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# Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

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Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

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SMOKING CESSATION

Authors’ Conflict of Interests statement
During this process they had no interpersonal/interprofessional conflict on any aspect of the phenomenon of this scoping review nor do they have any conflict of interest with any organization.

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No funding agency has been involved in this scoping review as the authors are supporting the review from their own resources.

Abstract

Introduction

Although the consequences of cigarette smoking are well documented, there continues to be exponential growth in the use of these products. Unfortunately, like many other health risks, the increase in smoking has become polarized with half of current smokers in the world residing in only three countries of Asia that includes India. Many of the interventions that have been developed and utilized with smokers and non-smokers in many developed contexts have not had similar success in South Asia. Hence, there is a dire need of culturally relevant smoking cessation interventions. We propose this scoping review protocol for exploring the extent and nature of interventions for smoking cessation and its associated factors in SAR by systematically reviewing the published and unpublished literature available on and within this region.

Methods and Analysis

The framework for the scoping review methodology by Arksey and O’Malley (2005) will be used as guide for conduct. Electronic databases (Pubmed, CINAHL plus and EMBASE), reference lists of selected studies, literature from relevant organizations’ websites, and grey literature will be referred for inclusion in this review. Initially, two reviewers in consultation
SMOKING CESSATION

with librarian will screen all the titles, abstracts, and full articles to establish relevance of each study for inclusion. Factors associated with smoking cessation will be coded and categorized applying qualitative content analysis while interventions extracted from the literature will be described through a predefined list of the Framework Convention on Tobacco Control (FCTC) articles.

**Ethics and Dissemination**

The study does not require an ethical approval. However, every effort will put to maintain the quality in study. The results of this scoping review will be disseminated through publications, presentations in conferences, and meetings with stakeholders.

**Keywords:** Smoking, Tobacco, Cessation, Quit*, interventions, strategies

**Word Count** excluding title page, references and diagrams: 2737

**Study Strengths and Limitations**

- The review includes search for individual country of SAR, thus, increasing the chances of covering a broader range of work done on phenomena of interest.
- Most of the team members in this review are experts of systematic reviews who will ensure each step carried out with utmost accuracy.
- One of the strengths of this review is engagement of stakeholders and relevant organizations during the review process.
- The quality of included studies will not be ensured through an established tool although some more recent scoping review protocols have used tools such as the Newcastle Ottawa Scale.
SMOKING CESSATION

Introduction

Globally, on an annual basis over 6 million people die due to causes related to tobacco use. This number is anticipated to reach approximately 8.3 million/year by 2030, primarily due to increasing prevalence of tobacco use in low- and middle-income countries (WHO, 2015; 2017). In the tobacco use literature, the increasing prevalence of cigarette smoking and its hazardous consequences are documented extensively. It is estimated that, globally, 942 million men and 175 million women over age 15 are daily smokers: consequently, as reported, cigarette smoking is the single leading cause of preventable diseases and deaths making it a critical public health challenge (Drope, et al., 2018; Shah & Siddiqui, 2015).

Cigarette smoking leads to a range of health problems that either affect the quality of life or become the reason for premature death. Smoking tobacco exposes the smoker’s body to over 700 toxic chemicals that include a minimum of 70 carcinogens affecting almost every body system (Drope, et al., 2018). Significant health problems due to smoking include cardiovascular (mainly coronary heart diseases) and respiratory (mainly cancer) diseases (Action on Smoking and Health, 2016b; Jha, et al., 2013). Moreover, smoking is a risk factor for congenital disorders in the case of pregnant smokers, stroke, peripheral vascular diseases, cerebrovascular disease, renal failure, intestinal ischemia, and impotence to name few (Drope, et al. 2018; National Health Service, 2018). Furthermore, although the consequences of smoking are largely associated with the number of cigarettes smoked, a lifelong regular smoker loses approximately 10 of life to smoking (Drope, et al. 2018). Of importance are the benefits of non-smoking or smoking cessation. Quitting before age 40 saves about 9 years of life because cessation at this age reduces the risk of death due to smoking related morbidities by 90% (Drope, at al. 2018). A smoker can also benefit from smoking cessation even after the development of a smoking related
diseases such as chronic obstructive pulmonary diseases and cardiovascular diseases (Rigotti, Rennard & Daughton, 2015).

Hence, smoking is likely one of the most lethal and prevalent negative behaviors in today’s world. Its increasing epidemic levels should catalyze the need for better smoking cessation measures. Most smokers, among low- and middle-income countries, are from the Asian region. Globally, 25% of men are smokers with half of them are living in one of three countries of Asia including India (Global Burden of Diseases, 2015). The smoking rate among women in Asian countries has been rapidly increasing potentially due to improvements in their social status and economic independence (Hu, et al. 2017).

South Asian Region (SAR)

South Asia is one of the most densely populated geographical regions inhabited by almost a quarter of the world’s population. According to the United Nations’ classification of geographical region, the South Asian Region (SAR) includes Pakistan, Afghanistan, Bangladesh, Iran, India, Bhutan, Nepal, Maldives, and Sri Lanka (Rao, Aslam, Zaheer & Shafique, 2014).

Before partition, Pakistan, Bangladesh, and India were one country termed as British India. The dominant religions included Hinduism and Islam. Moreover, Hindi is a broadly understood language, which has contributed to the popularity of Indian film media and television in these countries. Hence, these countries share common societal norms and similar health challenges (Sadana, D’Souza, Hyder, & Chowdhury 2004). One such challenge is cigarette smoking, which along with several other unhealthy behaviors, has brought increasing communicable diseases which are the next stage of health the double burden of diseases (i.e. communicable and non-communicable diseases).
SMOKING CESSATION

As countries in SAR share multiple ethnocultural norms, socio-economic characteristics, spiritual school of thought, and health challenges, there are potential shared solutions to address these problems, specifically those related to health.

Study Rationale

To initiate smoking is simple; cessation is rooted in significant changes due to addiction, habit, and socialization. Although, first puff of cigarette may be taken just for fantasy or enjoyment or for the sake of a friend, with passage of time, cigarette smoking leads to comparatively high nicotine dependence (Etter & Eissenberg, 2015). Furthermore, contextual considerations cannot be ignored (Alzahrane, et al. 2019; Sreeramareddy, Pradhan, Mir & Sin 2014); hence, a smoker needs extensive measures of support in a successful attempt of cigarette smoking cessation.

Despite some success stories, decline in prevalence of smoking between 1990-2005 was more than the decline occurred in 2005-2015 (Global Burden of Disease, 2015). In developed countries, efforts for smoking cessation were quite effective due to factors like good public awareness, availability of resources for smoking cessation, and uniform policies towards smoking cessation; whereas, in low and middle income countries, the smoking cessation rate remained discouraging (Borland, Cooper, McNeill, O’Connor & Cummings, 2011; Irfan, et al., 2016: Lando, 2016). Consequently, if the current situation sustains, as predicted, by 2030, almost 80% of tobacco related deaths will be in low- and middle-income countries (WHO, 2008).

Although systematic reviews either based on data from one specific country (McKay, Patel & Majeed, 2015) or general global data (Jawad, Jawad, Waziry, Ballout, & Akl 2016) have been carried out; yet, to the researcher’s knowledge, no previous review of data available from
SMOKING CESSATION

SAR countries has been conducted on smoking cessation and its associated factors. The strict inclusion criteria of previously conducted systematic reviews might have significantly reduced the inclusion of available data on the phenomena of interest. Therefore, a scoping review is proposed to summarize the current scope of interventions and critical factors to be considered while planning any smoking cessation intervention in order to enhance effectiveness of strategies for reduction of smoking prevalence in SAR.

Why a Scoping Review?

Scoping review is an approach that covers underpinning concepts surrounding the phenomenon of interest (Arksey & O’Malley, 2005) thus giving a broader image that serves as a precursor to systematic reviews (Munn, et al, 2018). Also, scoping reviews give depth and breadth of the research work done on a topic, thus increasing the understanding of the nature of the phenomenon under investigation (Bottorf, et. al, 2014).

Effective interventions to stop or control the current prevalence of smoking are emerging and evolving constantly. Due to this variability and complexity, there is a need of collating the interventions for smoking cessation among South Asian population and distinguishing the underpinning forces that encourage or discourage the behavior of smoking. Hence, a scoping review serves the aim of this study.

Study Objectives

This scoping review is planned to systematically search literature across the range and nature of interventions for smoking cessation and to map the factors associated with such interventions. Smoking cessation interventions that would have been mentioned by or for smokers in SAR will be classified on their assignment to relevant article of FCTC. All
associated factors will be categorized through coding. This process will yield a comprehensive
map of smoking cessation interventions with consideration of context-rooted factors. Thus, the
researchers may plan effective interventional studies for reducing the smoking cessation rate in
SAR. The findings of the review will also help tobacco control authorities to redefine their
strategies in accordance to a culturally sensitive approach.

Methodology and Analysis

Patient and Public Involvement

This review will not include any participants. The data source will be only available
literature from published and non-published sources.

