020; 0.019	0.972
	Condomless sex in past month	0.298	-0.066; 0.663	0.108	0.004	-0.024; 0.031	0.799

CC: Complete cases

The intention-to-treat paradigm was implemented using the *Full Information Maximum Likelihood (FIML)* approach.

6 ARTIGO 3: Risk factors for early sexual intercourse in adolescence: a systematic review of cohort studies [A ser submetido inicialmente à *American Journal of Public Health*]

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Abstract:

Purpose: This systematic review provides a comprehensive, updated assessment of risk factors related to early sexual intercourse (ESI) among adolescents. **Methods:** A systematic approach, in accordance with PRISMA guidelines, was used to review and identify eligible cohort studies in the three electronic databases: PubMed, Embase and LILACS. Literature search strategies were used to identify pertinent studies released from 1999 through December 2020. Identified studies were screened against specified eligibility criteria. For studies that passed the quality assessment, the following information were analyzed: study authors, publication year, study country, sample size, study design, length of follow-up, statistical analytic techniques, independent variables, outcome measure, major findings, and study limitations. **Results:** A total of seven studies out of 2.787 identified met the review criteria for study quality and were included in the data extraction and analysis. The studies examined a range of factors, which were organized in four dimensions – individual, family, social and environment, and sociodemographic. Risk factors with stronger associations for ESI were: adolescents' and parents' substance use, conduct problems, family and academic attachment, not living with both biological parents, and low maternal education. Three studies were birth cohorts, with sample sizes ranging from 273 to 4.808. **Conclusions:** The study shows that substance use is a strong risk factor for ESI, as well as family and academic attachment. Key strengths of this research is the longitudinal nature of the studies included that enabled us to explore a wide range of exposures collected earlier in life, before initiation of sexual intercourse. Two main gaps are cutoff age for ESI are not the same across studies and a need for more research in low- and middle-income countries.

Keywords: Early sexual intercourse; adolescence; risk factors; cohort studies; systematic review.

Introduction

Adolescents face multiple changes associated with the maturation process, such as physical, emotional and social transformations, which can pose a challenge (1). Among these experiences, early sexual intercourse (ESI) in adolescence raises concerns about health and social development (2). Although there is lack of consensus about the age at which sexual intercourse is considered “early,” many consider before the age of 15 to be precocious (3).

The onset of sexual intercourse at younger ages remains a troubling issue in public health because it has been linked to a wide range of negative health outcomes (4). Regarding physical health, ESI is associated with unsafe sex (5), which can lead to short- and long-term consequences, such as unintended pregnancy (6) and sexually transmitted infections (STIs) (7). In the domain of mental health, ESI has been associated with substance use (8), eating disorders (9), low self-esteem (10), antisocial personality (11), depression (12), suicidal ideation, and suicide attempts (13). Taking into account the social sphere, ESI may cluster with multiple sexual partners (14), unsafe abortion or abortion-related death (15), physical aggression (16), teen dating violence (17), and poor school performance (18). Some researchers believe that adolescents’ intentions to engage in risky sexual behaviors are related to sensation seeking, a personality trait that makes an individual pursue new and exciting stimuli (19), a phenomenon more common during early adolescence (20).

The prevalence of ESI varies widely worldwide. Recent data from the Youth Risk Behavior Surveillance (YRBS) in the United States found that 20.4% of students had already initiated sexual relationships in 9th-grade, or around ages 14-15 (14). Data

from the Global School-Based Health Survey (GSHS) from eight African countries found the prevalence of ESI to be 27.3% among 15-year-old adolescents. In addition, the age of first sexual intercourse was higher among youth aged 11-years-old and younger (11.8%), when compared to those with different ages (12-15-years-old) (21). A comparison of risky sexual behaviors between two cohorts in Spain showed that the age of first sexual intercourse decreased with time. Adolescents from the 2006 and 2012 cohorts had their first sexual intercourse at 15.1 and 14.7 years, respectively (22).

The negative effects of ESI could harm adolescent health and social development and have consequences into young adulthood (4). In fact, one of the United Nations Sustainable Development Goals (UN SDG) for the 2030 agenda refers to universal access to sexual and reproductive health services, including family planning, information and education (23). To achieve this goal, prevention strategies are important that reduce or delay the onset of sexual intercourse.

Cohort studies contribute to a greater understanding of ESI and its impacts. Although a robust body of literature reports risks associated with engaging in ESI, few studies have examined the phenomenon in light of the results of studies with this design. Therefore, an evaluation of such studies can contribute to an understanding of adolescents' sexual behavior over time and offer support for the development of prevention strategies.

To protect adolescents from its negative impacts, it is important to first understand risk factors for ESI. Hence, with a view towards developing evidence-based sexual health prevention programs, the aim of this systematic review is to identify the risk factors associated with ESI among adolescents worldwide.

Methods

This study includes a systematic review of the scientific literature based on the PRISMA protocol (24). The aim of this review was to identify risk factors for ESI at adolescence (10 to 19 years) based on cohort studies (Table 1). Three electronic databases (PubMed, Embase and LILACS) were accessed to search the literature. Our search for articles in PubMed used the following terms and keywords: “adolescent [mh] OR adolescent [tw] OR adolescents [tw] OR youths [tw] OR teen [tw] OR adolescence [tw] AND Sexually Transmitted Diseases [mh] OR Sexually Transmitted Diseases [tw] OR stis [tw] OR sti [tw] OR sexually transmitted infections [tw] OR stds [tw] OR Unsafe Sex [mh] OR Unsafe Sex [tw] OR high-risk sex [tw] OR unprotected sex [tw] OR sexual behavior [mh] OR sex behavior [tw] AND cohort studies[mesh] OR cohort[tw].” For the other databases, we used a similar search string, adapted for each database.

Eligibility Criteria

Two researchers reviewed the titles and abstracts of all the studies that were identified in the search. Studies that did not meet the eligibility criteria (listed below) were excluded. The second step was to retrieve the full text of those that met the inclusion criteria. Disagreements were resolved through discussion with a third member of the research team.

To be eligible for inclusion, articles had to: 1) present findings from cohort studies; 2) include adolescents between 10 and 19 years old in the study sample; 3)

be in English, French, Portuguese or Spanish and; 4) be published between January 1999 and December 2020.

Studies were excluded from the review if they did not meet the four inclusion criteria or were conducted with special populations e.g. street-involved youth, pregnant teenagers, sex workers, detained adolescents, youth undergoing intensive psychiatric treatment, adolescents recruited from medical clinics or men-who-have-sex-with-men. The reason for this was that our review focused on risk factors for ESI in adolescence more broadly, not in key populations. Key populations tend to report high rates of ESI, with different patterns compared to those of adolescents in general. Duplicate studies were excluded.

Data Extraction and quality assessment

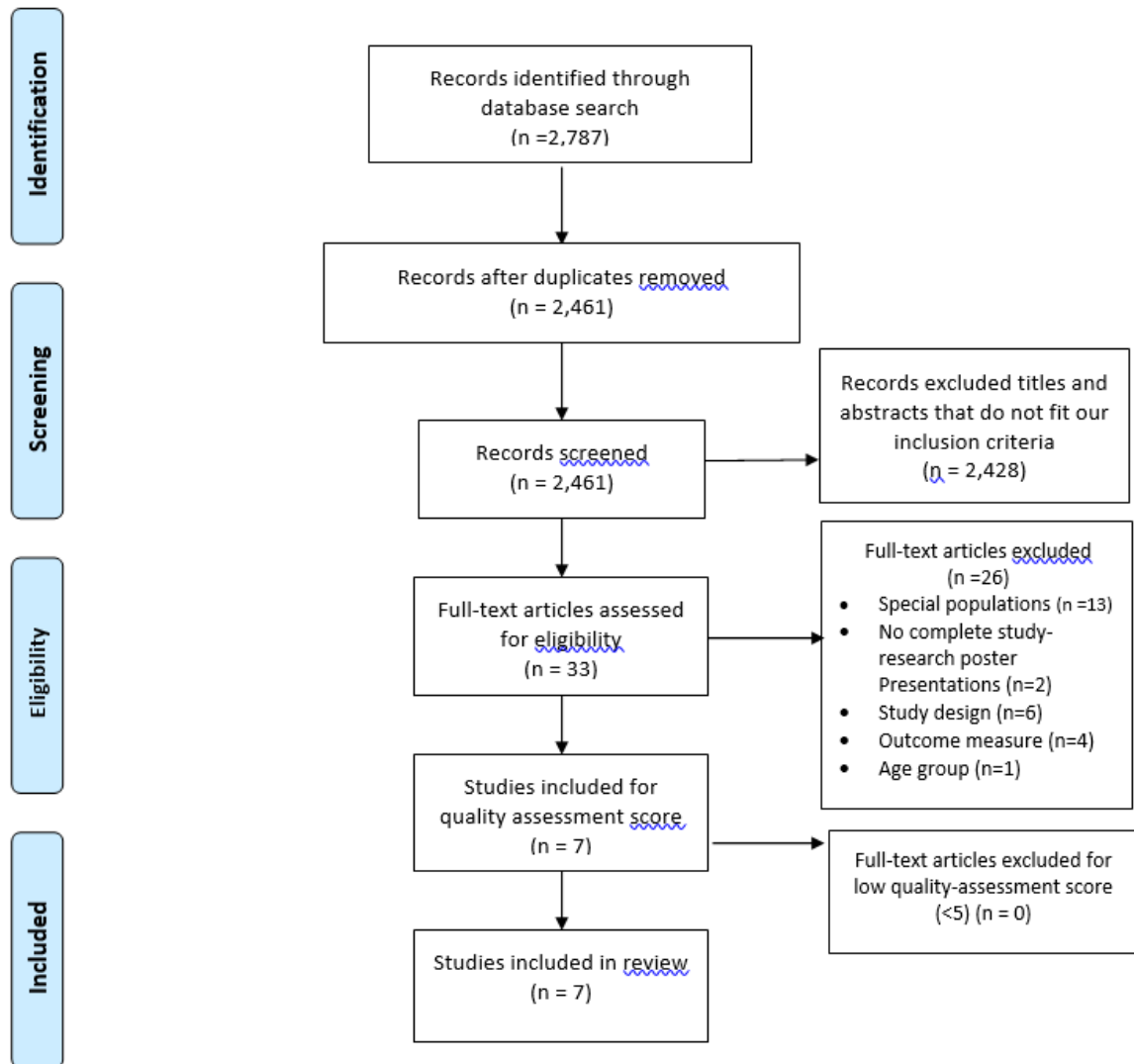
From each article, we extracted the study authors, publication year, study country, sample size, study design, length of follow-up, statistical analytic techniques, independent variables, outcome measure, major findings, and study limitations. We used the Newcastle-Ottawa Quality Assessment Scale (NOS) for cohort studies to assess the quality of the articles (25). Studies with higher scores indicated greater quality. The NOS has three quality parameters: selection (four points), comparability (two points), and outcome (three points).

Analytic strategy

The first author reviewed all articles pulled for full-text review. These were examined using a data extraction form and a study quality scale. A second independent reviewer checked the data extraction and quality-assessment score for each article, and any discrepancies were resolved through discussion. Any articles that did not meet

inclusion criteria after full-text review were excluded. For included studies, we used extracted data to summarize results stratified and organized by risk factors.

Figure 1. PRISMA flow diagram for identifying included articles



Results

We identified 2,787 citations through our literature search (Figure 1). After excluding duplicate citations, 2,461 records were eligible for review. Subsequently, we excluded 2,428 (98.6%) citations after screening titles and abstracts. We obtained full text articles for the remaining 33 citations, and from these records, seven were included

for quality assessment. A total of seven articles met the review criteria and were included in the final analysis.

Of the seven studies reviewed, four (57.1%) achieved high (7-9) and three (42.9%) moderate (5-6) NOS ratings. Three studies were birth cohorts (26–28) and four were part of longitudinal investigations: National Longitudinal Study of Adolescent Health (Add Health) (29), South Africa Tanzania Project (30), Young in Norway (31) and Wisconsin Study of Families and Work (32). Follow-up assessments in the birth cohorts ranged from 15 to 21 years and subjects were followed up from six (28) to nine (26) times. Among studies stemmed from longitudinal projects, follow-up varied from one (29) to seven years (30) and subjects were mostly assessed only once (29,30,32). All studies reported their loss to follow-up. Retention of $\geq 80\%$ of the participants was reported by three studies (42.9%) (26,27,32). Subjects lost were caused by: parents refusal for their children to participate (30) or to answer the sexuality questions (32), students not being present in class during the data collection (30) and the increased number of follow up visits that was not in the original design (31). In addition, there were characteristics associated to mothers of nonresponders, such as, be younger than 25 years of old at the time of birth, nonwhite, less educated, and smoke during pregnancy (28).

