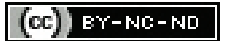


Protocol for a Systematic Review of School Based Educational Interventions on Prevention and Control of Malaria

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ABSTRACT

Introduction: Schools are an integral part of the community and creating health awareness at the educational premises is one of the successful policies for the health promotion. School children play an active role as health changing agents in the community and hence, can be the health messengers for malaria prevention. The need of the current review is to strengthen the evidences towards malaria elimination.

Aim: To evaluate the influence of school based educational interventions for the malaria control and prevention activities.

Materials and Methods: This review on malaria will search the literature from databases such as PubMed, Medline, CINAHL Plus, Cochrane Library, Google Scholar and Science Direct using keywords. It will follow Preferred Reporting Items for

Systematic Review and Meta-analysis (PRISMA) guidelines. Quantitative studies (Randomised trials and Non randomised trials) published from 2001 to 2020 in English language will be included. Joanna Briggs Institute (JBI) critical appraisal checklist will be used to assess the quality of the studies.

Results: Findings of the selected articles will be presented in the form of narrative summaries along with statistical interpretations.

Conclusion: This review on school based educational interventions will provide evidences in order to take preventive and control measures on malaria. It will support the hypothesis that school based educational interventions play an essential role to enhance knowledge about malaria, reduce malaria prevalence and promote preventive measures in the community.

Keywords: Health education, Prevention, Schools, School children or health messengers

INTRODUCTION

Malaria is a severe public health problem caused by Plasmodium parasites. It is transferred to the human beings through infected female Anopheles mosquitoes bite. At present, five species of parasites that transmits malaria to the humans are identified as *Plasmodium falciparum*, *Plasmodium malariae*, *Plasmodium ovale*, *Plasmodium vivax* and *Plasmodium knowlesi* [1]. The severity of malaria transmission is based on the vector, the parasite, the environment and the human host [2]. Globally, 229 million cases of malaria and 4,09,000 malaria deaths have been reported in 2019. India contributes significant reduction of 5.6 million cases of malaria and 86% depletion of malaria deaths in South-East Asian region [3]. Global Technical Strategy for malaria provides comprehensive technical guidance to countries and scaling up malaria responses towards malaria elimination [4]. In India, key challenges to reduce the transmission of malaria are adequate infrastructure, population migration and substandard community awareness [5].

Malaria is a leading cause of absenteeism and teachers can play an important role in keeping their pupils healthy and malaria free [6]. School based malaria education has considerable impact on children as well as people in the community [7]. Regular practices at home such as wearing long sleeves and trousers to sleep and sleeping under bed net can minimise the mosquito bites [8]. Communication through schools has a positive influence on significant reduction in malaria related mortality and morbidity as well as improvement in knowledge, perception and treatment seeking behaviour [9].

Awareness on malarial preventive measures helps the public to concur the spread of malaria. Behaviour modification is one of the key components for the successful modification of community practices. Deficit in healthy behaviour practices leads to spread of malaria [10]. Integration of mosquito borne diseases in the curriculum of school health can motivate the students for prevention of malaria. Positive perceptions, healthy practices and behaviour modifications

are the successful elements for the elimination of malaria in our country [11].

In the view of above background, this systematic review aims to identify existing gaps in knowledge and practices among school children and the community. It eventually helps to evaluate the efficacy of school based educational interventions on strengthening fundamental malaria knowledge and mosquito vector control practices together with school children and their parents as well as in the community.

MATERIALS AND METHODS

This protocol has been enrolled in PROSPERO International prospective register for systematic review (CRD42020211830) and will follow PRISMA guidelines.

Search strategy: Literature search for this systematic review will be included from a period of 2001 and 2020 and will follow three steps.

- i. Initial search will be from Pub Med-Medline, CINAHL Plus with the keywords like "School education AND Malaria".

P- School children, School teachers, Parents, Community

I- Evaluation of school based malaria educational interventions

C- Comparison of school based interventions (before and after intervention)

O- Provide evidence on school based interventions for the malaria prevention and control.

The extracted abstracts and titles will be examined.

- ii. A broad search will be administered in second stage with supplementary keywords in data bases such as Science direct, Cochrane library, Google scholar along with Pub Med-Medline and CINAHL Plus.
- iii. In the last stage, key references from the selected studies will be screened for additional relevant articles.

Inclusion criteria: This review would incorporate the studies based on following criteria.

- i. Peer reviewed journal articles will be included.
- ii. Electronic data base accessible studies.
- iii. Quantitative study design (Randomised trials and Non randomised trials like quasi-experimental design).
- iv. Intervention: School based educational interventions on malaria.
- v. Population: School children aged between 6 to 18 years, adults aged above 19 years across all gender, religion, race and country.
- vi. Setting: Study setting includes schools and community located in rural and urban areas.
- vii. Outcomes: Main outcomes of this review include level of knowledge, perceptions, prevalence, behaviour change and practices of school children, teachers, parents and community.
- viii. Language: English

Exclusion criteria: Case studies and case reports will be excluded.

Screening: Mendeley software will be used to upload the articles to avoid duplication. Initially, screening begins with assessment of title and abstracts by two reviewers based on inclusion criteria. Secondly, retrieval of full text articles and additions of articles from reference list will be recorded and screening will be assessed for eligibility. Disagreement in data screening will be solved by consultation of the third author.

Data extraction: Data collection process will begin with assessment of titles and abstracts based on inclusion criteria by two authors independently. Secondly, retrieval of full text articles and addition of articles from reference list will be assessed for eligibility. Articles that will not satisfy the inclusion criteria will be discarded and same will be recorded in the characteristics of exclusion studies table. Extracted data will be presented in meaningful tables.

The following data will be extracted from each article such as title, authors, year of publication, study area, study design, sample size, eligibility criteria, intervention methods and study outcomes.

Risk of bias in individual studies: The risk of bias will be overcome by following the JBI manual for extracting data from the screened studies.

Quality assessment of screened articles: Quality of included articles will be assessed by using JBI critical appraisal checklist [12]. Two authors independently will do the quality appraisal of articles. Disagreement in the quality assessment will be solved by consultation with the third author.

RESULTS

Data synthesis will involve combination and summary of the findings from the assembled articles. Results of the review will be presented in the form of descriptive synthesis. Meta-analysis will be done in this review and the certainty of the evidence will be assessed by using GRADEpro [13].

DISCUSSION

The results of this systematic review will highlight the challenges to overcome the malaria elimination through school based intervention. Rational for this review is to identify the reasons for high risk of contracting malaria in endemic areas [14]. Moreover, this review will empower to identify the community participation as it exists and the effect of school based interventions on the malaria elimination activities at individual and community level [15]. Furthermore, not many supportive reviews have been done on school based malaria educational interventions and to strengthen the evidences for delayed management of malaria in the early stages and the associated factors towards malaria elimination [16].

School based educational interventions have produced significant changes and strengthen community perceptions and practices towards enhancement of dental hygiene [17], personal and environmental hygiene practices [18]. Perception and realisation at the school premises can convert into habits formation. Therefore, synthesis of supportive evidences on malaria will help in determining the nature of an educational intervention involving school children, their parents and their communities in the management of malaria [14].

CONCLUSION(S)

This review will suggest the importance of increasing health awareness, mobilising the community healthcare professional through schools for prevention as well as effective treatment of malaria. It will also advocate the areas for further research and helps to identify the gaps in existing literature.

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