

Scoping Review Protocol

Title

Core components and strategies of effective family-based intervention to prevent multiple risk behaviors of female adolescents: a scoping review protocol

Authors

Dr.Pimrat Thammaraksa

Associate Professor Dr. Sarah Stoddard

Associate Professor Dr. Arpaporn Powwattana

Abstract

Objective: The objective of this scoping review is to understand the extent and type of evidence in relation to core components and strategies of effective family-based intervention to prevent multiple risk behaviors (i.e., alcohol use, smoking, and risky sexual behavior) among female adolescents.

Introduction: Multiple Risk Behaviors (MRB) typically emerge during adolescents. In response, researchers and practitioners have been devoted to identifying effective interventions. However, many existing interventions focus on single risk behaviors but we know that risk behaviors cluster together. Less is known about the core components and strategies of effective family-based intervention for the prevention of multiple risk behaviors in female adolescents.

Inclusion criteria: Studies must evaluate the effectiveness of family-based interventions directly on female adolescents aged 13 to 17 years, and measure risk behavior outcomes quantitatively. The interventions must include effectiveness data for at least two of the following risk behaviors as outcomes: alcohol use, smoking, and sexual behavior. Intervention studies will be including if effectiveness data is available for two or more outcomes across multiple publications. We will exclude intervention studies that have focused on a single risk behavior or that do not include outcomes specifically for female adolescents (e.g., report only overall rates or do not distinguish between male and female adolescents within a mixed sample). Additionally, literature on family-based intervention for the substance treatment and therapy will be excluded.

Methods: Multiple databases will be searched, including PubMed, ProQuest, Web of Science, Scopus, Embase, and CINHALL using keywords, indexed terms, and phrases, for the following concepts: family-based intervention, female adolescents, and multiple risk behaviors. Search will be conducted from the date of inception to the end of the last full calendar year (December 2023). We also restricted the language of studies to English. Two reviewers will independently assess eligibility criteria for each study and use a standardized charting form to extract relevant data. Each included study will be rated using a modified version of the JBL Levels of Evidence framework. Details on the core components and strategies of effectiveness of family-based intervention in each included study will be extracted, and results will be presented in tables and diagrams.

Introduction

Multiple Risk Behaviors (MRB; i.e., engagement in two or more risk behaviors) typically emerge during adolescents. Engagement in multiple risk behaviors is thought to have a cumulative effect on individual health (Wright, Heron, Campbell, Hickman, Kipping, 2020). In 2021, 10.3 percent of Thai female adolescents drank alcohol and 1.3 percent smoked (National Statistical Office, 2021). Risk behaviors rates among female adolescents have been increasing. The Global School-Based Student Health survey (2018) illustrated that the prevalence of current alcohol uses among Thai adolescents aged 13-17 years increased from 14.8 percent in 2008 to 22.2 percent in 2015. Data from the Centre for Alcohol Studies (CAS), Thailand (2022) indicated the prevalence of alcohol use among Thai female adolescents ages 15-19 years increased from 3.9 percent in 2017 to 4.1 percent in 2021. Also, the prevalence of sexual risk behavior among Thai female adolescents has increased. Interestingly, 64.0 percent of Thai adolescents who have sexual intercourse do not use condoms (Niltow, Jirapornkul, Maneenin, 2021). Engaging in these risky behaviors during adolescence can lead to the non-communicable disease (NCDs), especially hypertension, respiratory disease, sexually transmitted infections (STIs), and AIDS.

Thai adolescents who live in the central area metropolitans, especially in Samutprakan province, have higher rates of risk behaviors. For example, in 2017, 15.4 percent of adolescents (aged 15-19 years) in Samutprakan province reported smoking which was higher than smoking rate in Thailand (10.0 percent) (Tobacco Control Research and Knowledge Management Center, 2020). In addition, Thammaraksa and colleagues (2019) found that 49.8 percent of female adolescent engage in multiple risk behaviors including smoking, alcohol drinking, and sexual risk behavior. In their sample, 38.7 percent of adolescents reported one risk behavior, with 9.8 percent and 1.3 percent reporting two and three risk behaviors, respectively. Alcohol drinking was the most common single risk behavior (83.1 percent) while smoking together with alcohol drinking were the highest risk behaviors for adolescents reporting two risk behaviors (70.0 percent). Therefore, it can be seen that these risk behaviors tend to co-occur for female adolescent (Srivastava, 2016).