In total, seven studies with 11.667 participants from five countries were included: New Zealand, Norway, South Africa (contributing one study each), Australia and the United States (contributing two studies each). Although the articles were published between 1999 and 2020, the data presented were collected from 1972 (27) to 2009 (26) and samples ranged from 273 to 4.808 participants. All but one study, which focused only on females (26), included both males and females. Among non-birth cohorts, the age at baseline ranged from 11 to 14, with a mean of 12.3. Sexual

intercourse before the age of 11 was excluded by the authors because of concerns about incest or other forms of sexual abuse (31). Most studies characterized sexual intercourse as penile-vaginal intercourse, though one study included anal sex in their definition (30). One study reported oral sex as a secondary outcome (32). Study outcomes also varied in terms of age of sexual intercourse. The cutoff for ESI was defined as the age 15 in five studies included. A single study did not establish a cutoff age for ESI, but found 16 years as the median age of first sexual intercourse, suggesting 15 could be considered the age of ESI for this sample (26). Taking all in account, five of the seven studies (75.0%) considered the age of 15 as ESI, and two treated ESI to be age 16 (29,31). A summary of study results is shown in Table 2.

Regarding the data analyses, studies conducted multivariate analyses, such as logistic regression (27,29), structural equation modelling (30), cumulative risk analysis (32), Kaplan-Meier survival probabilities (26,28), and Cox regression (31) of associations between potential factors and the outcomes, controlling for potential confounders (Table 2).

Studies included in this review assessed 50 different factors for ESI outcomes (Table 2). From these, 36 (72.0%) were identified as statistically significant risk factors for ESI. Considering that these studies included a wide range of factors, we organized them in 4 dimensions: individual; family; social and environment; and sociodemographic. Each dimension of risk factors for ESI is reported in table 3.

More than half of the studies (58.3%) identified individual risk factors for ESI. These factors were related to development, attitudes and beliefs and, mental health. In this category, most common exposures were attitudes (30.6%), which included aspects such as sexual behavior, substance use and self-esteem. Mental health problems (19.4%) were exposures in other studies. In third place, studies examined

developmental characteristics (8.3%). Substance use was highly associated with ESI for both genders. Boys and girls with daily smoking habits had 1.4 (OR=1.4 95% CI: 0.69–2.9) and 3.0 (OR=3.0 95% CI: 1.5–6.1) times the odds of engaging in ESI when compared to those non-smokers (27). Alcohol intoxication was also associated with ESI (boys: RR=2.22 95% CI: 0.91–2.51, girls: RR=3.41 95% CI: 1.28–9.08) (31), (boys: OR=1.5 95% CI: 0.65–3.6, girls: OR=1.3 95% CI=0.53–3.4) (27). Furthermore, all three studies that investigated religion found it was associated with ESI. Being less religious was a risk among adolescents with strong parental disapproval of sex (OR=1.63 95% CI: 1.25–2.12) (29). Likewise, being involved in religious activity played a role for boys in delaying the age of sexual intercourse (OR=0.39 95% CI: 0.17–0.91) (27). Additionally, higher self-esteem scores among girls (OR=2.4 95% CI: 1.0–5.9) were identified as a predictor for ESI (27). Among boys, high (RR=2.96 95% CI: 1.22–7.21) and moderate (RR=1.93 95% CI: 0.82–4.53) self-perceived romantic appeal were found as risk factor for ESI (31). Also, intention to have sexual intercourse was associated with transition for first sexual intercourse (coefficient = 0.10), and the strongest predictor of intention was social outcome expectancies (coefficient = 0.43) (30).

Despite three studies have examined age at menarche, only one found a significant trend for ESI – when it happened at age 11 (OR=1.5 95% CI: 0.19–12) (27). Also, associations between early pubertal maturation among boys and ESI were observed (RR=1.46 95% CI: 0.94–2.29) (31). Moreover, conduct problems were associated with ESI by all three studies that investigated this exposure: for both genders, early development of aggressive problems significantly increased the risk of ESI (boys: OR=3.46 95% CI: 1.98–6.05, girls: OR=2.19 95% CI: 1.17–4.10) (28), (boys: RR=1.65 95% CI: 1.05–2.59, girls: RR=1.12 95% CI: 0.68–1.85) (31); for boys,

having a diagnosis of conduct disorder was associated with ESI (OR=4.1 95% CI: 1.22–14) (27). In contrast, among the five studies that examined depression symptoms, only two found significance for ESI: for boys, internalizing behaviors problems, such as depression, increased the risk at ages 8 (OR=2.03 95% CI: 1.29–3.21) and 10 (OR=2.68 95% CI: 1.69–4.24) (28); for adolescents who reported strong parental disapproval of sex, being more depressed was also a risk for ESI (OR=1.72 95% CI: 1.27–2.33) (29) (Table 3).

Factors related to family also had important results (22.2%) in relation to ESI. This level provides information of parental substance use and family attachment (11.1%, each). For instance, a greater risk of ESI was found with parental daily smoking habits (RR=1.70 95% CI=1.05-2.74) for girls and (RR=1.15 95% CI: 0.74-1.78) for boys (31). Among adolescents who reported ESI, there was a higher prevalence of mothers (31.3%) and fathers (47.0%) who smoked during pregnancy ($p<0.001$) (28). Parental alcohol problems were also associated with ESI for both genders (boys: RR=1.71 95% CI: 1.13-2.60, girls: RR=1.23 95% CI: 0.78-1.93) (31). Among adolescents who described their parents in a position of strong disapproval of sex the lack of parental monitoring of television programming was associated with 1-year of sexual initiation (OR=1.35 95% CI: 1.01–1.81) (29) (Table 3).

More than a quarter of studies (30.6%) found associations between social and environmental factors and ESI. The majority of these studies included academic factors (19.4%), followed by watching television (5.6%), peers' substance use, and not having outside home interests (2.8% each). Low achievement at school was also associated with a greater risk of ESI for both genders (27,31,32). Low aspirations for education (31), plans to leave school early, and being in trouble at school (27) were also predictors for ESI. Furthermore, spending time viewing television programs with

high sexual content appeared to be associated with ESI for both boys ($B = .38$, Wald = 7.07, $p = .024$) and girls ($B = .15$, Wald = 6.90, $p = .009$) (32). Another study found that adolescents who spent 2 or more hours per day viewing television were more likely to initiate sex within one year (OR=1.35 95% CI: 1.01–1.79). Among those who described their parents with strong disapproval of sex, association was stronger (OR=1.72 95% CI: 1.24–2.40)(29).

From the 7 studies, we identified 8 sociodemographic risk factors for ESI (38.9%). This dimension includes the following covariates: living environment, maternal education (8.3% each), age, socioeconomic group (5.6% each), ethnicity, gender, both parents' education and, maternal age at first pregnancy (2.8% each). Being male (vs female) (Mathews et al., 2009), older (Ashby et al., 2006; Mathews et al., 2009) and Black (29) were associated with ESI. Not living with both biological parents (26,28,32) and having low (Mathews et al., 2009) or middle (27) socioeconomic status were also a predictor for ESI. Additionally, a few parental characteristics identified as risk factors for ESI were: low parental education (32), low maternal education (26,28,29), and mother's age at first pregnancy before age 20 (27). Lastly, for one study no measured sociodemographic variables had an effect on ESI (31).

The exposures most examined by the researched articles were: overall mental health, adolescents' and parents' substance use, family and academic attachment, living environment, and parents' education. Risk factors with stronger associations for ESI were: adolescents' and parents' substance use, conduct problems, no religious beliefs, family and academic attachment, not living with both biological parents, and low maternal education.

Discussion

The purpose of this systematic review was to improve our understanding of the relationship between risk factors and ESI among adolescents. The longitudinal nature of the studies included in the review has enabled us to explore a wide range of exposures collected earlier in life, before initiation of sexual intercourse. Our review operates from a multi-dimensional model, composed of four integrative dimensions – individual, family, social and environment, and sociodemographic - to classify available findings.

The relationship of ESI and attitudes, family's substance use, and academic environment exposures were found to be more consistent with literature. Furthermore, findings associated with both age at menarche and depression symptoms were less consistent. This systematic review, which covers research from 1999 through 2020, contributes to the field with an updated and comprehensive assessment of risk factors for ESI. Across ESI outcomes, the relation with sexual behavior in a broader context needs to be more adequately considered. We identified low self-efficacy to negotiate delayed sex as a risk factor for ESI (30). This is a concern because it might reflect adolescent's poor communication skills (34), which may diminish condom use (35). Comparing two data editions of the National Survey of School Health (PeNSE) in Brazil, condom use at last sex among students aged 13-15 years decreased from 75.3% in 2012 (36) to 66.2% in 2015 (37). Moreover, data from the National Longitudinal Study of Adolescent Health (Add Health) in the United States showed that adolescents with lower self-efficacy in condom use had more nonromantic sexual partners (38). Thus, preventive interventions may focus on assertiveness, especially where there are gender differences' issues (39).

Our findings suggest that, overall, substance use both by adolescents (27,31) as well as by their parents (31), even during pregnancy (28), were an antecedent to ESI. This is supported by several studies (4,40,41). Additionally, substance use has been identified as a factor that increases conduct problems (42,43). Taking into account that risky behaviors tend to occur together (44), implement prevention programs that addresses more than one outcome is crucial. For instance, Life Skills Training, Positive Action, All Star Program and Project PATHS are programs that cover multiple outcomes (45–48).

This review suggests that some aspects of school environment, such as achievement, aspirations, plans to leave school, and being in trouble at school are likely to influence adolescent's ESI (27,29,31). This result is supported by a previous study, which found that not skipping school and staying out of trouble were protective against ESI (49). Literature suggest that students who do not feel connected to school are more likely to engage in maladaptive risk behaviors (50), and that adolescents' perceptions of their respect and inclusion in school is essential to establish a connection with this environment (51). A possible explanation could be that school facilitates strong social bonds among adolescents, their peers, and teachers to boost positive behaviors. Indeed, evidence suggests that adolescents avoid behaviors that are not valued by others they respect in school (52). Additionally, as a poor academic self-concept may undermine adolescent's confidence, those with low positive feelings towards themselves would be more likely to engage in ESI to compensate for lack of confidence (49).

Two studies indicated television viewing as a risk factor for ESI among adolescents (29,32). Since most mass media (press, radio and television) programs do not provide accurate sex information (53), mass media consumption among

adolescents should be carefully examined. In fact, one study found that the risks of ESI were accurately discussed in only 10% of sexual content on television programs popular among adolescents (54). Previous research on adolescents' TV watching habits identified that those who viewed more sexual content were more likely to initiate sexual coital and noncoital activities (55). Taking into account that adolescents' daily lives have changed since the novel coronavirus (COVID-19) disease (56) became a pandemic (57), it is crucial to more closely consider the health impacts of mass media consumption among adolescents. On this subject, a study found that confinement imposed by COVID-19 led to up to 4 hours/day of increased media exposure among children and adolescents (58). Exposure to sexual media in television and movies contributes to the development of a range of beliefs and sexual attitudes in adolescents, such as self-objectification, body shame, decreased sexual assertiveness, coercive sex victimization, normalization of attempted/completed rape (59), and involvement in dysfunctional or violent romantic relationships (60). Indeed, we identified physical violence in intimate relationships as a risk factor for ESI (30). Taking everything into account, these findings shed light on the need for improvements in mass media targeted toward adolescents, including consideration of alternative strategies for adolescents' leisure time altogether.

Our findings show that being male was associated with ESI. Gender differences may be due to the fact that masculinity among boys encourages earlier age of sexual initiation (61). Additionally, low maternal education played a role in ESI. Because maternal age at pregnancy was expected to correlate with mother education this may reflect lower SES (62). Our review also found that not living with both biological parents was a risk factor for ESI. One possible interpretation is that this type of living arrangement can introduce an unstable family dynamic to the adolescent. This is in

consonance with previous study that found that adolescents living with two parents had more stable lives and a better subjective well-being when compared to those living with one parent (63). Future research should consider investigating sociodemographic exposures more carefully.

Our findings should be considered taking into account some limitations. First, the cutoff age for ESI was not the same across studies. Second, studies varied widely in terms of sample size and sampling strategies. Third, subjects were lost to follow-up for a wide range of reasons: adolescents not present in school during the data collection, parents' refusal for their children to participate or to answer specific sexuality questions, and an increased number of follow-up visits that were not planned in study design. Last, all studies were conducted in high-income countries. Given sociodemographic exposures may impact families' dynamic in many ways, future researches should seek to be conducted in low- and middle-income countries.

Policymakers should encourage the development of evidence-based sexual behavior prevention interventions to improve health literacy among adolescents. Health literacy, defined as the degree of people's capacity to obtain, manage and understand health information and make proper health decisions, is a policy approach at the intersection of health and education fields (64). Considering this approach, it is important that prevention programs address the following: substance use, to improve adolescent's knowledge and increase their risk perception (65); decision-making, to raise adolescents' ability to make healthy decisions (66); self-efficacy, to support their confidence on decisions made (67); mental health, to help youth to recognize and healthily express their emotions and seek help when needed (68); academic attachment, to understand the adolescents' life perspectives and to improve their connectedness with peers and adults at school (52); and media exposure, to alert

adolescents of the risks and limitations of mass media consumption stimulate them to critically assess the content exhibited (69). Additionally, parents need to be included in the prevention processes in order to be aware of how to monitor risky situations, manage their communication with adolescents, as well as how to understand the importance of participate on adolescents' health researches in a broader context.

