

Impact of Educational Intervention on Prevention of Adolescent Substance Use Disorders in Low and Middle Income Countries: A Systematic Review Protocol

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Abstract: Many unhealthy behaviors like addiction to harmful substance such as smoking, drinking, drug use often begin during adolescence, and leads to morbidity and mortality in low and middle income countries represent major public health challenge. We are going to conduct an overview of systematic review to evaluate the effectiveness of intervention to prevent adolescent substance abuse. The objectives of the review are to identify various interventions on prevention of adolescent substance abuse in LMICs, to provide evidence for effectiveness of such interventions and to identify the delivery platform of identified interventions.

Method and analysis: An overview of systematic review will be carried out based on Cochrane handbook for systematic reviews of interventions. The review will include systematic reviews that have included RCTs and quasi experimental studies and adolescent population in low LMICs. We will include any educational / psychosocial interventions that directly or indirectly affect substance use prevention. Databases such as EMBASE, PubMed, Medline, Cinhal and Psychinfo will be searched from January 2021 to June 2021. Additionally, important government websites and references of the included studies will be scanned to identify potential records. Three authors, independently, will carry out screening and data extraction. Studies will be categorized in to various themes for the purpose of analyzing and reporting the results.

Ethics and dissemination: This review will be based on published studies and will not include human participants directly; therefore, ethical clearance is not applicable. We will disseminate the final overview findings in a peer-reviewed journal.

I. INTRODUCTION

Addiction to harmful substances often takes root during the adolescent years and affects the individual in countries of both low- and middle-income category. It is also documented that consistent rapid increase in the onset of substance abuse is during late adolescence and early adulthood.¹ Prevention of substance abuse at an early stage is necessary to avoid the effects of illicit drugs on the adolescent brain, physical health, mental health and social health. Low-income and middle-income countries (LMICs) contribute to around 84% of the world population and 90% of the global burden of disease.² Adolescents who use illicit drugs have

been shown in a variety of LMICs to be at increased risk of tobacco and alcohol use.¹

Illicit drug use is directly and indirectly responsible for over 750,000 deaths per year. Over 166,000 die from drug overdoses annually. More than half of those who die from drug overdoses are younger than 50 years old.³ World Drug Report 2019 says 35 million people worldwide suffer from drug use disorders while only 1 in 7 people receive treatment.⁴ Globally, some 35 million people are estimated to suffer from drug use disorders and who require treatment services, according to the latest World Drug Report, released by the United Nations Office on Drugs and Crime (UNODC).⁴

Present review will limit the search to LMICs as studies reported that barriers to prevent substance abuse in LMICs include a low prioritization of the problem, inability to detect and treat substance use disorders at an early stage.⁵ Drug use increased rapidly among developing countries over the last 20 years than in developed countries. Adolescents and young adults account for the largest share of those using drugs.¹¹

We will focus on substance use related to alcohol, smoking, cannabis, cocaine, opioids and combined drug use, as these addiction have a significant correlation with comorbidities which may lead to mental disorders.⁶ Substance use interventions may be pharmacological or psychosocial in nature, pharmacological interventions use antagonist and withdrawal reducing medications to reduce the symptoms and are usually used in early stage of treatment.⁷ Psychosocial interventions are usually face-to-face interventions that target on the psychological and social aspects of a person's life.⁸ Examples of psychosocial interventions include CBT, brief interventions, interpersonal therapy, self-help groups, family therapy, motivational interviewing, and community based intervention etc.⁹ Studies have shown that culturally-adapting psychosocial interventions can result in improved outcomes by addressing context-specific factors such as stigma, ethnicity and cultural beliefs.¹⁰

At present, there has been significant improvement and expansion in the development of evidence-based psychosocial

treatments for substance abuse and dependence.¹² Psychosocial treatments are now considered essential components to any comprehensive substance use disorder treatment program.¹³ Behavioral interventions (BIs) can be an effective first level of treatment offered to drug and alcohol abuse clients and because of their low cost and cost-effectiveness.¹⁴

A Cochrane review in 2011 concludes that motivational intervention (MI) can reduce the extent of substance abuse compared with no intervention.¹⁵ MI is additionally being viewed as being best when combined with other standard psychosocial interventions.¹⁶ Cognitive behavior therapy (CBT) is rated as the most effective approach to treat drug and alcohol use and is accepted well by clients. Evidence reported CBT is effective for a range of substances including alcohol, cannabis, amphetamines, cocaine, heroin and injecting drug use.^{17,18,19} In a Cochrane review of 17 studies evaluating four type of interventions: MI or BI, education or skills training, family interventions and multi component community interventions found a lack of evidence of included interventions.²⁰