Conceptual Model

The WHO’s FCTC will be used for synthesis of range of interventions for smoking
cessation in SAR. This international treaty is evidence based and re-enforces the right of every
individual to highest quality health. Moreover, keeping in view the supply and demand issues of
addictive substances, the FCTC presents a complete package for control of tobacco use (WHO,
2005). However, any intervention/s, possibly beyond the articles mentioned by FCTC, will be
mentioned in separate categories.

Protocol Design

The Joanna Briggs Institute (JBI) guidelines merged with the framework presented by
Arksey and O’Malley (2005) will guide the scoping review to examine the extent and nature of
work done on smoking cessation in SAR with the factors impacting these efforts. The review
will be carried out in the stages mentioned herein.
SMOKING CESSATION

Stage 1: Identification of research questions. The research questions were basically evolved from the abstraction that despite of the steps like signing the treaty with WHO for FCTC implementation and establishing local tobacco control polices, the rate of smoking in Pakistan remains high. Based on this concept, detailed discussions with research team and stakeholders were held. Consequently, the questions for the proposed scoping review were designed as: what is known from existing literature about the range of interventions/control measures devised for smoking cessation in SAR? And, what are the factors associated with smoking cessation in SAR in the available literature?

Stage 2: Identifying relevant studies. Initially, two reviewers will extensively search the selected databases for relevant qualitative and quantitative data on the phenomena of interest. The search will be carried out in the four steps discussed below in ‘Search Strategy’ section. Prior to search, key terms for searching will be finalized in a meeting with the research team. Also, one reviewer will meet with the medical librarian to gain assistance in building the blueprint to the search which will encapsulate the intend and scope of the review. In consultation with the librarian, two reviewers will carry out the four step search in accordance with Arksey and O’Malley’s framework for conduct of a scoping review.

Search strategy.

Step 1. Electronic databases, including Pubmed, CINAHL and EMBASE, will be accessed. The following key terms with the help of Boolean Phrase and wildcards will be used; Smok* OR tobacco OR Cigarette AND Pakistan. The country name for each search key strike will be changed until search for all nine countries of SAR will be completed. The limiters of search included full text articles, Asian geographical region, English language and date of publication between 2014 to 2020. The strategy of search will be modified for each database by
using suitable controlled vocabulary terms and search syntax in order to get access to as rich and
diverse literature as possible. Step 2. The reference list of selected articles will be manually
checked and identified relevant references will be used for additional articles retrieval through
citation chaining. Step 3. Hand searching of print journals will be carried out in order to capture
the literature available in library that might have been missed while searching through selected
search engines. Step 4. Data received through coordination with other research colleagues,
information printed in alternate formats (i.e., reports, briefs) and any available unpublished
material will be sought and reviewed for relevancy to the intent of this review. The record of
literature retrieval will be maintained in a table.

**Stage 3: Study selection.** Based on relevance, accessed studies will be considered for
inclusion. Initially, two reviewers will read the title and abstract of a retrieved study. Based on
relevancy, the reviewers will recommend include or exclude. If any discordant found in inclusion
of any full text article or any other material (e.g. reports or brief etc.) selected at preliminary
stage, the article or other material will be re-read and if still not clear to include or exclude, a
third reviewer will be involved to build consensus. Then, individually, the reviewers will study
included full length articles and independently rate the appropriateness of the article or any
reading material for inclusion. The process of study selection or reason for its exclusion will be
guided by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)
search flow diagram (see Figure I).

**Inclusion criteria.** Studies regardless of design including qualitative studies, randomized
control trials, quasi experimental studies, case–control studies, cohort studies, or descriptive
studies addressing the phenomenon of smoking cessation or intervening smoking behavior or
factors associated with smoking cessation or combination of one or more of these phenomena
SMOKING CESSATION

will be included. The target population of the included studies will be from any country in SAR. Based on the language proficiency of the reviewers, literature written in English, Urdu, or Pashto will be included. Furthermore, studies published within five years from search date will be included. Studies will be excluded if their study sample has all or some participants from any country other than countries in SAR.

**Stage 4: Charting the data.** The extracted data will be computed and classified by two reviewers. Data will be collected using a study instrument developed by researchers that include, but not limited to, study reference, location, participants’ characteristics (i.e. age, gender and ethnicity), smoking status if mentioned, methodology, research purpose, data collection, analysis techniques, and main relevant outcomes. This analytical form will be pretested and discussed with research team to ensure it is capturing all relevant information (numerical data and narrative accounts) from a selected study. Quality assessment of included literature will not be performed as the intent of scoping review is to examine the breadth and depth of a phenomenon and not to check the robustness of the selected studies (Arksey & O’Malley, 2005; Jolley, et al. 2016). At this stage, both the reviewers will share the studies they have included or excluded in the review. Discrepancies found will be discussed further with a third reviewer to maintain consistency in reviewers’ abstraction of retrieved data. When needed, research team will be involved in discussion to reach the best possible solution on any unresolved discrepancies.

**Stage 5: Collating, summarizing and reporting the results.** The scoping reviews aim to develop a map of the underpinning concepts of the selected research area, the formulation of results lead to the range of work being done (Jolley, et al. 2016). The proposed review will extract the extent and nature of work done for smoking cessation as well as the range of factors that might have affected such work. In the proposed scoping review, the extracted interventions
SMOKING CESSATION

will be coded based on the FCTC set forth by World Health Organization (2005) while the smoking cessation associated factors will be coded thematically. All the factors that have been described in selected studies, reports or briefings will be color coded. Based on the nature of codes, they will be put under relevant categories; for example, personal factors, social factors, and so forth. Finally, according to the focus of categories, themes will be assigned to make it more comprehensible.

In order to have clarity in results, quantitative and qualitative studies will be synthesized separately. First, individually, both reviewers will summarize findings from all included studies. Second, the reviewers will discuss their findings and will merge them. Findings will then be shared with the whole research team including the supervisor of the study. Lastly, with mutual agreement on quality and relevance of the extracted findings from qualitative and quantitative studies, codes, categories, and themes will be developed as mentioned above.

Dissemination and Ethics

This study is will be part of a larger study to include a contextually relevant smoking cessation intervention model trialed on a sample of current smokers and recommended for use across the SAR. Since the review is from existing published and publicly available literature, it does not require an ethical approval. The findings of this review will be used for designing further objectives upon meeting with smokers, their families and with those working on smoking cessation. The findings of the review will be shared through publication, posters, conference presentations, and meetings with different stakeholders.
Article Summary

South Asian countries are experiencing increasing prevalence of tobacco smoking. The behavior of smoking is deeply rooted in factors such as psychosocial, societal, spiritual, and political domains. Interventions proven effective in developed countries may not yield similar results in developing countries such as South Asia. Also, one intervention alone cannot be proven effective, for smoking cessation a highly complex and contextual series of interventions is required. It is necessary to collate all the possible interventions for smoking cessation and their associated factors that are available from currently available literature to inform future directions.
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**Authors’ Statement**

Mr. Sajid Iqbal:

formatted and outlined by Mr. Sajid Iqbal. Mr. Iqbal conducted frequent meetings with librarian and reviewers to finalize the included databases, frameworks, inclusion and exclusion criteria. Background and literature review was developed by Sajid Iqbal. Mr. Iqbal also, through regular meetings, coordinated and took into account the feedback, opinions and suggestions of all authors.

Dr. Rubina Barolia:

Dr. Barolia was one of the authors who came up with the initial idea of the review. She provided ongoing assessment on study objectives, questions, and frameworks. Moreover, she supervised the whole activity and made sure that all requirements of a scoping review are covered in the protocol.

Dr. Pammla Petrucka P:

Dr. Petruka was also the one contributed in shaping up the idea of the scoping review. She also shared her expert opinion on overall conduct of the study. The protocol was prepared with her kind guidance. authors have been fully involved in designing the protocol of proposed scoping review.

Dr. Laila Ladak:

Dr. Ladak contributed in selection of databases inclusion for the review. Also, she did major editing on initial draft of this protocol. She will also contribute in literature review process.
Images and Figures

Figure I: Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram for search, screening, inclusion, and exclusion of studies

Records from Database Search
N=

Additional Records from other sources
N=

Duplicate Removed
N=

Record after reading title and abstracts
N=

Excluded as not relevant
N=

Included after Full text reading
N=

Excluded with Specific reasons
N=

Included for final analysis
Quantitative (N)=
Qualitative (N)=
Others (N)=

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# Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

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Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

Authors of the Protocol

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SMOKING CESSATION

Authors’ Conflict of Interests statement
During this process the authors have no interpersonal/interprofessional conflict on any aspect of the phenomenon of this scoping review nor do they have any conflict of interest with any organization.

Funding
No funding agency has been involved in this scoping review as the authors are supporting the review from their own resources.