Previous research suggests that factors across multiple levels including the individual level (e.g. low resilience) (Thammaraksa, Powwattana, Wannasuntad, Tipkanjanaraykha, 2019; Dumkrathok, & Chidthaisong, 2019) and family level (e.g. poor family relationship) (Thammaraksa, Powwattana, Wannasuntad, Tipkanjanaraykha, 2019; Sangsawang, & Sangsawang, 2022; Wachira, Mathai, & Kathuku, 2019) influence engagement in risk behaviors for Thai female adolescents. Research strongly suggests that positive family relationships are important for adolescent risk behaviors and are significantly related with adolescent's resilience (Pholkrathok, Nintachan, & Sangon, 2019). Consequently, intervention delivered to families (i.e., family-based interventions) that support positive family relationships and connectedness may be important for preventing risk behaviors of adolescents and should be looked at in more detail.

Previous reviews have examined family-based interventions for single risk behaviors, particularly alcohol use (Gilligan, et.al., 2019; Brincks, Perrino, Estrada, Prado, 2023) and sexual health (Guilamo-Ramos et.al., 2023). Reviews have not considered the effectiveness of family-based interventions for multiple risk behaviors. Importantly, most reviews only evaluate adolescent outcomes and do not identify the core components and strategies of effective family-based interventions.

A preliminary search for existing scoping reviews on the core components and strategies of effective family-based intervention for prevent multiple risk behaviors of female adolescents was

conducted in the PubMed, ProQuest, Web of Science, Scopus, Embase, and CINHALL. To our knowledge, there is currently no scoping review on this topic. Therefore, the objective of this scoping review is to identify the core components and strategies of effective family-based intervention for the prevention of multiple risk behaviors for female adolescents.

Review question

What are the core components and strategies of effective family-based intervention for preventing multiple risk behaviors of female adolescents (13-17 years of age)?

Eligibility criteria

Inclusion criteria

A comprehensive search strategy was developed to review the available literature using the “Participants-Concept-Context (PCC)” framework for scoping review (Peters et al., 2020). The pre-defined inclusion criteria will be underpinned.

Participants

The focus of this review is studies that evaluated the family-based interventions for the prevention of multiple risk behaviors in female adolescents from 13 to 17 years of age. However, any studies of this type that included participants aged from 13 to 17 will be included, even if they also included participants in other age groups outside 13-17 years of age. This age restriction is necessary to make the important distinction between family-based intervention for adolescents versus family-based intervention for children and young adults.

Concept

Studies that assess the effectiveness of family-based intervention for the prevention of multiple risk behaviors among female adolescents will be included in the study. Concepts include family-based intervention, female adolescents, and multiple risk behaviors (e.g. alcohol use, smoking, sexual behavior).

Multiple risk behaviors refer to engagement in two or more risk behaviors concurrently. Previous research suggests that an adolescent who has a single risk behavior is more likely to have other risk behavior. For this review, we will include the following risk behaviors: alcohol use, smoking, and sexual behavior.

As the focus of this review involves the effectiveness of family-based interventions, we will only include family-based interventions that have outcomes for at least two risk behaviors (e.g. alcohol use and sexual behavior or alcohol use and smoking) and measure adolescent risk behaviors quantitatively. Literature on family-based interventions for substance abuse treatment and therapy will not be included. Additionally, intervention studies focused on a single risk behavior, studies focused on understanding factors that correlate with the multiple risk behaviors, and studies that do not provide outcomes specifically for female adolescents (e.g., report only overall rates or do not distinguish between male and female adolescents within a mixed sample) will also be excluded.

Context

Our primary focus is family-based intervention. For this review, family-based interventions will be defined as an intervention that includes family members (e.g. father, mother, or other guardian) in the prevention activities to prevent multiple risk behaviors of female adolescents.

This scoping review will identify the core components and strategies of effective family-based intervention for prevent multiple risk behaviors of female adolescents in a global context, meaning we are not limiting our review to studies from a specific region. We are interested in the application and efficacy of family-based intervention to prevent multiple risk behaviors across various culture and social contexts. Therefore, in order to capture and understand the core components and strategies of effective family-based intervention, we will include studies of all locations and date ranges. However, we will restrict the language of studies to English only. We will not include family-based intervention for substance abuse treatment and therapy.