Deb, K S, presented his viewpoint in prevention strategies for substance use disorder in a low resource setting explains that due to root level limitations in health-care services, LMICs face problems in developing and implementing substance abuse prevention programs. Development of effective prevention strategies is still in an infancy stage in LMICs.²¹ So far, there is limited evidence about the extent to which substance abuse disorders interventions are culturally adapted in LMICs or about the evidence for effectiveness of the interventions adopted. There is an increased demand to implement a cost effective community based substance use prevention interventions in LMICs. But translating the demand in to practice is still lacking and research on this topic, specially related to psychosocial interventions, remains lacking and limited to high income countries.¹⁰

II. THE GAP IN THE LITERATURE

A study reported that evidence base for psychological treatment of substance use must be expanded and will also include research on optimal combinations of psychological therapies and any particular matching effects, if any. There is a need for research on psychological interventions in special populations such as adolescents.⁸ Findings from the known studies and above mentioned data's show the need of systematic review on adolescent's substance use prevention in low- and middle-income countries.

A systematic review will help synthesizing high quality evidence in a systematic manner, for this important topic of interest. The proposed systematic review will therefore identify the different educational intervention for adolescent substance use prevention in LMICs and will give information about the impact of these interventions. This review is planned to address the following research questions:

- What are the various intervention implemented in LMICs to adolescent substance use prevention?
- What is the effectiveness of the above interventions on substance use prevention outcomes?
- What are the delivery platforms for intervention of adolescent substance use prevention?

III. METHODS AND ANALYSIS

Methodology for this systematic review will be based on the Cochrane handbook for systematic reviews of interventions.²² And we have adhere to preferred reporting items for systematic reviews and Meta-Analysis protocol.²⁶

Criteria for including studies in the review

The inclusion criteria were oriented along with the PICOS elements.²³

Regarding the population (P): We will include systematic reviews conducted in LMIC, on adolescent population (Studies with a sample that included all older than 25 years will be excluded) but we will not exclude sample who are youth, as adolescent and youth age considered to be at higher risk for substance abuse disorders. We will have no restriction on gender, religion or community setting. We will include studies on all type of adolescent substance abuses, we will include systematic reviews having at least one study on adolescent or youth substance abuse intervention as systematic reviews having all the studies on same age group and same intervention was not practicable.

In terms of intervention (I): We will include any educational interventions on adolescent substance abuse prevention, like, BI, MI, community based interventions, youth development program, school based interventions, family based interventions, counseling mass media advertising etc. interventions applied within other health programs will not be excluded from the present overview as long as the intervention focus included the reduction of substance use and its outcomes were assessed. We exclude systematic reviews having pharmacological interventions; there will be no restriction on person delivering the interventions.

In terms of comparison (C): There will be no restrictions regarding the type of comparisons. In terms of outcome (O): Eligible studies should include outcome related to quantity or frequency of substance consumption, delivery platform and person delivering intervention, frequency and duration of follow up of intervention effect has no restrictions.

Regarding study designs (S): We include only systematic reviews, considering systematic reviews on RCTs, quasi experimental randomized or non-randomized studies on substance use prevention.

Inclusion and exclusion criteria:

Inclusion criteria: Only systematic reviews will be included. Systematic reviews on intervention focusing on prevention of adolescent substance abuse. Systematic reviews on LMICs, articles published in the English language, Articles published in the last 5 years, Interventions targeting adolescent and

youth. Exclusion criteria are: The studies will be screened and exclude for, non-systematic reviews non indexed publications/reports. Studies on pharmacological interventions, interventions targeting other than adolescents and youth. Reviews not reporting outcomes related to substance abuse, articles with half text, articles older than 5 years and conference papers, posters and dissertations will be excluded due to quality concern.

Searching and locating the studies:

The electronic databases such as EMBASE, Pubmed, Medline, Cinhal and Psychinfo will be searched to identify potential records. Databases will be searched from January 2021 to June 2021 and publication will be restricted to English language. We will also scan through references of the included studies for any additional eligible records. After identifying the key words search will carry out in the mentioned databases. The preliminary search concepts and key terms are given in table 1.

Applying eligibility and screening the studies:

MS Excel spreadsheet is going to be wont to screen the records. Based on inclusion and exclusion criteria, all the records will be subjected to two stage title / abstract and full text screening process, independently by three reviewers. Any disagreements between the reviewers will be resolved by discussion with senior reviewer. The reason for excluding full text will be documented and the PRISMA flow diagram will be provided. Table 2 gives detailed screening protocol.