Abstract

Introduction
Unfortunately, like many other health risks, smoking rate has been on rise in developing countries. Half of current smokers in the world reside in only three countries of Asia that include India. Many smoking cessation interventions that were developed and successfully implemented in the context of developed countries have not been equally successful in South Asia. Hence, there is a dire need of culturally relevant smoking cessation interventions. We propose a scoping review with objectives to explore the extent and nature of interventions for smoking cessation and its associated factors in South Asian Region (SAR) by systematically reviewing the available published and unpublished literature.

Methods and Analysis
The updated framework of Joanna Briggs Institute (JBI) for scoping review methodology will be used as guide for conduct of this scoping review. Electronic databases (PubMed, CINAHL plus and EMBASE), reference lists of selected studies, and grey literature will be considered for inclusion in this review. The literature search is anticipated to be carried out in October to November, 2020. Initially, two reviewers in consultation with librarian will develop search syntax followed by search from the selected sources. Consequently, the reviewers
will screen all the titles, abstracts, and full articles to establish relevance of each study for inclusion. Factors associated with smoking cessation will be coded and categorized applying qualitative content analysis while interventions extracted from the literature will be described with the stated level of effectiveness.

**Ethics and Dissemination**

The study does not require an ethical approval. However, every effort will be put to maintain transparency in the conduct of the study. The results of this scoping review will be disseminated through publications, presentations in conferences, and meetings with stakeholders.

**Keywords:** Smok*, Tobacco, Cessation, Quit*, interventions, strategies, measures

**Word Count** excluding title page, references and diagrams: 2954

**Study Strengths and Limitations**

- The review includes search in three different ways from SAR, thus, increasing the chances of covering a broader range of work done on phenomena of interest.

- Most of the team members in this review are experts of systematic reviews who will ensure each step carried out with utmost accuracy.

- One of the strengths of this review is engagement of stakeholders and relevant organizations during the review process.

- The quality of included studies will not be ensured through an established tool although some more recent scoping review protocols have used tools such as the Newcastle Ottawa Scale.
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- Literature published in languages other than Urdu and English will not be included that may affect the scope of the review. However, preliminary search shows rare availability of literature in language other than English in SAR.

**Introduction**

Globally, in a year over 6 million people die due to causes related to tobacco use. This number is anticipated to reach approximately 8.3 million/year by 2030, primarily due to increasing prevalence of tobacco use in low- and middle-income countries,[1-2]. In literature, the increasing prevalence of cigarette smoking and its hazardous consequences are documented extensively. It is estimated that, globally, 942 million men and 175 million women over age 15 are daily smokers: consequently, as reported, cigarette smoking is the single leading cause of preventable diseases and deaths making it a critical public health challenge,[3-4].

Cigarette smoking leads to a range of health problems that either affect the quality of life or become the reason for premature death. Smoking tobacco exposes the smoker’s body to over 7000 toxic chemicals that include a minimum of 70 carcinogens affecting almost every body system, [3]. Significant health problems due to smoking include cardiovascular (mainly coronary heart) diseases and respiratory diseases mainly cancer, [5-6]. Moreover, smoking is a risk factor for congenital disorders in the case of pregnant smokers, stroke, peripheral vascular diseases, cerebrovascular disease, renal failure, intestinal ischemia, and impotence to name few,[3,7]. Furthermore, although the consequences of smoking are largely associated with the number of cigarettes smoked, a lifelong regular smoker loses approximately 10 years of life to smoking, [3]. Of importance are the benefits of non-smoking or smoking cessation. Quitting before age 40 saves about 9 years of life because cessation at this age reduces the risk of death due to smoking related morbidities by 90%, [3]. A smoker can also benefit from smoking cessation even after the
development of a smoking related diseases such as chronic obstructive pulmonary diseases and cardiovascular diseases, [8].

Hence, smoking is likely one of the most lethal and prevalent yet preventable health risk behaviors in today’s world. Its increasing epidemic levels should catalyze the need for better smoking cessation measures.

Definitions of Terms

Smoker. Smoker is defined as a person who smoked at least once daily in the last 30 days.

Smoking Cessation Rate. Smoking cessation rate (Outcome measure) in this study is defined as the decrease in number of cigarettes per day in comparison to the pre-intervention phase.

South Asian Region (SAR). South Asia is one of the most populated geographical regions inhabited by almost a quarter of the world’s population, [9]. South Asian Region (SAR) includes Pakistan, India, Sri Lanka, Afghanistan, Bangladesh, Nepal, Bhutan, and Maldives, [10]. Three of the countries (Pakistan, India and Bangladesh) mentioned in above list are partition of one country i.e. British India, [9] thus, sharing numerous cultural and religious traits. Beside, a common issue faced by people in countries of SAR is their lack of awareness of different health risks and low level of education. Sreeramareddy and colleagues found that in two of the countries in SAR (Bangladesh and Maldives) every third man between age 15-49 years is not educated. Similarly, among 17.1% to 56.2% women of age 15-49 years were uneducated. The study also re-emphasized the negative association of education level with smoking behavior, [11].

Smoking is most common health risk found high in South Asian population. An American based study on Asian population reports that serving tobacco products is a cultural norm and dignity of Asian people, [12]. Concurrently, the study by Sreeramareddy and
colleagues found the prevalence of smoking among men aged between 15-49 years as 60% in Bangladesh, 47.3% in Maldives, 34.1% in India, 33.6% in Nepal, and 31.6% in Pakistan. The study also concluded that smoking in South and Southeast Asian countries is more among men from low economic background or uneducated or resident of rural areas, [11]. Therefore, consideration of the context specific factors associated with smoking is important in planning strategies for prevention and control of cigarette smoking in SAR.

**Study Rationale**

Despite of claims in reduction of smoking rate, globally, decline in prevalence of smoking between 1990-2005 was more than the decline occurred in 2005-2015, [13]. In developed countries, efforts for smoking cessation remained quite effective due to factors like good public awareness, availability of resources for smoking cessation, and uniform policies towards smoking cessation; whereas, in low and middle income countries, the smoking cessation rate remained discouraging, [14-16]. Consequently, if the current situation sustains, as predicted, by 2030, almost 80% of tobacco related deaths will be in low- and middle-income countries, [17].

Although systematic reviews either based on data from one specific country, [18] or general global data, [19] have been carried out; yet, to the researcher’s knowledge, no previous review of data available from SAR countries has been conducted on smoking cessation and its associated factors. The strict inclusion criteria of previously conducted systematic reviews might have significantly reduced the inclusion of available data on the phenomena of interest. Therefore, a scoping review is proposed to summarize the current scope of interventions and critical factors to be considered while planning any smoking cessation intervention in order to enhance effectiveness of the strategies for reduction of smoking prevalence in SAR.
Why a Scoping Review?

Scoping review is an approach that covers underpinning concepts surrounding the phenomenon of interest, [20] thus, giving a broader image that serves as a precursor to systematic reviews, [21]. Also, scoping reviews give depth and breadth of the research work done on a topic, thus increasing the understanding of the nature of the phenomenon under investigation, [22].

Effective interventions to stop or control the current pattern of smoking are emerging and evolving constantly. Due to this variability and complexity, there is a need of collating the interventions for smoking cessation among South Asian population and distinguishing the underpinning forces that encourage or discourage the behavior of smoking. Hence, a scoping review serves the aim of this study.

Methodology and Analysis

Title Registration. The title of this protocol is registered with Joanna Briggs Institute (JBI) and can be found on their website.

Beside, to ensure inclusion of all necessary details, Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review (PRISMA-ScR) checklist is used, [23]. (please refer appendix I).

This review will be part of a multiphasic mixed method research to include contextually relevant smoking cessation interventions and associated factors that will help in development of a model for smoking cessation SAR. Since the review is from existing published and publicly available literature, it does not require an ethical approval. A tentative timeline for the conduction of scoping review is shared in appendix II.
Patient and Public Involvement

This review will not include any participants. The data source will be only available literature from published and non-published sources.

Protocol Design

The JBI guidelines proposed by Peters and colleagues, [24] underpinned by the framework presented by Arksey and O’Malley, [20] and Levac, Colquhoun & O’Brien [25] will guide the scoping review to examine the extent and nature of work done on smoking cessation in SAR with the factors impacting these efforts. Thus the review will be carried out in the stages mentioned herein.

Stage 1: Defining and aligning the objective/s and question/s. The research objectives were basically evolved from the abstraction that despite of the steps like signing the treaty with WHO for FCTC implementation and establishing local tobacco control polices, the rate of smoking in SAR is continuously increasing. Based on this concept, detailed discussions with research team and stakeholders are held. Consequently, the scoping review is planned to systematically search literature across the range and nature of interventions for smoking cessation and to map the factors associated with such interventions. Following that, questions for the proposed scoping review are designed as: what is known from existing literature about the range of interventions/control measures devised for smoking cessation in SAR? And, what are the factors associated with smoking cessation in SAR in the available literature?