The review reported here combines data across studies in order to clarify risk factors for ESI with more precision than is possible in a single study. Additionally, since adolescents are a vulnerable group as such, tackling public health issues require further research on sexual behavior among them.

The novelty of our work is in the systematic treatment of a range factors between adolescents' health behaviors, considering their lives circumstances, and ESI. Although only 7 studies were identified, the results provide more precise information about the relationship between risk factors and ESI. Given that public health issues are generally multifactorial and their consequences have societal impacts, we believe that implementing and evaluating sexual behavior prevention programs with a more global approach to health behavior is critical.

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Table 1: Scope of Systematic Review

Population	Adolescents
Exposure	Age range ^a :10-19 years old
Outcome	Risk factors ^b
Study design	Early sexual intercourse
	Cohort studies

^a Age range for outcome measure.

^b Organized in four dimensions: individual, family, social and environment, and sociodemographic.

Table 2: Sample characteristics of included studies (n=7)

Author (Year)	IV ^{sa}	DVs and cutoff age ^b	Country	Sample size and demographics ^c	Statistical methods	Follow up (years)	Retention rate (%)	Quality assessment score ^d
Ashby et al. (2006)	-Age -Sex -Race/ethnicity -Maternal education -Hours of TV watched per day -Parental monitoring -Parental presence -Perceived parental tolerance of sexual intercourse -Depression -Self-esteem -Religion -Education aspirations -Taking a virginity pledge -intelligence -Pubertal status	Initiation of sexual intercourse Age: 16	United States	N: 4.808 77.1% Non-hispanic white 11.7% Hispanic 53.5% female Age: 12-13	-Univariate and multivariate logistic regression	2	65.4	8
Marino et al. (2013)	-Maternal ethnicity -Maternal education -Family income -Expected birth weight ratio -Father's absence -Age at menarche	Early first sexual intercourse Age: 15	Australia	N: 607 Ethnicity: NR ^e 100% female Age: Birth	-Univariate comparisons -Kruskal-Wallis tests -x2 tests -Kaplan-Meier survival probabilities -Cox regression models	17	91.3	7
Mathews et al. (2009)	-Age -Gender -Socioeconomic status -Physical violence in intimate relationship -Parents education -Self-efficacy to negotiate delayed sex -Intention to have sexual intercourse	Transition to first intercourse Age: 15	South Africa	N: 1.440 Ethnicity: NR 58.1%female Age: 12-14	-Structural equation modelling	1	76.0	8
Paul et al. (2000)	-Parents education -Parents occupation -Family structure -Family attachment -School performance, attitude and attachment	Initiation of sexual intercourse Age: 15	New Zealand	N: 1020 97% European 3% Maori 48.9 female Age: Birth	Multivariate logistic regression	21	91.7	8

	-Plan to leave school -Being in trouble at school -Outside home interests -Religion activities -Maternal depression -Tv watching habits -Self-esteem -Conduct disorder -ADHD^f -ODD^g -Depression -Anxiety -Alcohol intoxication -Maternal age at 1st pregnancy -Age at menarche							
Pedersen et al. (2003)	-Degree of urbanization -Parents occupation -Parents education -Parental relationship -Family structure -Parental monitoring -Gender -Self-perceived romantic appeal -Social acceptance -Depression -Pubertal maturation -Grade level -Academic self-concept -Aspiration higher education -Plan to leave school -Smoking -Alcohol intoxication -Drugs -Peers substance use -Conduct problems -Religion	First sexual intercourse Age: 16	Norway	N: 1.399 Ethnicity: NR 53.8% female Age: 12-14	-Logistic models -Multivariate Cox regression	7	69.1	6
Price et al. (2009)	-Family structure -Gender -Parents education -Pubertal development -Academic achievement -Self-esteem* -Depression symptoms -Sports participation -ADHD -ODD-Media exposure -Identification with media -Parent-child relationship quality*	Early sexual debut Age: 15	United States	N: 273 90% European American 53.0% female Age: 13	-Bivariate correlations -T-tests -Logistic regression -Cumulative risk analysis	2	87.0	6

Skinner et al. (2015)	-Age -Gender -Family income -Maternal age at 1 st pregnancy -Maternal ethnicity -Parental education -Maternal employment in late pregnancy -Mother's relationship status at pregnancy -Parental substance use at pregnancy -Age of menarche -Conduct problems -Depression	First sexual intercourse Age: 15	Australia	N: 1.200 Ethnicity: NR 50.6%female Age: Birth	-Kaplan-Meier survival probabilities -t tests -X ² test -univariate and multivariable logistic regression	17	42.3	6
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^a Independent variables.

^b Dependent variables and cutoff age for early sexual intercourse.

^c Report age at baseline.

^d The Newcastle-Ottawa scale (NOS).

^e NR: Not reported.

^f ADHD: Attention-deficit hyperactivity disorder.

^g ODD: Oppositional defiant disorder.

* Variables not analyzed because measures were not longitudinal in relation to the outcome.

Table 3: Risk factors associated with early sexual intercourse among adolescents (n=36).

Risk Factors	Number of studies	Total (%)
Individual		21 (58.3)
Developmental		3 (8.3)
Age at menarche	1	
Pubertal maturation	2	
Attitudes and beliefs		11 (30.6)
No religiosity	3	
High self-esteem	1	
High self-perceived romantic appeal	1	
Physical violence in intimate relationship	1	
Substance use		
Smoking	1	
Alcohol intoxication	2	
Sexual behavior		
Low self-efficacy to negotiate delayed sex	1	
Intention to have sexual intercourse	1	
Mental health		7 (19.4)
Conduct problems ^a	3	
Depressive symptoms	2	
ADHD ^b	1	
ODD ^c	1	
Family		8 (22.2)
Parental substance use		4 (11.1)
Smoking	2	
Alcohol problems	1	
Drug use	1	
Family attachment		4 (11.1)
Poor parental monitoring	1	
Low parental care	1	
Parental high overprotection	1	
Perceive parental strong disapproval of sex	1	
Social and Environmental		11 (30.6)
Not have outside home interests	1	1 (2.8)
Peers substance use	1	1 (2.8)
Academic		7 (19.4)
Low school achievement	3	
Low education aspirations	2	
Plan to leave school	1	
Being in trouble at school	1	
Watches television	2	2 (5.6)
Sociodemographic		14 (38.9)
Ethnicity	1	1 (2.8)
Gender	1	1 (2.8)
Age	2	2 (5.6)
Not living with both biological parents	3	3 (8.3)
Socioeconomic group	2	2 (5.6)
Parents low education	1	1 (2.8)
Maternal low education	3	3 (8.3)
Maternal age at 1 st pregnancy before age 20	1	1 (2.8)

^a Delinquency, aggression, non-aggressive norms violations, lying, staying out at night

^b ADHD: attention deficit hyperactivity disorder

^c ODD: oppositional defiant disorder

7 CONSIDERAÇÕES FINAIS

A presente tese teve como objetivo primordial analisar a associação dos comportamentos sexuais de risco entre adolescentes e o uso de álcool e outras drogas entre estudantes do ensino fundamental II. Levando em consideração a extensão continental do Brasil, a pesquisa multicêntrica permitiu investigar com mais diversidade o impacto que o uso de substâncias tem sobre os jovens do país. Os resultados dos três artigos articulam os fatores que circundam as práticas sexuais de risco pelos adolescentes ao mesmo tempo que alerta para a necessidade de programas de prevenção ao comportamento sexual de risco para este público.

Sobre o objetivo específico que teve a finalidade de investigar a associação dos estilos parentais e do uso de drogas por adolescentes à iniciação sexual precoce e ao sexo desprotegido, algumas conclusões são possíveis: primeiro, o uso de drogas esteve fortemente associado aos comportamentos sexuais de risco supracitados; segundo, a forma como os pais se relacionam com relação aos filhos, tanto em termos de responsividade quando de monitoramento, de fato podem influenciar a maneira como estes se colocam no mundo. Estilos parentais permissivos e negligentes estão associados ao envolvimento dos adolescentes em comportamentos de risco, tanto para o sexo precoce quanto para o uso de drogas; terceiro, estilos parentais mais empobrecidos e uso de drogas são prejudiciais aos adolescentes, sobretudo, quando estão coadunados.

Desse modo, ao pensar em prevenção ao envolvimento em comportamentos de risco entre os adolescentes é essencial buscar a aproximação dos genitores junto ao processo. Dessa maneira, a ciência da prevenção, pode ajudá-los a desenvolver habilidades parentais positivas, como o monitoramento e o suporte afetivo. Considerando que os adolescentes estão numa fase de transição, é importante que os pais compreendam que ainda são figuras centrais na vida dos filhos. Portanto, o empenho deve ser na direção de conscientizar os pais para que entendam a sua função na prevenção ao comportamento sexual de risco dos adolescentes. Dessa forma, é possível que os genitores se comprometam com o seu papel de cuidadores. Adolescentes precisam de limites quando necessário, mas também desejam afeto, e os pais devem poder se sentir confortáveis para transitar entre essas duas posições.

Em relação ao objetivo secundário para avaliar o efeito do Programa Escolar de Prevenção ao Uso de Drogas #Tamojunto para o comportamento sexual de risco de estudantes, pode-se concluir que a intervenção foi ineficaz e possivelmente prejudicial para a prevenção destes comportamentos de risco, especialmente entre as meninas. Para estas, considerando o mês que antecedeu as coletas, houve uma maior chance de engajamento na relação sexual aos 9 meses de acompanhamento, assim como estiveram mais propensas ao sexo sem preservativo aos 21 meses. Estudos prévios já demonstraram efeito iatrogênico do #Tamojunto para a iniciação de álcool, com aumento no consumo de 30% aos 9 meses (Sanchez et al., 2017) e 13% aos 21 meses (Sanchez et al., 2018). Aqui algumas considerações são importantes: primeiro, a literatura evidencia que o consumo de álcool está associado aos comportamentos sexuais de risco na adolescência; segundo, o #Tamojunto apresentou aumento deste consumo entre seus participantes; terceiro, o consumo do álcool tem aumentado especialmente entre as meninas (MacArthur et al., 2012) e é influenciado também pelo consumo dos pais (Valente et al., 2017). Levando em conta que um relacionamento emocionalmente próximo das meninas com as mães é um fator protetor em relação ao consumo de álcool (Kelly et al., 2011), hipotetiza-se que, na pesquisa desta tese, o aumento dos comportamentos sexuais entre meninas ocorreu devido a maior fragilidade dos laços com os pais e a exposição a rede de pares de alto risco. Como a implementação deste programa foi uma iniciativa do governo brasileiro com potencial para tornar-se uma política pública, desperta preocupações devido a este aumento nos comportamentos sexuais das meninas, incluindo o sexo sem preservativo. Sugere-se, então, que estudos futuros investiguem de forma mais aprofundada o possível papel mediador dos componentes da intervenção de habilidades para a vida nos comportamentos sexuais das meninas.

No que tange ao terceiro objetivo secundário, cujo intuito foi identificar os fatores de risco associados à iniciação sexual precoce, entende-se que a escolha por incluir na revisão sistemática apenas estudos de coorte foi acertada, haja vista que a natureza longitudinal deste tipo de pesquisa permitiu explorar fatores que foram coletados antes que a iniciação sexual ocorresse. Como foram encontradas uma ampla quantidade de exposições, foi utilizado na análise um modelo multidimensional, composto por quatro dimensões integrativas: individual, familiar, socioambiental e sociodemográfica. Os fatores de risco com associações mais fortes

para a iniciação sexual precoce foram: uso de drogas, tanto por adolescentes quanto por seus pais, problemas de conduta, vínculo fragilizado com os pais e com a escola, não ter crenças religiosas, não morar com os dois pais biológicos e baixo nível educacional da mãe.

Retoma-se aqui o impacto que o consumo de álcool e outras drogas tem sobre o comportamento sexual de risco dos adolescentes. Lembra da relação dialética? Então, o consumo das drogas é prejudicial quando realizado pelos adolescentes, mas não somente. Quando os pais consomem álcool e outras drogas, estão ensinando aos seus filhos que este comportamento é aceitável e, por vezes, estimulado. Essa atitude é um risco pois a tendência é que os adolescentes busquem reproduzir o comportamento dos pais, ficando mais expostos a situações de risco como, por exemplo, a iniciação sexual precoce e problemas de conduta.

A relação claudicante dos adolescentes com os pais se destaca mais uma vez. O fato do monitoramento reduzido ou a superproteção estarem associados à iniciação sexual precoce indica que é preciso buscar um equilíbrio nessas relações. Vale ressaltar que outro fator de risco à iniciação sexual precoce foi o fato de o adolescente não morar com os dois pais biológicos. Isso pode ser reflexo das dificuldades enfrentadas diante parentalidade solo, que podem gerar mais desgastes ao cuidador. Diante deste cenário, como possibilidade para melhorar a relação do núcleo familiar sugere-se que estudos futuros ofereçam espaço para que os pais compreendam a importância do seu papel enquanto sujeito-referência do adolescente, mas também para que possam externalizar as dificuldades da parentalidade.