Exclusion criteria

We will not include studies focused on interventions delivered sole to the adolescent (e.g., school or community interventions that do not include family members as participants) or interventions focused solely on children under age 13 or youth over age 17 years. Moreover, we will not include family-based interventions delivered for substance abuse treatment and therapy. Additionally, intervention studies focused on a single risk behavior, studies focused on understanding factors that correlate with the multiple risk behaviors, and studies that do not provide outcomes specifically for female adolescents (e.g., report only overall rates or do not distinguish between male and female adolescents within a mixed sample) will also be excluded.

Types of Sources

This scoping review will consider both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. Grey literature (narrative reviews, conference papers, and proceedings, government reports, theses) on family-based interventions that meet the inclusion criteria will also be considered.

Systematic reviews will not be included for the final review. However, identified systematic reviews will be used for further citation tracking.

Methods

The proposed scoping review will be conducted in accordance with the JBI methodology for scoping reviews as outlined in the Joanna Briggs Institute (JBI) method for scoping reviews. The study will use the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA-ScR) checklist.

The scoping review protocol followed the methodological framework proposed by Arksey and O'Malley (2005) and adaptations by the Joanna Briggs Institute (Peters et al., 2020). The framework consists of five consecutive stages: (1) identifying the research questions, (2) identifying relevant studies, (3) study selection, (4) charting the data, and (5) collating, summarizing and reporting the results.

Stage 1: Identifying the research questions

The following research question is the foundation for this scoping review:

1) What are the core components and strategies of effective family-based intervention for preventing multiple risk behaviors of female adolescents (13-17 years of age)?

Stage 2: Search strategy to identify relevant studies

The search strategy will aim to locate both published and unpublished studies. An exploratory search on PubMed was conducted to identify key search terms relevant to the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for and the index terms were used to develop key terms for refining the database search strategies. Authors met with health sciences librarians to narrow down on key terms.

The database search strategy will include combining keywords, indexed terms, and phrases for the following concepts: family-based intervention, female adolescents, and multiple risk behaviors (e.g. alcohol use, smoking, sexual behavior). The search strategy will be adapted for each included database and/or information source. The search strategy for PubMed, ProQuest, Web of Science, Scopus, Embase, and CINHALL is presented in Appendix I.

Due to time and funding restrictions, included studies will be limited to English.

The databases to be searched include PubMed, ProQuest, Web of Science, Scopus, Embase, and CINHALL. Sources of unpublished studies/grey literature to be searched will include government or organization websites and google scholar.

Stage 3: Study/Source of Evidence selection

Following the search, all identified citations will be collated and uploaded into Rayyan – a web and mobile app for systematic reviews – and duplicates removed (Ouzzani et al., 2016). Titles and abstracts will be screened by two independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant sources will be retrieved in full, and text will be assessed against the inclusion criteria by PT and KK. Reasons for exclusion of sources of evidence at full text that do not meet the inclusion criteria will be recorded and reported in the scoping review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion with a third reviewer (SS). The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram (insert citation to PRISMA-ScR statement and include in the reference list).

Stage 4: Data Extraction (Charting the data)

Data will be extracted from papers included in the scoping review by two independent reviewers using a data extraction tool developed by the reviewers. The data extracted will include specific details about core components and strategies, characteristics of the sample, concept, context, study methods, outcomes measured and other important results that relevant to the review question. Prior to data extraction, the data extraction form will be piloted by two reviewers independently charting two or three studies. The research team will revise the form if needed. A

draft extraction form is provided (see Appendix II). Any changes to the data extraction form will be recorded and detailed in full in the scoping review. Any disagreements that arise between the reviewers will be resolved through discussion, or with an additional reviewer. If needed, authors of papers will be contacted to request missing or additional data.

Stage 5: Data Analysis and Presentation

Findings will be presented in tables following the main domains of the data extraction form and aggregated and discussed in text to address the objectives of this review. Data relating to intervention characteristics will be presented in a summary table accompanied by an explanatory narrative. Findings from this review will be submitted for publication in a peer-reviewed journal and presented at professional conferences.

Appendices/Supplementary information

Appendix 1 Search Strategy

Appendix 2 Data extraction instrument

Acknowledgements

The authors would like to thank Gurpreet Kaur Rana for providing an explanation of scoping reviews and conducting the search.