Stage 2: Developing and aligning the inclusion criteria with the objective/s and question/s. Aligned with the questions and objectives of the review, studies regardless of design including qualitative studies, randomized control trials, quasi experimental studies, case–control
SMOKING CESSATION

studies, cohort studies, or descriptive studies addressing the phenomenon of smoking cessation or intervening smoking behavior or factors associated with smoking cessation or combination of one or more of these phenomena will be included. The target population of the included studies will be adults (age above 18 years) from any country in SAR. Based on the language proficiency of the reviewers, literature written in English or Urdu will be included. Furthermore, due to rich availability of data, studies published within five years from search date will be included.

Studies will be excluded if not available as free full text. Moreover, studies having participants from any country other than countries in SAR will not be included. Also, studies including all participants with one specific disease will be excluded in order to draw conclusion applicable to smokers from general population.

Stage 3: Describing the planned approach to evidence searching, selection, data extraction, and presentation of the evidence. Initially, two reviewers will extensively search the selected databases (PubMed, CINAHL and EMBASE) for relevant qualitative and quantitative data on the phenomena of interest. Except the literature search through PubMed, which has been done for the protocol on Aug 30, 2020 (attached as figure 1), search through other sources is anticipated in October to November, 2020. The search will be carried out in the four steps discussed below in ‘Search Strategy’ section. To maintain record of the searched literature, PRISMA flow diagram, as attached in figure 1, will be used.

Stage 4: Searching for the evidence. Step 1. After a thorough discussion with research team and the librarian on the selection of appropriate keywords, controlled vocabulary and going through relevant literature, the following key terms supported by Mesh terms, Boolean phrases and wildcards were considered for literature search; smok*, tobacco, cigarette, smoking cessation, quit, interventions, measures, strategies, and South Asian Region. Consequently, a
SMOKING CESSATION

nested search syntax was developed as, (Intervention* OR measure* OR strateg* OR program) AND ("Smoking"[Mesh] OR smok* OR Tobacco OR Nicotine OR Cigarette) AND ("Smoking Cessation"[Mesh:NoExp] OR Cessation OR Quit*) AND ("South Asia*" OR Pakistan OR Afghanistan OR Bangladesh OR Bhutan OR India OR Nepal OR Maldives OR Sri Lanka). The limiters of search included full text articles, Asian geographical region, English language and date of publication between 2014 to 2020. Step 2. The reference list of selected articles will be manually checked and identified relevant references will be used for additional articles retrieval through citation chaining. This will also assist in identifying relevant organizational websites in SAR. For such websites’ search, google search will also be conducted. Step 3. Hand searching of print journals will be carried out in order to capture the literature available in library that might have been missed while searching through selected search engines. Step 4. Data received through coordination with other research colleagues, information printed in alternate formats (i.e., reports, briefs) and any available unpublished material will be sought and reviewed for relevancy to the intent of this review. Unpublished literature search will be supported through email contacts with authors of published articles to share any source of grey literature. The record of literature retrieval will be maintained in a table.

Stage 5: Selecting the evidence. Based on relevance, accessed studies will be considered for inclusion through endnote software. Initially, two reviewers will read the title and abstract of a retrieved study. Based on relevancy, the reviewers will recommend include or exclude. If any discordant found in inclusion of any full text article or any other material (e.g. reports or brief etc.) selected at preliminary stage, the article or other material will be re-read and if still not clear to include or exclude, a third reviewer will be involved to build consensus. Then, individually, the reviewers will study included full length articles and independently rate the appropriateness of
the article or any reading material for inclusion. The appropriateness of the selected material will be based on inclusion criteria and authenticity of the publishing authority or of the organization to which unpublished work is associated.

**Stage 6: Extracting the evidence.** Data will be collected using a study instrument developed by researchers that include, but not limited to, study reference, location, participants’ characteristics (i.e. age, gender and ethnicity), methodology, research purpose, data collection, and main relevant outcomes. This analytical form will be pretested and discussed with research team to ensure it is capturing all relevant information (numerical data and narrative accounts) from a selected study. Quality assessment of included literature will not be performed as the intent of scoping review is to examine the breadth and depth of a phenomenon and not to check the robustness of the selected studies, [20, 26]. At this stage, both the reviewers will share the studies they have included or excluded in the review.

**Stage 7: Analysis of the evidence.** The scoping reviews aim to develop a map of the underpinning concepts of the selected research area, the formulation of results lead to the range of work being done, [26]. The proposed review will extract the extent and nature of work done for smoking cessation as well as the range of factors that might have affected such work. In the proposed scoping review, the extracted interventions will be coded based on the FCTC set forth by WHO, [27] while the smoking cessation associated factors will be coded thematically. All the factors that have been described in selected studies, reports or briefings will be color coded. Based on the nature of codes, they will be put under relevant categories; for example, personal factors, social factors, and so forth. Finally, according to the focus of categories, themes will be assigned to make it more comprehensible.
In order to have clarity in results, quantitative and qualitative studies will be synthesized separately. First, individually, both reviewers will summarize findings from all included studies. Second, the reviewers will discuss their findings and will merge them. Findings will then be shared with the whole research team including the supervisor of the study.

**Stage 8: Presentation of the results**

The findings of this review will be put in tables, appropriate diagrams, and texts. The findings of the review will be shared through publication, posters, conference presentations, and meetings with different stakeholders.

**Stage 9: Summarizing the evidence in relation to the purpose of the review, making conclusions and noting any implications of the findings.** Based on the findings, inferences will be drawn for presentation of the whole scenario with clarity and brevity. Moreover, recommendations will be set forth to make effective use of the findings in future planning for smoking cessation in SAR.

**Article Summary**

South Asian countries experience increasing prevalence of tobacco smoking. The behavior of smoking is deeply rooted in factors such as psychosocial, societal, spiritual, and political domains. Interventions proven effective in developed countries may not yield similar results in developing countries such as South Asia. Also, one intervention alone cannot be proven effective; for smoking cessation a highly complex and contextual series of interventions is required. It is necessary to collate all the possible interventions for smoking cessation and their associated factors that are available from currently available literature to inform future directions.
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SMOKING CESSATION

Authors’ Statement

Mr. Sajid Iqbal:

The review protocol was Formatted and outlined by Mr. Sajid Iqbal. Mr. Iqbal conducted frequent meetings with librarian and reviewers to finalize the included databases, frameworks, inclusion and exclusion criteria. Background and literature review was developed by Sajid Iqbal. Mr. Iqbal also, through regular meetings, coordinated with all team members. He also collated and incorporated the feedback, opinions and suggestions of all authors.

Dr. Rubina Barolia:

Dr. Barolia was one of the authors who came up with the initial idea of the review. She provided ongoing assessment on study objectives, questions, and frameworks. Moreover, she supervised the whole activity and made sure that all requirements of a scoping review are covered in the protocol.

Dr. Pammla Petruka P:

Dr. Petruka contributed in shaping up the idea of the scoping review. She suggested the idea of conducting the review in SAR. She also shared her expert opinion on over all conduct of the study. The protocol was prepared with her kind guidance.

Dr. Laila Ladak:

Dr. Ladak contributed in selection of databases inclusion for the review. Also, she did major editing on initial draft of this protocol. She will also contribute in literature review process.
Figure I: PRISMA Flow Diagram

Records identified through PubMed searching (n = 244)

Additional records identified through other sources (n = will include later)

Records after duplicates removed (n = 244)

Records screened (n = 244)

Records excluded (n = 163)

Full-text articles assessed for eligibility (n = 81)

Studies included (n = 40)

Full-text articles excluded, with reasons (n = 41)
1. Include data from beyond SAR (12)
2. Published Protocol (3)
3. Full text not available (6)
4. Participants not adults (8)
5. Irrelevant focus (4)
6. Participants with specific disease (8)
# Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

| SECTION          | ITEM | PRISMA-ScR CHECKLIST ITEM                                                                 | REPORTED ON PAGE # |
|------------------|------|-------------------------------------------------------------------------------------------|-------------------|
| TITLE            | 1    | Identify the report as a scoping review.                                                   | 1                 |
| ABSTRACT         | 2    | Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives. | 2-3               |
| INTRODUCTION     | 3    | Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach. | 6-7               |
|                  | 4    | Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives. | 8                 |
| METHODS          | 5    | Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number. | 7                 |
|                  | 6    | Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale. | 8-9               |
|                  | 7    | Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed. | 9-10              |
|                  | 8    | Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated. | 9-10 Appendix III |
|                  | 9    | State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review. | 10-11             |
|                  | 10   | Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators. | 11-12             |
|                  | 11   | List and define all variables for which data were sought and any assumptions and simplifications made. | 5                 |
|                  | 12   | If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate). | N/A               |
| SECTION | ITEM | PRISMA-ScR CHECKLIST ITEM | REPORTED ON PAGE # |
|---------|------|---------------------------|--------------------|
| Synthesis of results | 13 | Describe the methods of handling and summarizing the data that were charted. | 11-12 |

**RESULTS (N/A)**

| Selection of sources of evidence | 14 | Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram. | Click here to enter text. |
| Characteristics of sources of evidence | 15 | For each source of evidence, present characteristics for which data were charted and provide the citations. | Click here to enter text. |
| Critical appraisal within sources of evidence | 16 | If done, present data on critical appraisal of included sources of evidence (see item 12). | Click here to enter text. |
| Results of individual sources of evidence | 17 | For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives. | Click here to enter text. |
| Synthesis of results | 18 | Summarize and/or present the charting results as they relate to the review questions and objectives. | Click here to enter text. |