Características que contornam o ambiente escolar estão fortemente associadas à iniciação sexual precoce. Fatores como baixo rendimento escolar, baixa aspiração educacional, planos de evadir à escola e apresentar problemas na escola, parece apontar o adolescente como o responsável, na medida em que é este sujeito que pratica a ação. Ocorre que o problema é anterior, essas atitudes manifestam questões do sistema de ensino que estão subjacentes à sala de aula e, por isso, devem ser investigadas com cuidado. Nesse sentido, algumas inquietações se anunciam: a estrutura física da escola supre às necessidades básicas para que o aprendizado ocorra? Como é a relação dos adolescentes com as figuras de autoridade da escola, como professores e diretores? O ambiente escolar é acolhedor para os alunos? Os estudantes são estimulados a pensar um projeto de vida que inclua a

educação formal? Se sim, lhes são ofertadas as condições para sustentar esse projeto? Para o contexto brasileiro as questões são inúmeras, assim como as iniquidades sociais e seus impactos.

As evidências científicas sugerem que os adolescentes tendem a evitar comportamentos que não são valorizados por outras pessoas que eles respeitam na escola. Além disso, uma autopercepção acadêmica insatisfatória pode minar a confiança do adolescente, aqueles com baixos sentimentos positivos em relação a si mesmos seriam mais propensos a ter uma iniciação sexual precoce para compensar a falta de confiança. Por outro lado, em contextos nos quais a educação não é tão valorizada esse sentimento pode não ser tão significativo.

Dessa forma, sugere-se o desenvolvimento de programas de prevenção ao comportamento sexual de risco que considerem as especificidades de cada ambiente. No caso do Brasil, pensar adaptações de programas já existentes internacionalmente que contemplem a diversidade das regiões pode ser um ponto de partida; com os adolescentes, um empenho importante também é ajudá-los a construir um projeto de vida estabelecendo metas de curto, médio e longo prazo. Ao visualizar suas ideias através do programa, duas situações são passíveis de ocorrer: na primeira, os adolescentes podem perceber que é viável executar as metas por etapas e, neste caso, a autopercepção acadêmica poderia aumentar e a relação com a escola melhorar sem maiores percalços; na segunda, esses jovens podem se deparar com dificuldades abissais para alcançar os seus objetivos e isso pode desanimá-los a ponto de desistir de seu projeto – e até mesmo da escola. Neste ponto, é fundamental acolher as queixas desses jovens e buscar estratégias para ajudá-los a enfrentar os desafios encontrados, sejam eles de ordem pessoal, familiar ou social. Por isso o trabalho em rede é essencial, pois oferta um suporte à comunidade quando a demanda é grande. O professor não tem a obrigação de resolver todas as questões, mas pode sim ter um papel ativo no processo. Ao perceber que o professor legitima sua realidade e se esforça para encontrar soluções aos obstáculos, o aluno pode se motivar e acabar estreitando as relações com o educador e a escola. Levando em consideração que o Brasil apresenta uma série de desafios aos adolescentes, especialmente aqueles em situação de maior vulnerabilidade social, sugere-se ainda que as coordenações dos programas de prevenção disponibilizem de antemão uma rede de suporte social aos professores.

Os resultados desta tese devem ser considerados com base em algumas limitações. Em relação ao #Tamojunto, o uso do questionário de autopreenchimento pode ter gerado algum viés de informação nas respostas por falha na interpretação das perguntas ou por pela vontade de não revelar alguns conteúdos mais sensíveis, como o consumo de drogas. No entanto, a pergunta sobre uma droga fictícia permitiu descartar questionários que pareciam ser tendenciosos. Além disso, houve um grande número de alunos ausentes no primeiro momento da coleta ou nos acompanhamentos. Sobre a revisão sistemática, uma limitação diz respeito à variação na idade de corte como critério para a iniciação sexual precoce nos estudos analisados. Além disso, os estudos variaram bastante em termos de tamanho da amostra. Ademais, a perda dos sujeitos de pesquisa se deu por várias razões: adolescentes ausentes da escola durante a coleta de dados, recusa dos pais em seus filhos participarem ou responderem a perguntas específicas sobre sexualidade e um acréscimo de tempo de acompanhamento da pesquisa que não foi planejado no início do estudo. Por último, todos os estudos foram realizados em países de alta renda.

A partir dos dados obtidos neste estudo e investigações do que já foi testado em cenário internacional, algumas recomendações visando a redução do comportamento sexual de risco pelos adolescentes, através de programas de prevenção nas escolas do Brasil são:

❖ Atividades com os adolescentes:

- Reduzir a quantidade de conteúdo por aula e ter um número de sessões mais amplo, para levar em consideração tanto as possíveis diferenças na habilidade de leitura da turma quanto a atenção flutuante do aluno;
- Manter uma dinâmica mais interativa, incluindo atividades como debates, jogos, discussões, trabalhos em dupla/grupo;
- Tratar de conhecimentos sobre sexualidade e comportamento sexual de risco, abordando também as consequências negativas para a saúde e a inserção social;
- Discutir saúde mental, crenças normativas, diferença de gênero e violência na relação afetiva;

- Trabalhar competências pessoais para tomada de decisão e competências interpessoais para manejo de conflitos na relação afetiva;
- Desenvolver habilidades para regulação das emoções e assertividade na comunicação;
- Abordar outros comportamentos de risco, como o consumo de álcool e outras drogas e problemas de conduta;
- Trabalhar a relação com as mídias (televisão, mídias sociais, jogos online, etc);
- Inserir tarefas para casa a fim de favorecer o vínculo dos adolescentes com os pais e permitir que estes tenham um papel ativo no programa;
- Construir com os alunos um projeto de vida que apresente metas de curto, médio e longo prazo para fortalecer a vinculação do adolescente com o ambiente escolar.

❖ Atividades com os pais:

- Ajudar a compreenderem o papel que ocupam na vida dos filhos enquanto cuidadores;
- Explicar importância de programas de prevenção ao comportamento sexual de risco direcionado aos adolescentes;
- Conscientizar sobre a função que têm na prevenção ao comportamento sexual de risco pelos adolescentes;
- Desenvolver habilidades parentais positivas, como o monitoramento e o suporte afetivo;
- Trabalhar sobre o impacto que o consumo de álcool e outras drogas tem sobre a vida dos adolescentes;
- Ofertar espaço para que exponham as dificuldades que enfrentam com a parentalidade.

❖ Atividades com os gestores:

- Ajudar a entenderem o papel social da prevenção: acesso à educação;

- Qualificar os profissionais sobre os aspectos teóricos do programa e o que deve ser feito (ou não) nesse contexto;
- Disponibilizar conhecimento interdisciplinar aos profissionais;
- Elaborar estratégias para engajar a participação familiar, levando em consideração o perfil (financeiro, de trabalho, de estrutura familiar, etc.) de cada região do Brasil;
- Implementar e avaliar os programas de prevenção.

O reconhecimento que os comportamentos sexuais de risco na adolescência tendem a coocorrer com outros comportamentos de risco é crescente. Ademais, tem-se o fato de que essas práticas estão intimamente associadas às dinâmicas familiares e as estruturas sociais. Desse modo, para que as propostas sugeridas acima sejam desenvolvidas faz-se necessária a colaboração dos diversos atores sociais envolvidos.

A complexidade do fenômeno dos comportamentos sexuais de risco na adolescência demanda ações intersetoriais. Os esforços entre os campos da saúde e da educação têm que ser conjuntos. Atrelado a isso, ao observar os estudos pautados no rigor metodológico, nota-se a importância da evidência científica como bússola para guiar intervenções preventivas mais eficazes.

8 REFERÊNCIAS BIBLIOGRÁFICAS

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ANEXOS

Anexo I: Descrição das 12 aulas do Programa Unplugged, com o título, atividades e metas.

AULA	TÍTULO	ATIVIDADES	METAS
1	Abertura do <i>Unplugged</i>	Apresentação, trabalho em grupo gestão do contrato de convivência, tarefa de casa	Introdução ao Programa, estabelecimento de regras para as aulas, reflexão sobre o que se sabe sobre drogas
2	Ser ou não ser um grupo	Simulação de situações, discussão do jogo	Esclarecendo as influências e expectativas do grupo
3	Escolhas – Álcool, risco e proteção	Informações sobre diferentes fatores que influenciam o uso de drogas	Informações sobre diferentes fatores que influenciam o uso de drogas
4	Suas crenças, normas e informações: Eles refletem a realidade?	Apresentação, discussão geral, trabalho em grupo, jogo	Fomentando a análise crítica das informações, reflexão sobre diferenças entre a opinião pessoal e dados reais, reavaliação de normas
5	Fumando a droga cigarro – Informe-se	Teste, discussão geral, retorno, jogo	Informações sobre os efeitos do tabagismo, diferenciação de efeitos esperados vs. reais e efeitos de curto prazo vs. efeitos de longo prazo
6	Expresse-se	Jogo, discussão e plenária, trabalho em grupo	Comunicação adequada de emoções, distinção entre comunicação verbal e não verbal
7	Atenção no mundo e em sua vida	Discussão geral, trabalho em grupo, desempenho de papéis	Promovendo a assertividade e o respeito pelos outros
8	Novo do pedaço!	Encenação, jogo, discussão geral da turma	Reconhecimento e apreciação de qualidades positivas, aceitação de retorno positivo, prática e reflexão sobre entrar em contato com outros
9	Drogas – informe-se	Trabalho em grupo, quiz	Informações sobre efeitos positivos e negativos do uso de drogas
10	Estratégias de enfrentamento	Apresentação, discussão geral da turma, trabalho em grupo,	Expressão de sentimentos negativos, lidando com desafios

11	Solução de problemas e tomada de decisões	Apresentação, discussão geral, trabalho em grupo, tarefa de casa	Solução de problemas, fomentando o pensamento criativo e o autocontrole
12	Estabelecimento de metas e encerramento	Jogo, trabalho em grupo, discussão geral	Distinguindo objetivos de longo prazo e de curto prazo, avaliação do Programa e seu processo

Fonte: Adaptado do manual do professor (www.eudap.net).

Anexo 2: Questionário do programa #Tamojunto

FORMULÁRIO PARA GERAÇÃO DO CÓDIGO DE ACESSO SIGILOSO

Nome

Sobrenome

Nascimento (dd/mm/aaaa)

Nome da mãe

Nome do Pai

Nome da avó materna

INSTRUÇÕES SOBRE PREENCHIMENTO DO CÓDIGO DE ANONIMATO

1. O objetivo desse código é garantir que não saibamos quem deu estas respostas e para que no futuro possamos juntar com seus próximos questionários. Por favor preste atenção nas seguintes orientações:

- Complete esse formulário com atenção e preencha o código individual que fica à margem direita da folha.
- Assim que o código estiver formado, arranque esta folha e jogue no lixo.

2. Preencha as linhas dos quadradinhos seguindo essas regras:

- Escreva com LETRA MAIÚSCULA.
- Escreva uma letra por quadro;
- Não coloque acentos nem caracteres especiais (apóstrofes, por exemplo)
- Não deixe quadros em branco entre as palavras (ex.: ANAPaula e não ANA Paula ou ANA-PAULA)
- Se você não souber ou não se lembrar de alguma resposta, coloque Ø no quadro do código.
- Quando for usar o zero, faça um corte no número (Ø em vez de 0)
- Se uma palavra for muito curta e um dos quadros cinzas ficar em branco, coloque Ø no quadro do código.

Obrigado por sua participação!

QUESTIONÁRIO

**Sobre conhecimento, atitudes e
comportamentos relacionados à álcool,
tabaco e outras drogas**



1. Sexo: 1 ☐  Masculino 2 ☐  Feminino

2. Quantos anos você tem? anos

3. Qual ou quais pessoas das listadas abaixo moram na mesma casa que você?

PODE MARCAR MAIS DE UMA

- 1 ☐ Pai
- 2 ☐ Padrasto
- 3 ☐ Mãe
- 4 ☐ Madrasta
- 5 ☐ Irmão(s)
- 7 ☐ Avós
- 8 ☐ Outros

4. Até que grau o chefe (pai, mãe ou responsável) de sua família estudou?

- 1 ☐ Nunca estudou
- 2 ☐ Fez até a 1ª, 2ª ou 3ª série do ensino fundamental
- 3 ☐ Fez até a 4ª, 5ª, 6ª ou 7ª série do ensino fundamental
- 4 ☐ Fez até a 8ª série do ensino fundamental
- 5 ☐ Fez até a 1ª e 2ª série do ensino médio (1ª e 2ª colegial)
- 6 ☐ Terminou o ensino médio (3ª colegial)
- 7 ☐ Fez faculdade, mas não terminou o curso
- 8 ☐ Fez faculdade completa (terminou o curso)
- 9 ☐ Não sei

5. Na sua casa tem?

a) Micro-ondas?