Funding

Funding was provided for this research by the United States Department of Health and Human Services, National Institutes of Health, Fogarty International Center, 5D43TW00988306D43 (PI: Potempa).

Conflicts of interest

There is no conflict of interest in this project.

References

- Arksey H., O'Malley L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*; 8:19-32.
- Brincks A, Perrino T, Estrada Y, Prado G. (2023). Preventing alcohol use among Hispanic adolescents through a family-based intervention: The role of parent alcohol misuse. *J Fam Psychol*, 37(1):105-109. DOI: 10.1037/fam0001038. Epub 2022 Nov 7. PMID: 36342424; PMCID: PMC9870920.
- Centre for Alcohol Studies, Thailand. (2022). *Patterns and trends Alcohol drinking behavior Thai population*. Songkla, Centre for Alcohol Studies.
- Dumkrathok, U., & Chidthaisong, T. (2019). An Investigation of the relationship between resilience and risk behavior of junior high school students. *Journal of Education, Mahasarakham University*, 13(3): 314-326.

- Gilligan C, Wolfenden L, Foxcro DR, Williams AJ, Kingsland M, Hodder RK, Stockings E, McFadyen TR, Tindall J, Sherker S, Rae J, Wiggers J. (2019). Family-based prevention programmes for alcohol use in young people. *Cochrane Database of Systematic Reviews* 2019, Issue 3. Art. No.: CD012287. DOI: 10.1002/14651858.CD012287.pub2.
- Guilamo-Ramos, V., Benzekri, A., Thimm-Kaiser, M. (2023). Evaluating the efficacy of an online, family-based intervention to promote adolescent sexual health: a study protocol for a randomized controlled trial. *BMC Psychiatry*, 24(181):1-13. DOI: 10.1186/s13063-023-07205-3.
- National Statistical Office. (2021). *Health behaviors of population survey 2021*. Bangkok: Statistical Forecasting Division.
- Niltow, U., Jirapornkul, C., & Maneenin, N. (2021). Condom use behavior among students in the university. *Journal of Community Public Health*, 7(1): 47-59.
- Ouzzani, M., Hammady, H., Fedorowicz, Z. & Elmagarmid, A. (2016). Rayyan—a web and mobile app for systematic reviews. *Systematic Reviews*, 5(210): 1-10. <https://doi.org/10.1186/s13643-016-0384-4>.
- Peters, M.D.J., Godfrey, C., McInerney, P., Munn, Z., Tricco, A.C., & Khalil, H. (2020). Chapter 11: Scoping reviews (2020 version). In E. Aromataris & Z. Munn (Eds.), *JBI Manual for evidence synthesis*. <https://doi.org/10.46658/JBIMES-20-12>
- Pholkrathok, P., Nintachan, P., & Sangon, S. (2019). Factors related to resilience of vocational students in a province located in northeastern region. *The Journal of Psychiatric Nursing and Mental Health*, 33(1). 70-94.
- Sangsawang N., & Sangsawang, B. (2022). Risk behaviors and factors influencing risk behaviors among adolescents. *Nursing Journal CMU*, 49(2): 182-196.
- Srivastava, A. (2016). A study on risk taking behavior among adolescents and their attachment with parents and peers. *The international Journal of Indian Psychology*, 3(4): 185-194.
- Thammaraksa, P., Powwattana, A., Wannasuntad, S., & Tipkanjanaraykha, K. (2019). Factors related to multiple risk behaviors among female secondary school students. *Journal of Boromarajonani College of Nursing, Bangkok*, 35(1): 234-248.
- Tobacco Control Research and Knowledge Management Center. (2020). *Situation of consumer consumption control of tobacco country of Thailand in the year 2017*. Bangkok: Chareondeemankong Printing.
- Wachira, WN., Mathai, M., & Kathuku, DM. (2019). Family connectedness and its association with sexual risk-taking among undergraduate students at University of Nairobi. *East African Health Research Journal*, 3(1): 24-30.
- World Health Organization. (2018). *Thailand 2015 Global School-Based Student Health Survey*. World Health Organization.
- Wright, C., Heron, J., Campbell, R., Hickman, M., & Kipping, RR. (2020). Adolescent multiple risk behaviours cluster by number of risks rather than distinct risk profiles in the ALSPAC cohort. *BMC Public Health*, 20(290): 1-8.