**DISCUSSION (N/A)**

| Summary of evidence | 19 | Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups. | Click here to enter text. |
| Limitations | 20 | Discuss the limitations of the scoping review process. | Click here to enter text. |
| Conclusions | 21 | Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps. | Click here to enter text. |

**FUNDING**

| Funding | 22 | Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review. | 2 |

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where sources of evidence (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.
† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with information sources (see first footnote).
‡ The frameworks by Arksey and O’Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.
§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.
Tentative Timeline

Smoking Cessation Interventions in South Asian Region: A Scoping Review

2020-2021

Jan-March
1. Research team meetings
2. Meetings with librarian
3. Outline development

April-May
1. Protocol development
2. Protocol publication

June-Sep
1. Protocol publication
2. Preliminary literature search

Oct-Nov
1. selected database search
2. Data extraction
3. Findings
4. Final Write up

Dec
1. Final manuscript publication
### Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

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| Primary Subject Heading: | Addiction                                   |
| Secondary Subject Heading: | Smoking and tobacco                         |
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Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

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Authors’ Conflict of Interests statement

The authors have no interpersonal conflict on any aspect of the phenomenon and conduct of this scoping review nor do they have any conflict of interest with any organization. Moreover, the
SMOKING CESSATION

scoping review protocol is not based on any previous systematic review nor submitted for publication to any source other than BMJ. Besides, the protocol amendments, if any, will be reported to protocol publishing journal.

Funding

No funding agency has been involved in this scoping review as the authors are supporting the review from their own resources.

Abstract

Introduction

Unfortunately, like many other health risks, smoking rate has been on rise in developing countries. Half of current smokers in the world reside in only three countries of Asia that include India. Many smoking cessation interventions that were developed and successfully implemented in the context of developed countries have not been equally successful in South Asia. Hence, there is a dire need of culturally relevant smoking cessation interventions. We propose a scoping review with objectives to explore the extent and nature of interventions for smoking cessation and its associated factors in South Asian Region (SAR) by systematically reviewing the available published and unpublished literature.

Methods and Analysis

The review has been registered with Joanna Briggs Institute (JBI) and details are given in methodology section. The updated framework of JBI for scoping review methodology will be used as guide for conduct of this scoping review. Electronic databases (PubMed, CINAHL plus, Proquest Theses & Dissertations, EBSCO Dentistry & Oral Sciences & Wiley Cochrane Library), reference lists of selected studies, and grey literature will be considered for inclusion in this review. The literature search is anticipated to be carried out in December-January, 2020.
Initially, two reviewers in consultation with librarian will develop search syntax followed by search from the selected sources. Consequently, the reviewers will screen all the titles, abstracts, and full articles to establish relevance of each study for inclusion. Factors associated with smoking cessation will be coded and categorized applying qualitative content analysis while interventions extracted from the literature will be described with the stated level of effectiveness.

**Ethics and Dissemination**

The study does not require an ethical approval. However, every effort will be put to maintain transparency in the conduct of the study. The results of this scoping review will be disseminated through publications, presentations in conferences, and meetings with stakeholders.

**Keywords:** Smok*, Tobacco, Cessation, Quit*, interventions, strategies, measures, South Asia*

**Word Count** excluding title page, references and diagrams: 3016

**Study Strengths and Limitations**

- The review includes search in three different ways from SAR, thus, increasing the chances of covering a broader range of work done on phenomena of interest.

- Most of the team members in this review are experts of systematic reviews who will ensure each step carried out with utmost accuracy.

- One of the strengths of this review is engagement of stakeholders and relevant organizations during the review process.

- The quality of included studies will not be ensured through an established tool although some more recent scoping review protocols have used tools such as the Newcastle Ottawa Scale.
• Literature published in languages other than English will not be included that may affect
the scope of the review. However, preliminary search shows rare availability of literature
in language other than English in SAR.

**Introduction**

Globally, in a year over 6 million people die due to causes related to tobacco use. This
number is anticipated to reach approximately 8.3 million/year by 2030, primarily due to
increasing prevalence of tobacco use in low- and middle-income countries [1-2]. The increasing
prevalence of cigarette smoking and its hazardous consequences are documented extensively. It
is estimated that, globally, 942 million men and 175 million women over age 15 are daily
smokers: consequently, cigarette smoking is the single leading cause of preventable diseases and
deaths making it a critical public health challenge [3-4].

Cigarette smoking leads to a range of health problems that either affect the quality of life
or become the reason for premature death. Smoking tobacco exposes the smoker’s body to over
7000 toxic chemicals that include a minimum of 70 carcinogens affecting almost every body
system [3]. Significant health problems due to smoking include cardiovascular (mainly coronary
heart) diseases and respiratory diseases mainly cancer [5-6]. Moreover, smoking is a risk factor
for congenital disorders in the case of pregnant smokers, stroke, peripheral vascular diseases,
cerebrovascular disease, renal failure, intestinal ischemia, and impotence to name few [3,7].
Furthermore, although the consequences of smoking are largely associated with the number of
cigarettes smoked, a lifelong regular smoker loses approximately 10 years of life to smoking [3].
Of importance are the benefits of non-smoking or smoking cessation. Quitting before age 40
saves about 9 years of life because cessation at this age reduces the risk of death due to smoking
related morbidities by 90% [3]. A smoker can also benefit from smoking cessation even after the
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SMOKING CESSATION

development of smoking related diseases such as chronic obstructive pulmonary diseases and cardiovascular diseases [8].

Hence, smoking is likely one of the most lethal and prevalent yet preventable health risk behaviors in today’s world. Its increasing epidemic levels should catalyze the need for better smoking cessation measures.

Definitions of Terms

**Smoker.** Smoker is defined as a person who smoked at least once daily in the last 30 days.

**Smoking Cessation Rate.** Smoking cessation rate (outcome measure) in this study is defined as the decrease in number of cigarettes per day in comparison to the pre-intervention phase.

**Smoking Cessation Intervention.** Any action intended to increase cigarette smoking cessation rate will be referred as smoking cessation intervention.

**South Asian Region (SAR).** South Asia is one of the most populated geographical regions inhabited by almost a quarter of the world’s population [9]. South Asian Region (SAR) includes Pakistan, India, Sri Lanka, Afghanistan, Bangladesh, Nepal, Bhutan, and Maldives [10]. Three of the countries (Pakistan, India and Bangladesh) mentioned in above list are partition of one country, i.e. British India [9], thus, sharing numerous cultural and religious traits. Besides, a common issue faced by people in countries of SAR is their lack of awareness of different health risks and low level of education. Sreeramareddy and colleagues found that in two of the countries in SAR (i.e., Bangladesh and Maldives) one in three men between 15-49 years is not educated while 17.1% to 56.2% women of aged 15-49 years were uneducated [11]. The study also emphasized on negative association of education level with smoking behavior [11].
Smoking is most common health risk found high in South Asian population [1-2]. A study on Asian population reports that serving tobacco products is a cultural norm and dignity of Asian people [12]. Concurrently, the study by Sreeramareddy and colleagues found the prevalence of smoking among men aged between 15-49 years as 60% in Bangladesh, 47.3% in Maldives, 34.1% in India, 33.6% in Nepal, and 31.6% in Pakistan [11]. The study also concluded that smoking in South and Southeast Asian countries is more common among men from low economic backgrounds, uneducated, or residents of rural areas [11]. Therefore, consideration of the context specific factors associated with smoking is important in planning strategies for prevention and control of cigarette smoking.

Study Rationale

Despite claims by different countries regarding progress towards achievement of their smoking cessation goals, globally the decline in smoking prevalence has slowed in the last ten years (2005-2015) than in the past (1990-2005) [13]. In developed countries, efforts for smoking cessation remained quite effective due to factors like good public awareness, availability of resources for smoking cessation, and uniform policies towards smoking cessation; whereas, in low and middle income countries, the smoking cessation rate remained discouraging [14-16]. Consequently, if the current situation sustains, as predicted, by 2030, almost 80% of tobacco related deaths will be in low- and middle-income countries [17].

Although systematic reviews either based on data from one specific country [18] or general global data [19] have been carried out; no review of smoking cessation interventions in SAR countries has been conducted on smoking cessation and its associated factors. The strict inclusion criteria of previously conducted systematic reviews might have significantly reduced the inclusion of available data on the phenomena of interest. Therefore, a scoping review is
SMOKING CESSATION

proposed with primary outcome to summarize the current scope of interventions and critical factors to be considered while planning any smoking cessation intervention. This will help in achieving secondary outcome that is to enhance effectiveness of the developing strategies for reduction of smoking prevalence in SAR. Moreover, the increasing prevalence of smoking in SAR signifies the imperative for re-consideration of the strategies implemented for smoking cessation in this region. Therefore, it is important to explore the range and nature of these strategies to align them, through further research, with local contextual factors to potentiate achievement of optimal outcomes.