- 1 ☐ Não
- 2 ☐ Sim. Quantos?

b) Máquina de lavar-louça

- 1 ☐ Não
- 2 ☐ Sim. Quantas?

c) Aparelho de DVD?

- 1 ☐ Não
- 2 ☐ Sim. Quantos?

d) Microcomputador (não vale tablet e celulares)?

- 1 ☐ Não
- 2 ☐ Sim. Quantos?

e) Banheiro?

- 1 ☐ Não
- 2 ☐ Sim. Quantos?

f) Motocicleta?

- 1 ☐ Não
- 2 ☐ Sim. Quantas?

g) Empregado(a) que trabalha todos os dias para sua família?

Ex.: doméstica, babá, motorista, jardineiro, etc.

- 1 ☐ Não
- 2 ☐ Sim. Quantos?

h) Máquina de lavar-roupa (não vale tanquinho)?

- 1 ☐ Não
2 ☐ Sim. Quantas?

i) Geladeira (não vale quebrada)?

- 1 ☐ Não
2 ☐ Sim. Quantas?

j) Freezer (da geladeira ou independente) (não vale quebrado)?

- 1 ☐ Não
2 ☐ Sim. Quantos?

k) Carro (automóvel)?

- 1 ☐ Não
2 ☐ Sim. Quantos?

l) Secadora de roupas

- 1 ☐ Não
2 ☐ Sim. Quantas?

6.a. Você já experimentou alguma bebida alcoólica?

Exemplos: cerveja, chopp, ice, vinho, pinga, caipirinha, batidas, sidra, outras.

- 1 ☐ Não
2 ☐ Sim

6.b. Que idade você tinha quando experimentou bebida alcoólica pela primeira vez?

- 1 ☐ Nunca tomei
2 ☐ Eu tinha anos

6.c. De um ano para cá, ou seja, nos últimos 12 meses, você tomou alguma bebida alcoólica?

- 1 ☐ Não
2 ☐ Sim

6.d. De um mês para cá, ou seja, nos últimos 30 dias, você tomou alguma bebida alcoólica?

- 1 ☐ Não
2 ☐ Sim, tomei de 1 a 5 dias no mês
3 ☐ Sim, tomei de 6 a 19 dias no mês
4 ☐ Sim, tomei 20 dias ou mais no mês

A próxima questão ainda é sobre o uso de bebida alcoólica. É muito importante que você responda a essa pergunta calculando quantas DOSES de bebida alcoólica você tomou. Assim, nessa questão você deve considerar UMA DOSE IGUAL A:

	OU		OU		OU	
1 chopp ou 1 lata de cerveja ou long neck		1 taça de vinho		1 copo pequeno de vodca / pinga ou 1 copo de caipirinha		1 garrafa de "ice"

Exemplo: Se você tomou 3 latas de cerveja e 2 caipirinhas na mesma ocasião, então você tomou 5 doses de bebida alcoólica.

Pergunta:

7.a. Você já tomou 5 doses ou mais de bebida alcoólica em uma única ocasião?

- 1 ☐ Não
2 ☐ Sim

7.b. De um ano para cá, ou seja, nos últimos 12 meses, você tomou 5 doses ou mais de bebida alcoólica em uma única ocasião?

- 1 ☐ Não
2 ☐ Sim

7.c. De um mês pra cá, ou seja, nos últimos 30 dias, quantas vezes você tomou 5 doses ou mais de bebida alcoólica em uma única ocasião?

- 1 ☐ Nenhuma vez
2 ☐ 1 vez
3 ☐ 2 vezes
4 ☐ 3 a 5 vezes
5 ☐ Mais de 5 vezes

8.a. Você já fumou cigarro?

- 1 ☐ Não
2 ☐ Sim

8.b. De um ano para cá, ou seja, nos últimos 12 meses, você fumou algum cigarro?

- 1 ☐ Não
2 ☐ Sim

8.c. De um mês para cá, ou seja, nos últimos 30 dias, você fumou algum cigarro?

- 1 ☐ Não
2 ☐ Sim, fumei de 1 a 5 dias no mês
3 ☐ Sim, fumei de 6 a 19 dias no mês
4 ☐ Sim, fumei 20 dias ou mais no mês

8.d. Se você fuma, quantos cigarros você fuma por dia?

- 1 ☐ Não fumo
2 ☐ De 1 a 10 cigarros por dia
3 ☐ De 11 a 20 cigarros por dia
4 ☐ Mais de 20 cigarros por dia

9.a. Você já cheirou algum produto para sentir algum “barato/brisa”?

Exemplos: loló, lança, cola, éter, removedor de tinta, gasolina, benzina, esmalte, acetona, tiner, aguarrás, tinta, desodorante aerosol. (NÃO VALE COCAÍNA)

- 1 ☐ Não
2 ☐ Sim

9.b. De um ano para cá, ou seja, nos últimos 12 meses, você cheirou algum produto para sentir algum “barato/brisa”?

- 1 ☐ Não
2 ☐ Sim

9.c. De um mês para cá, ou seja, nos últimos 30 dias, você cheirou algum produto para sentir algum “barato/brisa”?

- 1 ☐ Não
- 2 ☐ Sim, cheirei de 1 a 5 dias no mês
- 3 ☐ Sim, cheirei de 6 a 19 dias no mês
- 4 ☐ Sim, cheirei 20 dias ou mais no mês

10.a. Você já experimentou maconha?

- 1 ☐ Não
- 2 ☐ Sim

10.b. De um ano para cá, ou seja, nos últimos 12 meses, você usou maconha?

- 1 ☐ Não
- 2 ☐ Sim

10.c. De um mês para cá, ou seja, nos últimos 30 dias, você usou maconha?

- 1 ☐ Não
- 2 ☐ Sim, usei de 1 a 5 dias no mês
- 3 ☐ Sim, usei de 6 a 19 dias no mês
- 4 ☐ Sim, usei 20 dias ou mais no mês

11.a. Você já experimentou cocaína?

- 1 ☐ Não
- 2 ☐ Sim

11.b. De um ano para cá, ou seja, nos últimos 12 meses, você usou cocaína?

- 1 ☐ Não
- 2 ☐ Sim

11.c. De um mês para cá, ou seja, nos últimos 30 dias, você usou cocaína?

- 1 ☐ Não
- 2 ☐ Sim, usei de 1 a 5 dias no mês
- 3 ☐ Sim, usei de 6 a 19 dias no mês
- 4 ☐ Sim, usei 20 dias ou mais no mês

12.a. Você já experimentou crack ou merla?

- 1 ☐ Não
- 2 ☐ Sim

12.b. De um ano para cá, ou seja, nos últimos 12 meses, você usou crack ou merla?

- 1 ☐ Não
- 2 ☐ Sim

12.c. De um mês para cá, ou seja, nos últimos 30 dias, você usou crack ou merla?

- 1 ☐ Não
- 2 ☐ Sim, usei de 1 a 5 dias no mês
- 3 ☐ Sim, usei de 6 a 19 dias no mês
- 4 ☐ Sim, usei 20 dias ou mais no mês

13. Você já experimentou holoten ou carpinol?

- 1 ☐ Não
- 2 ☐ Sim

14.a. Você já teve relação sexual?

- 1 ☐ Não
- 2 ☐ Sim

14.b. De um mês pra cá, ou seja nos últimos 30 dias, quantas vezes você teve relações sexuais?

- 1 ☐ Nunca tive relações sexuais
- 2 ☐ Nenhuma vez
- 3 ☐ vezes

14.c. Quando você tem relações sexuais, você usa camisinha/preservativo?

- 1 ☐ Nunca tive relações sexuais
- 2 ☐ Sempre uso
- 3 ☐ Às vezes uso
- 4 ☐ Nunca uso

14.d. De um mês pra cá, ou seja, nos últimos 30 dias, alguma vez você teve relações sexuais sem camisinha/preservativo?

- 1 ☐ Nunca tive relações sexuais
- 2 ☐ Não
- 3 ☐ Sim

14.e. Você já ficou grávida (para meninas) ou já engravidou alguém (para meninos) com menos de 18 anos?

- 1 ☐ Não
- 2 ☐ Sim

15. Nos últimos 30 dias, quantos dias você faltou às aulas ou à escola sem permissão dos seus pais ou responsáveis?

- 1 ☐ Nenhum dia (0 dia)
- 2 ☐ 1 ou 2 dias
- 3 ☐ 3 a 5 dias
- 4 ☐ Mais de 5 dias

16. Nos últimos 30 dias, com que frequência os colegas de sua escola trataram você bem e/ou foram prestativos contigo?

- 1 ☐ Nenhuma vez
- 2 ☐ Algumas vezes
- 3 ☐ Sempre

17. Nos últimos 30 dias, com que frequência algum dos seus colegas de escola te esculacharam, zoaram, mangaram, intimidaram ou caçoaram tanto que você ficou magoado, incomodado, aborrecido, ofendido ou humilhado?

- 1 ☐ Nenhuma vez
- 2 ☐ Algumas vezes
- 3 ☐ Sempre

18. Nos últimos 30 dias, você esculachou, zombou, mangou, intimidou ou caçoou algum de seus colegas da escola tanto que ele ficou magoado, aborrecido, ofendido ou humilhado?
- 1 ☐ Sim
2 ☐ Não
19. Nos últimos 30 dias, quantos dias você não foi à aula porque não se sentia seguro na escola?
- 1 ☐ Nenhum dia (0 dia)
2 ☐ 1 ou 2 dias
3 ☐ 3 a 5 dias
4 ☐ Mais de 5 dias
20. Nos últimos 30 dias, você foi agredido(a) fisicamente em sua escola?
- 1 ☐ Sim
2 ☐ Não
21. Nos últimos 30 dias, você agrediu fisicamente algum colega, funcionário ou professor de sua escola?
- 1 ☐ Sim
2 ☐ Não
22. Nos últimos 30 dias, você foi agredido(a) verbalmente em sua escola?
- 1 ☐ Sim
2 ☐ Não
23. Nos últimos 30 dias, você agrediu verbalmente algum colega, funcionário ou professor de sua escola?
- 1 ☐ Sim
2 ☐ Não
24. Nos últimos 30 dias, você foi agredido(a) sexualmente em sua escola?
- 1 ☐ Sim
2 ☐ Não
25. Nos últimos 30 dias, você agrediu sexualmente algum colega, funcionário ou professor de sua escola?
- 1 ☐ Sim
2 ☐ Não
26. Como foram suas notas na escola no último ano?
- 1 ☐ Baixas
2 ☐ Médias
3 ☐ Altas
27. Como você se sente em relação à escola atualmente?
- 1 ☐ Gosto muito
2 ☐ Gosto um pouco
3 ☐ Não gosto

28. Quanto você concorda com as seguintes descrições em relação a sua escola?

	Discordo	Concordo
a) Os alunos da minha sala gostam de estar juntos	☐	☐
b) A maioria dos alunos da minha sala são gentis e gostam de ajudar	☐	☐
c) Outros alunos me aceitam como eu sou	☐	☐
d) Eu me importo com o meu desempenho na escola	☐	☐
e) Eu respeito muito o que meus professores dizem	☐	☐

29. Qual a chance de você se envolver nas situações descritas abaixo NO PRÓXIMO ANO?

Marque uma opção por linha

	Improvável	Provável
a) Fumar cigarros	☐	☐
b) Beber bebidas alcoólicas	☐	☐
c) Ficar bêbado	☐	☐
d) Fumar maconha	☐	☐
e) Usar outras drogas não permitidas	☐	☐

30. Quanto você concorda das afirmações abaixo sobre o uso de drogas? Marque uma resposta por linha e a que mais se aproxima da sua opinião

	Discordo	Concordo
a) Usar drogas pode ser uma atividade que dá prazer	☐	☐
b) Uma pessoa jovem não deveria jamais usar drogas	☐	☐
c) Usar drogas é divertido	☐	☐
d) Há muitas coisas mais arriscadas do que usar drogas	☐	☐
e) Todos que usam drogas um dia se arrependem	☐	☐
f) As leis sobre drogas deveriam ser mais fortes	☐	☐
g) Uso de drogas é um dos maiores problemas de um país	☐	☐
h) Drogas ajudam as pessoas a experimentar a vida com mais intensidade	☐	☐
i) As escolas deveriam ensinar os perigos de se usar drogas	☐	☐
j) A polícia não deveria perturbar pessoas que estão experimentando drogas	☐	☐
k) Experimentar drogas é abandonar o controle da sua vida	☐	☐