Substance abuse	“Substance use” or “substance addiction” or “drug abuse” or “drug addiction” or “harmful substance use” or “harmful substance abuse” or “alcoholic addiction” or “alcoholism” or “alcohol abuse” or “cocaine” or “heroin” or “smoking” or “cigarette smoking” or “combined drug abuse” or “combined substance abuse” or “marijuana” or “chemical abuse”
AND	
Adolescent	“Adolescent” or “adolescents” or “adolescence” or “school child” or “school student” or “school age” or “children” or “youth” or “young age” or “younger age”
AND	
Intervention	“Prevention” or “Intervention” or “educational intervention” or “interventions”
AND	
Low and middle income country	“Low income country” or “middle income country” or “low and middle income country” or “low economic country” or “low economic countries”.
AND	
Systematic review	Systematic review literature
	NOT
	High income country or Countries

1	Title and abstract screening		
A	Is the study published in English? AND Is it published in the year 2011 or later?	If answer to both the components are ‘yes’, Go to B	If it is non-English or published before 2021 then exclude the study
B	Is the study conducted in LMICs?	If yes or if it is not clearly stated, thus cannot be decide, Go to C	If it is clearly stated that it is not conducted in LMICs, then exclude the study
C	Does study is a systematic review and involve on of the following design in it? RCTs, Quasi experimental designs	If answer is yes Or not clearly stated in abstract, Go to D	If the study is not a systematic review and studies included in the reviews are non RCT, Not a quasi experimental study: Exclude the study
D	Does the study describe the intervention for substance use prevention (Intervention could be any intervention mentioned in the PICOS elements). Does the study describe about delivery platform ad person delivering intervention	If answer to one of the component is yes Or if it is not clear stated and you are in doubt, then include the study for full text screening. If you are in doubt, flag for discussion.	If no, exclude the study
2	Full-text screening		
E	Is it a study conducted in LMICs	If it is yes go to F	If no exclude the study
F	Did the study involve adolescent population?	If it is yes Go to G	If no exclude the study
G	Does study is a systematic review and involve one of the following design in it? RCTs, Quasi experimental designs	If yes Go to H or if you are doubtful, then flag for discussion	If the study is not a systematic review and studies included in the reviews are non RCT, Not a quasi experimental study, conference abstracts or policy papers that does not provide details of intervention: Exclude the study
I	Did the study measure the outcomes of our interest?	If answer is yes then include for data analysis	If no, exclude the study

IV. DATA EXTRACTION

Data will be extracted independently by three reviewers. A predesigned data extraction form are going to be used for

extraction of the info . The data extraction form will be subjected to pilot testing and will be revised as per suggestions by experts. Any disagreement during data extraction will be resolved by senior reviewer. Data will be extracted based on the characteristics mentioned in the table 3.

Publication details	First author’s last name, Year of publication
Substance focussed in the review	Alcohol, tobacco, smoking and combined drug use
Population	Age, gender and
Intervention	Type of intervention, mode of delivery, setting and person delivering the intervention, duration of intervention
Study design and methodology	Systematic reviews that have included RCTs and quasi experimental studies. Number of trials included in the review. Type of analysis
Setting / location interventions delivered	LMICs or Middle income countries, delivery platform and person delivering intervention
Outcome details	Decrease in substance use frequency, Quantity, reduction in risk behaviour

Critical appraisal of included studies

AMSTAR 2 (A critical analysis tool for systematic reviews that include randomized non-randomized studies of health care interventions).²⁵ Assessment scale will be used to assess the quality of the included study. AMSTAR 2 is a 16 point assessment scale which categorizes quality of the study in to; no critical weakness, moderate, low and critically low. Reviews will be independently appraised by three reviewers. If required senior reviewer will be involved and final decision will be taken to rate the study quality

V. DATA ANALYSIS

Study characteristics consisting of population, intervention/exposure, study setting, comparator, and study design and outcome components across studies will be tabulated, which will help us to compare and analyze. We will carry out thematic analysis; observed interventions are grouped in to different theme for the purpose of reporting the data. Initially line by line coding will be undertaken followed by categorizing the codes in to code families. Subsequently, a code tree is going to be created, and themes and subthemes are going to be generated. Three reviewers will code the data independently and resolve the doubts by discussion.

VI. DATA SYNTHESIS

Findings will be summarized narratively, to understand the influence of educational intervention on adolescent substance use prevention. We will also synthesis findings related to delivery plat form and person deliver the intervention.

Patients and public involvement

We did not involve patients or public while designing and writing the protocol.

Ethics and dissemination

This review are going to be based on published studies, therefore, an ethical clearance isn't applicable. We have planned following activities to communicate and disseminate the findings of the review. We plan to submit the manuscript to a peer-reviewed journal.

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CONTRIBUTORS

Vijayakumar MB is the guarantor of the review, Anil Patidar and Jayesh Patidar are co-author,all the three conceptualized the manuscript, edited and developed the search strategy. All the authors read, edited, provided feedback and approved the final manuscript.

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DISCLAIMER

Not applicable

COMPETING INTEREST

None declared.

PATIENT AND PUBLIC INVOLVEMENT

Patients or the public are not involved within the design, or conduct, or reporting, or dissemination plans of this research.

PATIENT CONSENT FOR PUBLICATION

Not required

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