Why a Scoping Review?

Scoping review is an approach that covers underpinning concepts surrounding the phenomenon of interest [20] thus, giving a broader image that serves as a precursor to systematic reviews [21]. Also, scoping reviews give depth and breadth of the research work done on a topic, thus increasing the understanding of the nature of the phenomenon under investigation [22].

Effective interventions to stop or control the current pattern of smoking are emerging and evolving constantly. Due to this variability and complexity, there is a need to collate evidence related to interventions for smoking cessation among South Asian population and distinguishing the underpinning forces that encourage or discourage the behavior of smoking. Given the range of programs, national initiatives/policies, and potential interventions, it is desirable that the least restrictive design for a review be selected to maximize the diversity for smoking cessation strategies in SAR. We want to take into account the cultural specific measures or interventions which are not formally reported or not publically available. Additionally, in this study we are not focusing on a clinical question which would more closely align with a systematic review, whereas, the scoping review is more aligned with mapping the evidence related to the types of
smoking cessation interventions and the characteristics of individuals accessing such programs [21]. After consideration, a scoping review was deemed as best serving the aim of this study.

**Methodology and Analysis**

The title of this protocol has been registered with Joanna Briggs Institute (JBI) on January 28, 2020 and can be found on their website (https://jbi.global/systematicreviewregister?combine=&items_per_page=10&page=17&order=title&sort=asc).

Besides, the conduct and reporting of the scoping review report will be guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review (PRISMA-ScR) as recommended in literature [23-24]. Moreover, to advance the development process and reporting of this protocol, the recommended PRISMA-P checklist was used [25], (Attached as Appendix I). In addition, the record and data of the review will be saved in computer and in hard drive for back up. Also, the computer files will be connected to campus cloud in order to secure the data.

This review will be part of a multiphasic mixed method research to include contextually relevant smoking cessation interventions and associated factors that will help in development of a model for smoking cessation in SAR. Since the review is from existing published and publicly available literature, it does not require an ethical approval. A tentative timeline for the conduction of the review is attached as Appendix II.

**Patient and Public Involvement**
This review will not include any research participants. The data source will be only available literature from published and non-published sources.

**Protocol Design**

The JBI guidelines proposed by Peters and colleagues [24] underpinned by the framework presented by Arksey and O’Malley [20] and Levac, Colquhoun & O’Brien [26] will guide the scoping review to examine the extent and nature of work done on smoking cessation in SAR with the factors impacting these efforts. Thus, the review will be carried out in the nine stages mentioned herein. Also, we have experts in our team who have worked on topic of the scoping review. In addition to that, we will consult a smoking cessation consultant (JA) available in our university. The stated expertise will be instrumental in how to conduct an informed search, review, and synthesis process.

**Stage 1: Defining and aligning the objective/s and question/s.** The research objectives were basically evolved from the abstraction that despite of the steps like signing the treaty with World Health Organization (WHO) for Framework Convention on Tobacco Control (FCTC) and establishing local tobacco control polices, the rate of smoking in SAR is continuously increasing. Based on this concept, detailed discussions with the research team and stakeholders are held. Consequently, the scoping review is planned to systematically search literature across the range and nature of interventions for smoking cessation and to map the factors associated with such interventions. Following this, questions for the proposed scoping review are designed as: what is known from existing literature about the range of interventions/control measures devised for smoking cessation in SAR? And, what are the factors associated with smoking cessation in SAR in the available literature?
Stage 2: Developing and aligning the inclusion criteria with the objective/s and question/s. Aligned with the questions and objectives of the review, studies regardless of design including qualitative studies, randomized control trials, quasi experimental studies, case–control studies, cohort studies, or descriptive studies addressing the phenomenon of smoking cessation or intervening smoking behavior or factors associated with smoking cessation or combination of one or more of these phenomena will be included. The target population of the included studies will be adults (age above 18 years) from any country in SAR. Based on the language proficiency of the reviewers, literature written in English or any other language with English translation available will be included. Furthermore, due to rich availability of data, studies published within five years from search date will be included.

Studies will be excluded if not available as free full text. Moreover, studies having participants from any country other than countries in SAR will not be included.

Stage 3: Describing the planned approach to evidence searching, selection, data extraction, and presentation of the evidence. Initially, two reviewers will extensively search the selected databases (PubMed, CINAHL, Proquest Theses & Dissertations, EBSCO Dentistry & Oral Sciences & Wiley Cochrane Library) for relevant qualitative and quantitative data on the phenomena of interest during the period mentioned in timeline. PubMed is recommended for inclusion in systematic/scoping reviews as it covers an extensive range of literature [27]. Moreover, most of the rest are health related literature databases; therefore, their inclusion in the present scoping review can add significant data on preventing health hazards of smoking through different interventions. CINAHL, on the other hand, is specialized database for nursing related literature [27], thus adding to the phenomenon from nursing lens; and broadening the range of the data beyond positivist view.
The anticipated dates for the literature search are mentioned in Appendix II. The literature search will be carried out in the four steps discussed below in ‘Search Strategy’ section. To maintain a rigorous record of the searched literature, the PRISMA flow diagram will be used.

**Stage 4: Searching for the evidence.** Step 1. After a thorough discussion with research team and the librarian on the selection of appropriate keywords, controlled vocabulary and going through relevant literature, the following key terms supported by Mesh terms, Boolean phrases and wildcards were considered for literature search; tobacco, cigarette, smoking cessation, quit, interventions, measures, strategies, and South Asian Region. Consequently, a nested search syntax was developed as, (Intervention* OR measure* OR strateg* OR program) AND ("Smoking"[Mesh] OR smok* OR Tobacco OR Nicotine OR Cigarette) AND ("Smoking Cessation"[Mesh:NoExp] OR Cessation OR Quit*) AND ("South Asia*" OR Pakistan OR Afghanistan OR Bangladesh OR Bhutan OR India OR Nepal OR Maldives OR Sri Lanka). The filters applied included full text articles and publications in last five years. The mentioned key terms were used to develop full strategy for search in PubMed (shown in figure I). Step 2. The reference list of selected articles will be manually checked and identified relevant references will be used for additional articles retrieval through citation chaining. This will also assist in identifying relevant organizational websites in SAR. Step 3. Hand searching of print journals will be carried out in order to capture the literature available in library that might have been missed while searching through selected search engines. Step 4. Data received through coordination with other research colleagues or key informants, information printed in alternate formats (i.e., reports, briefs), and any available unpublished material will be sought and reviewed for relevancy to the intent of this review. Unpublished literature search will be supported through email contacts with authors of published articles to share any source of grey literature. Moreover,
we will access “Proquest Theses & Dissertations Database”, “OpenGrey” database, and Higher Education Commission Research Repository. Also, we will use WHO country reports on cigarette smoking.

**Stage 5: Selecting the evidence.** Based on relevance, accessed studies will be considered for inclusion through endnote software. Initially, two reviewers, will independently read the title and abstract of a retrieved study. Based on relevancy, the reviewers will recommend include or exclude. Then, individually, the reviewers will read the included full length articles and independently rate the appropriateness of the article or any reading material for inclusion. The reviewers will then crosscheck the list of included and excluded studies. If any discordance occurs respecting inclusion or exclusion of any full text article or any other material (e.g. reports or brief etc.) selected at the preliminary stage, the article or other material will be re-read and if still not clear to include or exclude, a third reviewer will be involved to build consensus. The appropriateness of the selected material will be based on inclusion criteria and authenticity of the publishing authority or of the organization to which unpublished work is associated.

**Stage 6: Extracting the evidence.** Data will be collected using a study instrument developed by researchers that include, but not limited to, study reference, location, participants’ characteristics (i.e. age, gender and ethnicity), methodology, research purpose, data collection, and main relevant outcomes. This analytical form will be pretested and discussed with research team to ensure it is capturing all relevant information (numerical data and narrative accounts) from a selected study. Quality assessment of included literature will not be performed as the intent of scoping review is to examine the breadth and depth of a phenomenon and not to check the robustness of the selected studies [20, 28]. At this stage, both the reviewers will share the extracted data sheets filled from the included articles.
Stage 7: Analysis of the evidence. The scoping reviews aim to develop a map of the underpinning concepts of the selected research area, the formulation of results lead to the range of work being done [27]. The proposed review will extract the extent and nature of work done for smoking cessation as well as the range of factors that might have affected such work. Furthermore, the review will not weigh or assess the impact of the interventions on smoking cessation as they all will be taken into consideration to further guide the linear analysis process described here. In the proposed scoping review, the extracted interventions will be coded based on the FCTC set forth by WHO [29] and while the smoking cessation associated factors will be coded thematically. All the factors that have been described in selected studies, reports or briefings will be color coded. Based on the nature of codes, they will be put under relevant categories, such as personal factors, social factors, and so forth. Finally, according to the focus of categories, themes will be assigned to make it more comprehensible.