31. Você teve algum dos problemas abaixo nos últimos 12 meses?

Marque uma opção por linha

	Não	Sim, por causa de bebida alcoólica	Sim, por causa de uso de drogas	Sim, por outras razões diferentes de álcool e droga
a) Discussão ou desentendimento	☐	☐	☐	☐
b) Briga ou confusão	☐	☐	☐	☐
c) Acidente ou ferimento	☐	☐	☐	☐
d) Perda de dinheiro ou de bens de valor	☐	☐	☐	☐
e) Danos a objetos ou roupas que você possuía	☐	☐	☐	☐
f) Problemas na relação com seus pais ou responsáveis	☐	☐	☐	☐
g) Problemas na relação com seus amigos	☐	☐	☐	☐
h) Faltar na escola	☐	☐	☐	☐
i) Ir mal na escola	☐	☐	☐	☐
j) Ser vítima de roubo ou furto	☐	☐	☐	☐
k) Ser hospitalizado ou atendido de emergência	☐	☐	☐	☐

32. Estas são afirmações sobre como tomar decisões. Marque a que é correta para você

	Discordo	Concordo
a) Quando eu decido fazer alguma coisa, eu sempre vou até o fim	☐	☐
b) Frequentemente tomo minhas decisões sem pensar nas consequências	☐	☐
c) Às vezes, tomo decisões com a primeira coisa que passa pela minha cabeça	☐	☐
d) Eu penso em todas as opções antes de decidir por alguma coisa	☐	☐
e) Às vezes, tomo decisões e depois me arrependo delas	☐	☐
f) Sempre tomo decisões sem pensar	☐	☐
g) Às vezes, mudo de ideia várias vezes no dia	☐	☐
h) Quando decido algo, não me importa o que meus amigos pensam	☐	☐
i) Quando decido algo, não me importa o que meus pais ou responsáveis pensam	☐	☐

33. A respeito de seus pais ou responsáveis, responda os itens abaixo:

Até que ponto seus pais TENTAM saber...	Não tentam	Tentam pouco	Tentam bastante
1. Onde você vai quando sai com seus amigos?			
2. O que você faz com seu tempo livre?			
3. Onde você está quando não está na escola?			
Até que ponto seus pais REALMENTE sabem...	Não sabem	Sabem pouco	Sabem bastante
4. Onde você vai quando sai com seus amigos?			
5. O que você faz com seu tempo livre?			
6. Onde você está quando não está na escola?			
A respeito de seus pais (ou responsáveis), considere os seguintes itens:	Quase nunca	Às vezes	Geralmente
7. Posso contar com a ajuda deles caso eu tenha algum tipo de problema.			
8. Eles me incentivam a dar o melhor de mim em qualquer coisa que eu faça.			
9. Eles me incentivam a pensar de forma independente (valorizam minhas opiniões).			
10. Eles me ajudam nos trabalhos da escola se tem alguma coisa que eu não entendo.			
11. Quando querem que eu faça alguma coisa, explicam-me o porquê.			
12. Quando tiro uma boa nota na escola, eles me elogiam.			
13. Quando tiro uma nota baixa na escola, eles me encorajam a me esforçar mais.			
14. Eles realmente sabem quem são meus amigos.			
15. Eles passam tempo conversando comigo.			
16. Eu e meus pais (ou responsáveis) nos reunimos para fazer juntos alguma coisa agradável.			

34. Entre as pessoas de sua família e amigos citados abaixo, assinale quem:
(PODE ASSINALAR MAIS DE UMA RESPOSTA)

	Pai ou padrasto	Mãe ou madrasta	Irmão ou irmã	Melhor amigo/amiga	Nenhum destes
a) Fuma cigarro?					
b) Toma bebidas alcoólicas mesmo de vez em quando?					
c) Fica bêbado (embriagado)?					

35. O que você achou deste questionário?

- 1 ☐ Muito fácil de responder
- 2 ☐ Fácil de responder
- 3 ☐ Nem fácil nem difícil de responder
- 4 ☐ Difícil de responder
- 5 ☐ Muito difícil de responder



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Factors associated with early sexual initiation and unsafe sex in adolescents: Substance use and parenting style



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1. Introduction

Early sexual initiation is an important risk factor for later drug use (Sandfort, Orr, Hirsch, & Santelli, 2008), delinquency (Mollanen, 2015), intimate partner violence (Halpern, Spriggs, Martin, & Kupper, 2009), depression, anxiety and eating disorders (Skolnik et al., 2019; Vasilenko, Kugler, & Rice, 2016). Early sexual initiation is also associated with unsafe sex (Kaplan, Jones, Olson, & Yunzal-Butler, 2013) and youth who engage in early sexual activity are more likely to have multiple partners (Sandfort, Orr, Hirsch, & Santelli, 2008). These behaviors can result in higher risk of sexually transmitted diseases (STDs) (WHO - world health organization, 2016), unplanned pregnancies (Ramiro et al., 2015) and abortions (Sedgh, Finer, Bankole, Eilers, & Singh, 2015). Because youth less than 16 years old are less likely to use or have access to contraception, they are at a high risk for STDs and unintended pregnancy (Mathews et al., 2009).

Global research on sexual and reproductive health indicates that the prevalence of sexual activity varies markedly between boys and girls and across countries (Avery & Lazdane, 2010; Centers for Disease Control and Prevention, 2014). In 2015, a national survey in Brazil found that 34.5% of boys and 19.3% of girls between ages 13 and 15 had engaged in sexual intercourse. Younger adolescents are also at higher risk for unsafe sex at first sexual intercourse compared to older adolescents. In Brazil, condom use was less prevalent among adolescents aged 13 and 15 (59.7%) when compared to 16 and 17 year old adolescents (68.2%) (National Survey of School Health; PENSE) (IBGE, 2016). Unsafe sex is also more frequent among Brazilian adolescents from households with few socio-economic assets (Oliveira-Campos, Giatti, Malta, & Barreto, 2013).

Both substance use and parenting styles influence early sexual initiation. US studies show that alcohol, tobacco and marijuana use were associated with sexual activity at the age of 15 (Connell, Gilreath, & Hansen, 2009). At the same time, research suggests adolescents with authoritative mothers are less likely to have had sexual intercourse when compared to adolescents with any other parenting style (Pittman & Chase-Lansdale, 2001). However, few studies have examined these risk behaviors in the Brazilian context

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where norms around parenting and drug use may be distinct or have examined the combined effects of these risk factors on sexual risk behaviors. Therefore, we aimed to investigate how substance use and parenting styles were related to early sexual initiation and of unsafe sex among adolescents. As a secondary aim, we studied how combinations of parenting style and substance use were associated with these outcomes.

2. Methods

This cross-sectional study was nested within a randomized controlled trial (RCT) of a drug prevention program. The trial included 7th to 8th grade middle school students at public schools in six Brazilian cities. The National Coordination of Mental Health, Alcohol, and Other Drugs of the Ministry of Health partnered with the United Nations Office on Drugs and Crime (UNODC) to adapt and implement the European drug prevention program *Unplugged*; the Brazilian version of it is called *Tamojunto*, (Faggiano et al., 2010).

We analyzed baseline data from the trial that evaluated the effects of the *Tamojunto* drug prevention program on adolescent substance use. The study is registered at the Brazilian Registry of Clinical Trials (Registro Brasileiro de Ensaios Clínicos-REBEC) with registration number RBR-4mnv5g. The Ethics Committee of the Federal University of São Paulo approved this study (protocol #473.498).

2.1. Sampling

The sample included 6285 students aged 11–15 in the seventh and eighth grades in 72 public middle schools in the cities of São Paulo-SP, São Bernardo do Campo-SP, Federal District-DF, Florianópolis-SC, Tubarão-SC, and Fortaleza-CE.

Based on a sample size calculation (Lwanga & Lemeshow, 1991) for a longitudinal study with 80% power, a 5% significance level, and a difference between groups of 1.5% points (5%–3.5%), the sample size required for each study group was 2835 participants. With a projected loss of 50%, 4253 participants were included in each group. The parameters used for the calculation were based on a pilot study (Sanchez et al., 2016) and on the expected results of the RCT. Sampling details have been published previously (Sanchez et al. (2017).

2.2. Instruments

Data collection was performed using a questionnaire developed and tested by the European Drug Addiction Prevention trial (EU-DAP) that was used in previous effectiveness studies for *Unplugged* (Faggiano et al., 2008). An anonymous self-reported structured questionnaire was administered by trained researchers without the presence of a teacher in the classroom. The version that was translated and adapted to Portuguese had some question substitutions that were guided by standard questionnaires on adolescent drug use and risk behaviors used in Brazil (e.g. from the World Health Organization questionnaire (Carlini et al., 2010) and the Brazilian Ministry of Health's Pesquisa Nacional de Saúde do Escolar questionnaire (IBGE, 2012)). The complete questionnaire was adapted in a pilot phase in 2013 and validated (Prado et al., 2016).

The questionnaire included sociodemographic questions and questions about the use of alcohol, tobacco, marijuana, inhalants, cocaine, and crack in the past month, year, and ever during one's lifetime. It also assessed questions on binge drinking (consumption of five or more doses of alcohol in 2 h) and factors associated with substance use, such as, parenting styles (Berge, Sundell, Öjehagen, & Håkansson, 2016), normative beliefs (Bertholet, Faouzi, Studer, Daepfen, & Gmel, 2013), school environment (Henry, Knight, & Thornberry, 2012), bullying (Pengpid & Peltzer, 2012), sexual risk behaviors, decision-making ability (Wheeler, 2010), intention to use drugs (Caria, Faggiano, Bellocco, & Galanti, 2011) and risk perception (Parsai, Voisine, Marsiglia, Kulis, & Nieri, 2009). To maintain confidentiality, the questionnaires were deposited in a brown envelope after being completed. At no time did researchers ask the students' names and it was made clear that the questionnaire was anonymous.

2.2.1. Sexual risk behavior

The sexual risk behavior section of the questionnaire covered sexual initiation, frequency of recent sexual activity, condom use and pregnancy. The sexually active group was defined as the students who reported any lifetime sexual intercourse. That means, they had positive responses to the question 'Have you ever had sex?' (no/yes). Lifetime unsafe sex was measured with the question: "When you have sex, do you use condoms?" Responses included "never had sex", "always use", "sometimes use" and "never use" and were dichotomized into no/yes by grouping "never had sex" and "always use" as "No", and grouping "sometimes use" and "never use" as "Yes".

2.2.2. Parenting styles

Data on parenting styles were collected through the Demand and Responsiveness Scale (Lamborn & Mounts, 1991), which includes four parenting styles: authoritarian, authoritative, neglectful, and permissive (Maccoby & Martin, 1983). The instrument reflects adolescent perceptions of parenting and includes two scales corresponding to demand (6 items) and responsiveness (10 items) dimensions, that were translated and adapted for the Brazilian context (Costa, Teixeira, & Gomes, 2000). These two dimensions combined were used to make the four parenting categories: authoritative (high scores on demandingness and responsiveness), authoritarian (high scores on demandingness and low scores on responsiveness), indulgent (low scores on demandingness and high scores on responsiveness) and neglectful (low scores on both demandingness and responsiveness). Responses were noted on a three-point Likert scale, with scores closer to three indicating greater perceived demand and responsiveness. The scale cutoff was based on

the median scores for each subscale, with the parents who scored at or above the median for demandingness or responsiveness classified as high in demandingness or responsiveness, respectively, whereas parents who scored at or below the median were classified as low in demandingness or responsiveness (Calafat, García, Juan, Becoña, & Fernández-Hermida, 2014). Responses are indicated on a three-point Likert scale, with scores closer to three indicating greater perceived demand and responsiveness. For instance, “To what extent do your parents really know what you do with your free time?” can be answered with, “Do not know”, “Know little”, or “Know enough.” Also, a question about fictitious drugs (Holoten and Carpinol) was included and questionnaires with positive answers on this question ($n = 49$) were excluded from the analysis.

2.2.3. Combined risk variable: substance use and parenting style

To evaluate the joint effect of substance use and parenting style we combined each of these variables into on binary (no/yes) categories. Regarding substance use, answers indicating lifetime substance use of at least one of the following: binge drinking, use of tobacco, marijuana, inhalants or cocaine were considered ‘yes’. Regarding parenting style, as authoritative had higher scores in both demand and responsiveness domains, we used it as a reference category. Authoritarian, negligent and permissive styles were grouped into a “poor parenting” category.

2.2.4. Socioeconomic status

Socioeconomic status (SES) was evaluated using the Brazilian Association of Research Companies scale (ABEP - Associação Brasileira de Empresas de Pesquisa, 2012), which reflects consumer goods and education level of the head of the household. Of its five categories, “A” and “E” correspond to highest and lowest SES, respectively. Student demographic data, including age and gender, were self-reported. Information on city, school, and grade were obtained from school records.

Two outcomes were evaluated: lifetime sex and lifetime unsafe sex (having sexual intercourse without a condom). Independent variables substance use - binge drinking and use of tobacco, inhalants, marijuana, and cocaine - and parenting styles (authoritative, authoritarian, permissive, and negligent). We considered early sexual initiation to be when sexual intercourse occurred before the age of 15. Other covariates included gender, age, socioeconomic status and city.

2.3. Statistical analysis

Our statistical approach involved generating descriptive characteristics of students who were sexually active and who reported unsafe sex, using weighted proportions (wgt%). We adjusted for city, school, and students, with the school as a stage 1 cluster and students as a stage 2 cluster. Because there were large amounts of missing data related to the parenting styles (22.8%), missing data were imputed through multiple imputation, which uses the intercorrelations of data from variables that are not missing to estimate plausible values for the missing data (Little & Rubin, 2002). Imputation was performed in Stata 14 assuming a random pattern of missing values for parenting styles only. An iterative method was used to fill in the missing values, the mvn method (mi impute mvn), that uses multivariate normal data augmentation to impute missing values of continuous imputation variables (Schafer, 1997). First, we imputed missing values and randomly created five imputation datasets. After that, we fit the model: [mi estimate] fits the specified model (logistic regression models) on each of the imputation datasets (five) and then combined the results into one MI inference (Schafer, 1997). The variables used in the imputation model included gender, age group, city, binge drinking, tobacco, inhalants, marijuana, and cocaine, and ABEP classification.

The next step involved logistic regression models to calculate both crude and adjusted odds ratios. Sampling weights were used to correct the sample estimate for the population from which it was extracted. To do this, we considered the population estimated in the initial draw, the absences on the day of data collection, and the sample universe in each city. For these analyses we used STATA/SE 14 software with the svyset procedure to determine the estimated variance for complex sample surveys. A p-value of < 0.05 was considered statistically significant.

Data cleaning involved two steps, first impossible values were changed to missing, that is, if a student had written that he was 100 years old, then that value was deleted and was considered missing. The same procedure was performed for the number of household items such as TVs, bathrooms, etc. (impossible variables were deleted, resulting in missing values). For example, if a student stated that he/she had used alcohol in the past month but did not drink alcohol in the past year or in his/her lifetime, this inconsistency was noted and replaced by a missing value. In addition, all data from questionnaires in which students answered ‘yes’ to a fictitious drug (holoten or carpinol) were excluded, to avoid false response profiles.

3. Results

Sexual initiation was reported by 13.3% (95% CI 11.8–15.0) of the students. The mean age of first sexual intercourse was 12.4 years ($SD = 0.33$). Additionally, 5.3% (95% CI: 4.3–6.4) of the participants reported unsafe sex. Lifetime sex and unsafe sex were more prevalent among boys, older students, and those who used any substances. Permissive and negligent parenting styles were associated with higher risk of sexual activity and unsafe sex, with the negligent parenting style being the most prevalent of the two behaviors evaluated. To illustrate, in the unsafe sexual activity group, 69.6% were boys, 67.3% were between 13 and 15 years of age, and 59.6% experienced the negligent parenting style ($p < 0.001$). Among the students who engaged in sexual activity, 46.8% were involved in binge drinking, whereas in the non-sexually active group prevalence of sexual activity was 14.2% (Table 1). In relation to unsafe sexual activity, the prevalence of substance use was also higher among adolescents who reported sexual intercourse without condoms compared with those who used condoms. Tobacco use was reported by 33.6% of the students who practiced unsafe sex and

Table 1
Distribution of lifetime sex and lifetime unsafe sex according to sociodemographic variables, substance use and parenting style among students.

	Lifetime Sex (N = 6285)				Lifetime Unsafe Sex (N = 6266)				p
	Yes		No		Yes		No		
	N	%wtg 95% CI	N	%wtg 95% CI	N	%wtg 95% CI	N	%wtg 95% CI	
Sex									
Male	477	62.4 (58.5, 66.1)	2570	46.2 (44.4, 48.1)	192	69.6 (62.3, 76.0)	2850	47.2 (45.5, 48.9)	< 0.001
Female	302	37.6 (33.9, 41.6)	2932	53.8 (51.9, 55.6)	96	30.4 (24.0, 37.8)	3124	52.8 (51.1, 54.5)	
Age									
11-12	240	31.3 (26.9, 36.1)	3052	57.4 (54.5, 60.2)	97	32.7 (26.2, 39.8)	3172	54.8 (52.0, 57.6)	< 0.001
13-15	539	68.7 (63.9, 73.1)	2450	42.6 (39.8, 45.5)	191	67.3 (60.2, 73.8)	2802	45.2 (42.4, 48.0)	
Socioeconomic Status^a									
A	48	6.5 (4.3, 9.6)	192	3.4 (2.4, 4.8)	17	5.7 (3.1, 10.1)	223	3.7 (2.7, 5.1)	0.240
B	279	33.7 (29.2, 38.6)	2150	37.0 (33.9, 40.3)	99	32.1 (26.3, 38.5)	2317	36.8 (33.7, 40.0)	
C	395	52.7 (47.6, 57.7)	2892	54.2 (50.5, 57.9)	153	57.0 (50.3, 63.4)	3128	53.9 (50.3, 57.4)	
D/E	55	7.2 (5.5, 9.7)	259	5.4 (4.3, 6.7)	17	5.2 (3.1, 8.8)	297	5.6 (4.6, 6.9)	
City									
Brasília	68	10.0 (6.6, 15.1)	484	10.9 (8.0, 14.7)	30	11.6 (5.9, 21.4)	522	10.8 (8.0, 14.4)	0.034
Florianópolis	87	1.8 (1.2, 2.6)	773	2.5 (1.9, 3.3)	16	0.8 (0.6, 1.2)	835	2.5 (1.9, 3.2)	
Portaleira	103	13.5 (9.3, 19.1)	432	8.4 (6.9, 10.1)	43	14.5 (8.8, 22.9)	493	8.8 (7.2, 10.7)	
SBC	105	4.4 (2.9, 6.7)	840	5.6 (4.0, 7.7)	46	5.1 (3.6, 7.4)	898	5.4 (4.0, 7.4)	
São Paulo	392	70.1 (62.8, 76.4)	2674	72.1 (67.5, 76.2)	147	67.7 (57.1, 76.8)	2910	72.0 (67.4, 76.1)	
Tubarão	24	0.3 (0.2, 0.4)	299	0.6 (0.4, 0.9)	6	0.2 (0.0, 0.5)	316	0.6 (0.4, 0.8)	
Substance Use									
Beer drinking	361	46.8 (43.1, 50.6)	763	14.2 (12.8, 15.8)	138	45.9 (40.3, 51.6)	983	17.1 (15.5, 18.8)	< 0.001
Tobacco use	230	28.1 (24.1, 32.4)	255	4.7 (3.9, 5.5)	100	33.6 (28.5, 39.0)	382	6.4 (5.5, 7.3)	< 0.001
Inhalant use	211	26.7 (23.1, 30.6)	897	15.9 (14.7, 17.2)	99	31.9 (25.5, 39.0)	1003	16.4 (15.3, 17.7)	< 0.001
Marijuana use	145	19.3 (15.6, 23.4)	109	2.0 (1.5, 2.5)	65	22.5 (17.6, 28.3)	190	3.3 (2.7, 3.9)	< 0.001
Cocaine use	17	2.4 (1.6, 3.5)	16	0.3 (0.2, 0.5)	13	4.5 (2.6, 7.6)	20	0.4 (0.2, 0.6)	< 0.001
Parenting Style^a									
Authoritative	97	15.0 (11.7, 19.1)	1337	30.8 (28.7, 33.0)	26	14.0 (9.0, 21.0)	1407	29.6 (27.5, 31.7)	< 0.001
Authoritarian	75	12.9 (10.4, 15.9)	875	20.6 (19.4, 21.9)	25	11.1 (7.0, 17.0)	922	20.0 (18.8, 21.3)	
Permissive	86	16.5 (13.1, 20.6)	563	13.3 (12.2, 14.5)	29	15.4 (10.3, 22.4)	620	13.7 (12.6, 15.0)	
Negligent	325	55.6 (49.7, 61.2)	1518	35.3 (33.0, 37.6)	129	59.6 (51.9, 66.8)	1706	36.7 (34.5, 39.0)	

^a This variable presented 22.8% of the missing data and was imputed in the inferential analyses.

^b SES - Socioeconomic classification based on ABEP.

Table 2

Logistic regression for lifetime sex and lifetime unsafe sex in relation to sociodemographic data, parenting style and substance use among students.

	Lifetime Sex (N = 6285)		Lifetime Unsafe Sex (N = 6266)	
	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95%CI)	Adjusted OR (95% CI)
Sex				
Female	Reference			
Male	1.93 (1.60, 2.31)	1.51 (1.22, 1.88)	2.55 (1.84, 3.54)	1.82 (1.31, 2.56)
Age				
11 to 12	Reference			
13 to 15	2.95 (2.44, 3.57)	2.57 (2.03, 3.26)	2.50 (1.88, 3.33)	1.98 (1.37, 2.85)
Socio-economic Status^b	1.00 (0.99, 1.02)	-	1.00 (0.98, 1.02)	-
City	1.04 (0.95, 1.14)	-	1.07 (0.95, 1.21)	-
Binge drinking	5.31 (4.45, 6.35)	3.24 (2.49, 4.22)	4.11 (3.11, 5.43)	2.08 (1.29, 3.37)
Tobacco use	7.94 (6.42, 9.81)	2.53 (1.77, 3.62)	7.41 (5.82, 9.43)	3.22 (1.92, 5.39)
Inhalant use	1.92 (1.54, 2.40)	0.68 (0.47, 1.00)	2.38 (1.71, 3.30)	-
Marijuana use	12.01 (8.51, 16.96)	3.22 (2.08, 5.00)	8.62 (6.40, 11.60)	1.86 (1.03, 3.67)
Cocaine use	7.98 (4.18, 15.25)	-	13.11 (6.13, 28.01)	2.55 (1.02, 6.38)
Parenting Style^a				
Authoritative	Reference			
Authoritarian	1.28 (0.93, 1.77)	1.14 (0.79, 1.67)	1.17 (0.58, 2.37)	1.00 (0.47, 2.14)
Permissive	2.55 (1.76, 3.71)	2.14 (1.40, 3.28)	2.38 (1.21, 4.67)	1.79 (0.85, 3.79)
Negligent	3.23 (2.30, 4.54)	2.02 (1.41, 2.92)	3.43 (2.11, 5.58)	1.99 (1.20, 3.27)

^a Missing data was imputed.^b SES - Socioeconomic classification based on ABEP.

by 6.4% of the students who used condoms ($p < 0.001$). In addition, marijuana use was reported by 22.5% of students who practiced unsafe sex and by 3.3% of the students who used condoms ($p < 0.001$) (Table 1).

Sexual activity was 51% more likely to occur among boys (Adjusted OR = 1.51, 95% CI: 1.22–1.88) and age 13 and 15 years old was associated with over a two-fold higher likelihood of sexual intercourse (aOR = 2.57, 95% CI: 2.03–3.26). Engaging in binge drinking (aOR = 3.24, 95% CI: 2.49–4.22) and marijuana smoking (aOR = 3.22, 95% CI: 2.08–5.00) increased the chance of sexual activity three-fold even after adjustment for sex, age, SES and city. Moreover, children of permissive parents (aOR = 2.14, 95% CI: 1.40–3.28) and negligent parents reported approximately twice the risk of sexual activity (aOR = 2.02, 95% CI: 1.41–2.92) (Table 2).

In relation to the practice of unsafe sexual activity, adolescents aged 13–15 years old were 98% (aOR = 1.98, 95% CI: 1.37–2.85) more likely to engage in unsafe sex compared with 11 to twelve-year olds. Engaging in smoking tobacco (aOR = 3.22, 95% CI: 1.92–5.39), binge drinking (aOR = 2.08, 95% CI: 1.29–3.37) and using cocaine (aOR = 2.55, 95% CI: 1.02–6.38) were associated with increased risk of unsafe sex. The negligent parenting style was the only style associated with unsafe sex, increasing the odds of unsafe sex by 99% (aOR = 1.99, 95% CI: 1.20–3.27) (Table 2).

When examining the combined substance use and parenting style variable, students who had poor parenting but did not use substances had a two-fold higher risk of sexual activity (aOR = 2.03, 95% CI: 1.25–3.31). On the other hand, adolescents in families

Table 3

Logistic regression for lifetime sex and lifetime unsafe sex in relation to sociodemographic data and interaction between substance use and parenting style among students.

	Lifetime Sex (N = 6285)		Lifetime Unsafe Sex (N = 6266)	
	Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95%CI)	Adjusted OR (95% CI)
Sex				
Female	Reference			
Male	1.93 (1.60, 2.31)	1.60 (1.31, 1.96)	2.55 (1.84, 3.54)	2.00 (1.48, 2.69)
Age				
11 to 12	Reference			
13 to 15	2.95 (2.44, 3.57)	2.97 (2.39, 3.71)	2.50 (1.88, 3.33)	2.39 (1.69, 3.39)
Socio-economic Status^a	1.0 (0.99, 1.02)	-	1.0 (0.98, 1.02)	-
City	1.04 (0.95, 1.14)	-	1.07 (0.95, 1.21)	-
Combined Risk Factors				
No Substance Use and Authoritative Parenting	Reference			
No Substance Use and Poor Parenting	2.22 (1.38, 3.57)	2.03 (1.25, 3.31)	2.12 (1.02, 4.42)	1.97 (0.94, 4.12)
Substance Use and Authoritative Parenting	4.61 (2.73, 7.77)	4.36 (2.56, 7.42)	4.84 (2.08, 11.25)	4.54 (1.96, 10.50)
Substance Use and Poor Parenting	8.72 (5.75, 13.26)	7.53 (5.01, 11.31)	9.42 (4.94, 17.92)	8.09 (4.16, 15.75)

Substance use was defined as lifetime binge drinking, tobacco, inhalant use, marijuana or cocaine use.