To clarify the results, quantitative and qualitative studies will be synthesized separately. First, individually, both reviewers will summarize findings from all included studies. Second, the reviewers will discuss their findings and will merge them. Findings will then be shared with the whole research team including the supervisor of the study.

To minimize bias arising from personal values, preconceptions, and judgments, the reviewers will undertake bracketing before data collection. The review process will involve two or more members of the research team in conducting the reviews in order to ensure capturing/revealing multiple perspectives. Moreover, reviewers will maintain a diary to capture their feelings and learning experience in real time. Through these three strategies, we believe reflexivity will be achieved.

Stage 8: Presentation of the results
The findings of this review will be presented in tables, appropriate diagrams, and texts. The findings of the review will be shared through publications, posters, conference presentations, and meetings with different stakeholders.

**Stage 9: Summarizing the evidence in relation to the purpose of the review, making conclusions and noting any implications of the findings.** Based on the findings, inferences will be drawn for presentation of the whole scenario with clarity and brevity. Moreover, recommendations will be set forth to make effective use of the findings in future planning for smoking cessation in SAR.

**Article Summary**

South Asian countries experience increasing prevalence of tobacco smoking. The behavior of smoking is deeply rooted in factors such as psychosocial, societal, spiritual, and political domains. Interventions proven effective in developed countries may not yield similar results in developing countries. Also, one intervention alone cannot be proven effective; for smoking cessation a highly complex and contextual series of interventions is required. It is necessary to collate all the possible interventions for smoking cessation and their associated factors that are available in extant literature to inform future directions.

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Authors’ Statement

Mr. Sajid Iqbal:

The review protocol was Formatted and outlined by Mr. Sajid Iqbal. Mr. Iqbal conducted frequent meetings with librarian and reviewers to finalize the included databases, frameworks, and inclusion and exclusion criteria. Background and literature review were developed by Sajid Iqbal. Mr. Iqbal also, through regular meetings, coordinated with all team members. He also collated and incorporated the feedback, opinions, and suggestions of all authors. Mr. Sajid Iqbal is the guarantor of this review.

Dr. Rubina Barolia:

Dr. Barolia was one of the authors who came up with the initial idea of the review. She provided ongoing assessment on study objectives, questions, and frameworks. Moreover, she supervised the whole activity and made sure that all requirements of a scoping review are covered in the protocol.
Dr. Pammla Petrucka:

Dr. Petrucka contributed in shaping up the idea of the scoping review. She suggested the idea of conducting the review in SAR. She also shared her expert opinion on overall conduct of the study. The protocol was prepared with her kind guidance.

Dr. Laila Ladak:

Dr. Ladak contributed in selection of databases inclusion for the review. Also, she did major editing on initial draft of this protocol. She will also contribute to the literature review process.

**Figure Legend**: PubMed Search conducted in November 2020
| Search | Actions | Details | Query                                                                 | Results | Time      |
|--------|---------|---------|----------------------------------------------------------------------|---------|-----------|
| #7     |         | >       | Search: (((#1) AND (#2)) AND (#3)) AND (#4) Filters: Full text, in the last 5 years | 259     | 02:38:54  |
| #6     |         | >       | Search: (((#1) AND (#2)) AND (#3)) AND (#4) Filters: Full text       | 558     | 02:34:57  |
| #5     |         | >       | Search: (((#1) AND (#2)) AND (#3)) AND (#4)                         | 620     | 02:34:05  |
| #4     |         | >       | Search: ((((((("South Asia*") OR (Pakistan)) OR (Afghanistan)) OR (Bangladesh)) OR (Bhutan)) OR (India)) OR (Nepal)) OR (Maldives)) OR (Sri Lanka) | 708,991 | 02:31:44  |
| #3     |         | >       | Search: ("Smoking Cessation"[Mesh:NoExp]) OR (Cessation)) OR (Quit*)   | 183,644 | 02:24:04  |
| #2     |         | >       | Search: ((("Smoking"[Mesh]) OR (smok*)) OR (Tobacco)) OR (Nicotine)) OR (Cigarette) | 414,914 | 02:22:23  |
| #1     |         | >       | Search: ((Intervention*) OR (measure*)) OR (strateg*) OR (program)     | 6,226,288 | 02:20:52  |
### PRISMA-P 2015 Checklist

This checklist has been adapted for use with protocol submissions to *Systematic Reviews* from Table 3 in Moher D et al: Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews* 2015 4:1

| Section/topic | #  | Checklist item                                                                 | Information reported | Line number(s) |
|---------------|-----|--------------------------------------------------------------------------------|----------------------|----------------|
| ADMINISTRATIVE INFORMATION |     |                                                                                  |                      |                |
| Title: Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review |     |                                                                                  |                      |                |
| Identification | 1a  | Identify the report as a protocol of a systematic review                        | Yes                  | 1              |
| Update        | 1b  | If the protocol is for an update of a previous systematic review, identify as such | Yes                  | 2              |
| Registration  | 2   | If registered, provide the name of the registry (e.g., PROSPERO) and registration number in the Abstract | Yes                  | 8              |
| Authors       |     |                                                                                  |                      |                |
| Contact       | 3a  | Provide name, institutional affiliation, and e-mail address of all protocol authors; provide physical mailing address of corresponding author | Yes                  | 1              |
| Contributions | 3b  | Describe contributions of protocol authors and identify the guarantor of the review | Yes                  | 19             |
| Amendments    | 4   | If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments | Yes                  | 2              |
| Support       |     |                                                                                  |                      |                |
| Sources       | 5a  | Indicate sources of financial or other support for the review                   | Yes                  | 2              |
| Sponsor       | 5b  | Provide name for the review funder and/or sponsor                              | Yes                  | 2              |
| Role of sponsor/funder | 5c | Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol | Yes                  | 2              |
| INTRODUCTION  |     |                                                                                  |                      |                |
| Rationale     | 6   | Describe the rationale for the review in the context of what is already known   | Yes                  | 6-7            |
| Objectives    | 7   | Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) | Yes                  | 10             |
| Section/topic | # | Checklist item                                                                                                                                                                                                 | Information reported | Line number(s) |
|---------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|
| **METHODS**   |   |                                                                                                                                                                                                              |                       |                |
| Eligibility criteria | 8 | Specify the study characteristics (e.g., PICO, study design, setting, time frame) and report characteristics (e.g., years considered, language, publication status) to be used as criteria for eligibility for the review. | Yes                   | 10             |
| Information sources | 9 | Describe all intended information sources (e.g., electronic databases, contact with study authors, trial registers, or other grey literature sources) with planned dates of coverage.             | Yes                   | 11             |
| Search strategy | 10 | Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated.                                                                       | Yes                   | Figure I      |
| **STUDY RECORDS** |   |                                                                                                                                                                                                              |                       |                |
| Data management | 11a | Describe the mechanism(s) that will be used to manage records and data throughout the review.                                                                                                                      | Yes                   | 9              |
| Selection process | 11b | State the process that will be used for selecting studies (e.g., two independent reviewers) through each phase of the review (i.e., screening, eligibility, and inclusion in meta-analysis). | Yes                   | 12-14         |
| Data collection process | 11c | Describe planned method of extracting data from reports (e.g., piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators.      | Yes                   | 13             |
| Data items | 12 | List and define all variables for which data will be sought (e.g., PICO items, funding sources), any pre-planned data assumptions and simplifications.                                                                 | Yes                   | 5             |
| Outcomes and prioritization | 13 | List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale.                                                                                | Yes                   | 7             |
| Risk of bias in individual studies | 14 | Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis. | No                    | NA            |
| **DATA**      |   |                                                                                                                                                                                                              |                       |                |
| Synthesis | 15a | Describe criteria under which study data will be quantitatively synthesized.                                                                                                                                       | Yes                   | 14             |
|              | 15b | If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data, and methods of combining data from studies, including any planned exploration of consistency (e.g., $I^2$, Kendall’s tau). | No                    | NA            |
|              | 15c | Describe any proposed additional analyses (e.g., sensitivity or subgroup analyses, meta-regression).                                                                                                               | No                    | NA            |
|              | 15d | If quantitative synthesis is not appropriate, describe the type of summary planned.                                                                                                                            | Yes                   | 13             |
| Meta-bias(es) | 16 | Specify any planned assessment of meta-bias(es) (e.g., publication bias across studies, selective                                                                                                                  | No                    | NA            |
| Section/topic | #  | Checklist item                                                                 | Information reported | Line number(s) |
|---------------|----|---------------------------------------------------------------------------------|----------------------|----------------|
|               |    | **Confidence in cumulative evidence**                                           | Yes                  | 13             |
|               | 17 | Describe how the strength of the body of evidence will be assessed (e.g., GRADE)|                      |                |
Tentative Timeline

Smoking Cessation Interventions in South Asian Region: A Scoping Review

2020-2021

Jan-March
1. Research team meetings
2. Meetings with librarian
3. Outline development