Poor parenting was defined as authoritarian, permissive and negligent, versus authoritative parenting.

^a SES - Socioeconomic classification based on ABEP (numerical variable).

with poor parenting styles and who used substances had 7.5 times higher odds of engaging in sexual activity (aOR = 7.53, 95% CI: 5.01–11.31) (Table 3).

Regarding unsafe sexual activity, adolescent substance use and being in a family with an authoritative parenting style increased the chance of unsafe sex four-fold (aOR = 4.54, 95% CI: 1.96–10.50). Adolescents who engaged in substance use from households with poor parenting styles were eight times more likely to have unsafe sex compared to adolescents who did not reported substance use and who were from families using an authoritative parenting style (aOR = 8.09, 95% CI: 4.16–15.75) (Table 3).

4. Discussion

In this study we analyzed risk factors associated with early sexual initiation and adolescent unsafe sex, namely substance use and parenting styles, along with the combination of these risk factors together. We found that binge drinking, tobacco and illicit drug use were associated with early sexual intercourse in adolescents. Second, the use of psychoactive substances was also related to unsafe sex. Though the age range was narrow, older male students stood out for having higher levels of lifetime sex and lifetime unsafe sex. Further, negligent parenting was associated with early sexual initiation and unsafe sex, while permissive parenting was only associated with early sexual activity. Finally, we found that adolescents who simultaneously used illicit substances and who experienced negligent, authoritarian or permissive parenting were at a substantially higher risk of both early initiation and unsafe sex outcomes.

The association we observed between psychoactive substances and early sexual initiation echoes the results of other studies. A study in Europe found that alcohol and other drug use before age 16 was associated with an increased odds of early sexual initiation (Bellis et al., 2008). In Finland, alcohol substantially increased the likelihood of engaging in risky sexual behaviors; among individuals who did not drink or rarely drank, 19% of girls had engaged in sexual intercourse versus 25% for boys, however, among those who drink a few times per month, the percentages increased to 38% and 31%, respectively (Lavikainen, Lintonen, & Kosunen, 2009). The effects of substance use on behavior, affecting critical judgment, reducing inhibition, and interfering with decision-making and planning, may explain its association with early sexual initiation (Oliveira-Campos et al., 2013). Early sexual initiation leaves adolescents more vulnerable to exposure to violence or subsequent regret (Connell et al., 2009) and to not use condoms (Oliveira-Campos et al., 2013).

Our findings reinforce the association between substance use and unsafe sex that has been documented in Brazil as well as in other contexts. A survey with adolescents from public schools in the state of Minas Gerais, Brazil, found that substance use was a factor determining condom use among boys (Bertoni et al., 2009). For boys who had already used illicit drugs, consistent use of condoms was reported by 42.7% whereas for boys who had never used substances the rate was 64.1% (Bertoni et al., 2009). In a nationally representative sample from the US, the 2013 Youth Risk Behavior Survey (YRBS) showed that among 34.0% of sexually active students, only 59.1% reported condom use during last sexual intercourse. In addition, 20.8% of these students engaged in at least one episode of binge drinking in the month prior to the study (Centers for Disease Control and Prevention, 2014). In the UK, adolescents who regularly used alcohol, cigarettes, or marijuana were less likely to use condoms than non-regular users of these substances (Parkes, Wight, Henderson, & Hart, 2007). In Finland, a national survey also highlighted the association between weekly drunkenness-related drinking between boys and girls and involvement in unprotected sex and multiple sexual partners (Lavikainen et al., 2009).

Parenting styles are thought to influence adolescent sexual behaviors insofar as they mirror attitudes that they learn from their relationships with their parents (Commendador, 2010). Parenting styles reflect social values and norms and are therefore fundamental to shaping social norms in their children (Mahdavian & Zolala, 2017). Parents often encourage their sons to be fearless and to engage in risky behaviors, whereas girls are protected and taught to avoid risks (Booth & Nolen, 2012). Thus, in the quest to reaffirm masculinity, boys may become more susceptible, for example, to substance use (Silveira et al., 2012). Our findings showing the negligent parenting style to be associated with the unsafe sex and early sexual initiation support prior studies (Hoskins, 2014). This may suggest that parents with negligent styles may overlook values and social norms (Mahdavian & Zolala, 2017). Others have found an association between parental monitoring, which is absent in the negligent parenting style, and delayed sexual initiation, few sex partners (de Graaf et al., 2010), increases in condom use and decreases of sexual risk behaviors in general (de Graaf, Vanwesenbeeck, Woertman, & Meeus, 2011).

Recent literature highlights the protective role of family communication, which is also absent in the negligent parenting style, for early and risky sexual involvement (Widman, Choukas-Bradley, Noar, Nesi, & Garrett, 2016). Monitoring and family support encourage autonomy and self-discovery and are associated with the development of social and emotional competencies (de Graaf et al., 2011). By providing an environment that promotes dialogue and trust, parents have more knowledge and greater control over the social activities of their children and can thus restrict the opportunities of adolescents to engage in risky behaviors, which may delay sexual initiation and increase the use of condoms (Commendador, 2010).

The fact that adolescents who simultaneously used substances and who experienced poor parenting were at a substantially higher risk of unsafe sex and early sexual initiation illustrates that sexual risk behaviors are complex and influenced by several factors across individual, interpersonal and community domains (Setthekul, Fongkiew, Visukul, Boonchieng, & Voss, 2019). In this sense, it is fundamental to promote adolescent development of social and emotional skills in order to protect them from engaging in risky behaviors such as substance use and involvement in early and risky sexual activity. Thus, prevention programs that focus on early sexual initiation and substance use that take in account the family need to be incorporated into the broader context of school health education curricula, including for younger adolescents (Mmari & Blum, 2009).

One limitation of this study was use of a self-reported questionnaire, which could lead to information bias through either failure in interpretation of the questions or because of social desirability. However, the question about a fictitious drug allowed us to discard

questionnaires that appeared to be biased. Also, the fact that it was a cross-sectional study limits our ability to make causal inferences.

The results of this study highlight the association between alcohol use and other drugs, early sexual initiation and the practice of unsafe sex, and the importance of the family in this context. We found a markedly increased risk of initiation in sex and unsafe sex among youth who both experienced poor parenting and who engaged in substance use. Based on these results, we suggest that school-based prevention programs take a family-based approach to address substance use and sexuality simultaneously. Future interventions should consider strategies focused on strengthening parental skills to prevent or reduce risky behaviors in their children.

Acknowledgments

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Anexo 4: Aceite do artigo 2

Date: 27 Feb 2021
To: "Pamela Surkan" psurkan@jhu.edu
cc: kzucker.phd@gmail.com, lori_scott-sheldon@brown.edu
From: "Archives of Sexual Behavior (ASEB)"
saranya.sekar@springernature.com
Subject: Your Submission ASEB-D-20-00141R3

February 27, 2021

Dear Dr. Surkan,

I am pleased to inform you that your manuscript, "Effects of a school-based drug prevention program on sexual risk behavior among adolescents in Brazilian schools", has been accepted for publication in the Archives of Sexual Behavior.

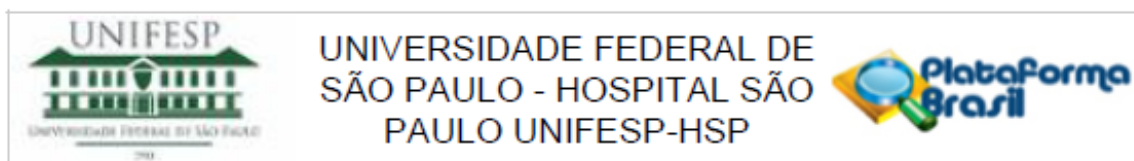
You will be contacted by Author Services in due course with a link to complete the grant of rights. Please note that you will receive your proofs after the publishing agreement has been received through our system.

Please remember to quote the manuscript number, ASEB-D-20-00141R3, whenever inquiring about your manuscript.

With best regards,
Lori A. J. Scott-Sheldon, PhD
Associate Editor, Archives of Sexual Behavior

—

Anexo 5: Parecer Comitê de Ética



Continuação do Parecer: 1.705.111

Avaliação dos Riscos e Benefícios:

conforme descrito no parecer inicial.

Comentários e Considerações sobre a Pesquisa:

Este projeto visa dar suporte ao Plano Integrado de Enfrentamento ao Crack e Outras Drogas do governo Federal, cobrindo a lacuna dos estudos em prevenção junto às crianças e os adolescentes brasileiros adaptando e avaliando a implantação de programas eficazes de prevenção em escolas.

DETALHAMENTO DA EMENDA

Inclusão das alunas JULIA DELL SOL PASSOS GUSMÕES, JULIANA YOURGEL VALENTE e LARISSA FERRAZ REIS, do Programa de Pós-Graduação em Saúde Coletiva da UNIFESP, no projeto de pesquisa "Prevenção ao uso de drogas nas escolas brasileiras: diagnóstico da situação atual e fatores associados à implantação do programa", parecer CAEE 14332813.8.0000.5505.

Parte dos dados obtidos neste projeto serão utilizados pelos alunos como base para suas teses para obtenção de títulos de pós-graduação (mestrado e doutorado).

Subprojeto da aluna Júlia Dell Sol Passos Gusmões (mestrado): Violência nas escolas brasileiras: fatores associados e avaliação de um programa de prevenção.

Subprojeto da aluna Juliana Yurgel Valente (doutorado): Influência dos Estilos Parentais na Efetividade do Programa de Prevenção ao Uso de Drogas #Tamojunto.

Subprojeto da aluna Larissa Ferraz Reis (doutorado): Comportamento Sexual de Risco entre Adolescentes Brasileiros: Avaliação da efetividade do Programa #Tamojunto e do consumo de drogas como moderador.

O pesquisador declara que nenhuma alteração foi realizada no projeto aprovado pelo CEP e serão realizadas análises secundárias dos dados coletados em 2014 através de questionários aplicados entre os estudantes.

Considerações sobre os Termos de apresentação obrigatória:

Encaminhamento de emenda ao projeto para inclusão de pesquisador.

Endereço: Rua Botucatu, 572 1º Andar Conj. 14			
Bairro: VILA CLEMENTINO		CEP: 04.023-061	
UF: SP	Município: SÃO PAULO		
Telefone: (11)5571-1062	Fax: (11)5539-7162	E-mail: secretaria.cepunifesp@gmail.com	



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PAULO UNIFESP-HSP



Continuação do Parecer: 1.705.111

Conclusões ou Pendências e Lista de Inadequações:

emenda aprovada

Considerações Finais a critério do CEP:

- O parecer do relator foi acatado pelo colegiado.

Este parecer foi elaborado baseado nos documentos abaixo relacionados:

Tipo Documento	Arquivo	Postagem	Autor	Situação
Informações Básicas do Projeto	PB_INFORMAÇÕES_BÁSICAS_772676_E4.pdf	17/08/2016 12:02:04		Aceito
Outros	solicitacao_emenda_inclusao_pesquisadores.docx	17/08/2016 12:00:37	Zila van der Meer Sanchez	Aceito
Outros	carta emenda rct.pdf	29/04/2015 17:19:11		Aceito
Outros	justificativa de emenda.doc	02/09/2014 17:52:56		Aceito
Outros	Solicitação de emenda ao CEP - 16.07 ASSINADA.pdf	16/07/2014 11:29:17		Aceito
Outros	carta sobre pendências.doc	22/11/2013 16:41:16		Aceito
Outros	termo assentimento criança.doc	22/11/2013 16:29:43		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE professores.doc	22/11/2013 16:29:21		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE diretores.doc	22/11/2013 16:29:12		Aceito
TCLE / Termos de Assentimento / Justificativa de Ausência	TCLE pais.doc	22/11/2013 16:29:05		Aceito
Outros	resposta CEP - MS (1).pdf	23/09/2013 19:12:44		Aceito
Outros	CEPUNIFESP564639.pdf	30/07/2013 09:52:36		Aceito
Folha de Rosto	folha de rosto projeto prevencao.pdf	22/07/2013 17:42:37		Aceito
Projeto Detalhado / Brochura Investigador	Projeto piloto UNODC.pdf	17/07/2013 22:21:14		Aceito



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PAULO UNIFESP-HSP



Continuação do Parecer: 1.705.111

Situação do Parecer:

Aprovado

Necessita Apreciação da CONEP:

Não

SAO PAULO, 31 de Agosto de 2016

Assinado por:
Miguel Roberto Jorge
(Coordenador)

Endereço: Rua Botucatu, 572 1º Andar Conj. 14

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