April-May
1. Protocol development
2. Protocol publication

June-Nov
1. Protocol publication
2. Preliminary literature search

Dec-Jan
1. selected database search
2. Data extraction
3. Findings
4. Final Write up

Feb
1. Final manuscript publication
Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

| Journal:      | BMJ Open                  |
|--------------|---------------------------|
| Manuscript ID| bmjopen-2020-038818.R3    |
| Article Type | Protocol                 |
| Date Submitted by the Author: | 28-Dec-2020 |
| Complete List of Authors: | Iqbal, Sajid; Aga Khan University, School of Nursing and Midwifery Barolia, Rubina; Aga Khan University Ladak, Laila; Aga Khan University, School of Nursing and Midwifery Petrucka, Pammla; Aga Khan University, School of Nursing and Midwifery; University of Saskatchewan College of Nursing, Nursing Education |
| <b>Primary Subject Heading</b>: | Addiction |
| Secondary Subject Heading: | Smoking and tobacco |
| Keywords:     | PRIMARY CARE, PUBLIC HEALTH, MEDICAL EDUCATION & TRAINING |
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Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review

Authors of the Protocol

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Reviewers in Scoping Review

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Acknowledgment

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Abstract

Introduction

Unfortunately, like many other health risks, smoking rate has been on rise in developing countries. Half of current smokers in the world reside in only three countries of Asia that include India. Many smoking cessation interventions that were developed and successfully implemented in the context of developed countries have not been equally successful in South Asia. Hence, there is a dire need of culturally relevant smoking cessation interventions. We propose a scoping review with objectives to explore the extent and nature of interventions for smoking cessation and its associated factors in South Asian Region (SAR) by systematically reviewing the available published and unpublished literature.

Methods and Analysis

The review has been registered in Joanna Briggs Institute (JBI) systematic reviews and details are given in methodology section. The updated framework of JBI for scoping review methodology will be used as guide for conduct of this scoping review. Electronic databases (PubMed, CINAHL plus, Proquest Theses & Dissertations, EBSCO Dentistry & Oral Sciences & Wiley Cochrane Library), reference lists of selected studies, and grey literature will be considered for inclusion in this review. The literature search is anticipated to be carried out in December-January, 2020. Initially, two reviewers in consultation with librarian will develop search syntax followed by search from the selected sources. Consequently, the reviewers will screen all the titles, abstracts, and full articles to establish relevance of each study for inclusion. Factors associated with smoking cessation will be coded and categorized applying qualitative content analysis while interventions extracted from the literature will be described with the stated level of effectiveness.
Keywords: Smok*, Tobacco, Cessation, Quit*, interventions, strategies, measures, South Asia*

Study Strengths and Limitations

- The review includes content in any language with English translation available and search in three different ways from SAR, thus, increasing the chances of covering a broader range of work done on phenomena of interest.

- Most of the team members in this review are experts of systematic reviews who will ensure each step carried out with utmost accuracy.

- One of the strengths of this review is engagement of stakeholders and relevant organizations during the review process.

- The quality of included studies will not be ensured through an established tool although some more recent scoping review protocols have used tools such as the Newcastle Ottawa Scale.

- Literature published in languages other than English will not be included that may affect the scope of the review. However, preliminary search shows rare availability of literature in language other than English in SAR.

Introduction

Globally, in a year over 6 million people die due to causes related to tobacco use. This number is anticipated to reach approximately 8.3 million/year by 2030, primarily due to increasing prevalence of tobacco use in low- and middle-income countries [1-2]. The increasing prevalence of cigarette smoking and its hazardous consequences are documented extensively. It is estimated that, globally, 942 million men and 175 million women over age 15 are daily
smokers: consequently, cigarette smoking is the single leading cause of preventable diseases and deaths making it a critical public health challenge [3-4].

Cigarette smoking leads to a range of health problems that either affect the quality of life or become the reason for premature death. Smoking tobacco exposes the smoker’s body to over 7000 toxic chemicals that include a minimum of 70 carcinogens affecting almost every body system [3]. Significant health problems due to smoking include cardiovascular (mainly coronary heart) diseases and respiratory diseases mainly cancer [5-6]. Moreover, smoking is a risk factor for congenital disorders in the case of pregnant smokers, stroke, peripheral vascular diseases, cerebrovascular disease, renal failure, intestinal ischemia, and impotence to name few [3,7].

Furthermore, although the consequences of smoking are largely associated with the number of cigarettes smoked, a lifelong regular smoker loses approximately 10 years of life to smoking [3]. Of importance are the benefits of non-smoking or smoking cessation. Quitting before age 40 saves about 9 years of life because cessation at this age reduces the risk of death due to smoking related morbidities by 90% [3]. A smoker can also benefit from smoking cessation even after the development of smoking related diseases such as chronic obstructive pulmonary diseases and cardiovascular diseases [8].

Hence, smoking is likely one of the most lethal and prevalent yet preventable health risk behaviors in today’s world. Its increasing epidemic levels should catalyze the need for better smoking cessation measures.

**Definitions of Terms**

**Smoker.** Smoker is defined as a person who smoked at least once daily in the last 30 days.
SMOKING CESSATION

Smoking Cessation Rate. Smoking cessation rate (outcome measure) in this study is defined as the decrease in number of cigarettes per day in comparison to the pre-intervention phase.

Smoking Cessation Intervention. Any action intended to increase cigarette smoking cessation rate will be referred as smoking cessation intervention.

South Asian Region (SAR). South Asia is one of the most populated geographical regions inhabited by almost a quarter of the world’s population [9]. South Asian Region (SAR) includes Pakistan, India, Sri Lanka, Afghanistan, Bangladesh, Nepal, Bhutan, and Maldives [10]. Three of the countries (Pakistan, India and Bangladesh) mentioned in above list are partition of one country, i.e. British India [9], thus, sharing numerous cultural and religious traits. Besides, a common issue faced by people in countries of SAR is their lack of awareness of different health risks and low level of education. Sreeramareddy and colleagues found that in two of the countries in SAR (i.e., Bangladesh and Maldives) one in three men between 15-49 years is not educated while 17.1% to 56.2% women of aged 15-49 years were uneducated [11]. The study also emphasized on negative association of education level with smoking behavior [11].

Smoking is most common health risk found high in South Asian population [1-2]. A study on Asian population reports that serving tobacco products is a cultural norm and dignity of Asian people [12]. Concurrently, the study by Sreeramareddy and colleagues found the prevalence of smoking among men aged between 15-49 years as 60% in Bangladesh, 47.3% in Maldives, 34.1% in India, 33.6% in Nepal, and 31.6% in Pakistan [11]. The study also concluded that smoking in South and Southeast Asian countries is more common among men from low economic backgrounds, uneducated, or residents of rural areas [11]. Therefore, consideration of the context specific factors associated with smoking is important in planning strategies for prevention and control of cigarette smoking.
SMOKING CESSATION

Study Rationale

Despite claims by different countries regarding progress towards achievement of their smoking cessation goals, globally the decline in smoking prevalence has slowed in the last ten years (2005-2015) than in the past (1990-2005) [13]. In developed countries, efforts for smoking cessation remained quite effective due to factors like good public awareness, availability of resources for smoking cessation, and uniform policies towards smoking cessation; whereas, in low and middle income countries, the smoking cessation rate remained discouraging [14-16]. Consequently, if the current situation sustains, as predicted, by 2030, almost 80% of tobacco related deaths will be in low- and middle-income countries [17].

Although systematic reviews either based on data from one specific country [18] or general global data [19] have been carried out; no review of smoking cessation interventions in SAR countries has been conducted on smoking cessation and its associated factors. The strict inclusion criteria of previously conducted systematic reviews might have significantly reduced the inclusion of available data on the phenomena of interest. Therefore, a scoping review is proposed with primary outcome to summarize the current scope of interventions and critical factors to be considered while planning any smoking cessation intervention. This will help in achieving secondary outcome that is to enhance effectiveness of the developing strategies for reduction of smoking prevalence in SAR. Moreover, the increasing prevalence of smoking in SAR signifies the imperative for re-consideration of the strategies implemented for smoking cessation in this region. Therefore, it is important to explore the range and nature of these strategies to align them, through further research, with local contextual factors to potentiate achievement of optimal outcomes.

Why a Scoping Review?
SMOKING CESSATION

Scoping review is an approach that covers underpinning concepts surrounding the phenomenon of interest [20] thus, giving a broader image that serves as a precursor to systematic reviews [21]. Also, scoping reviews give depth and breadth of the research work done on a topic, thus increasing the understanding of the nature of the phenomenon under investigation [22].

Effective interventions to stop or control the current pattern of smoking are emerging and evolving constantly. Due to this variability and complexity, there is a need to collate evidence related to interventions for smoking cessation among South Asian population and distinguishing the underpinning forces that encourage or discourage the behavior of smoking. Given the range of programs, national initiatives/policies, and potential interventions, it is desirable that the least restrictive design for a review be selected to maximize the diversity for smoking cessation strategies in SAR. We want to take into account the cultural specific measures or interventions which are not formally reported or not publically available. Additionally, in this study we are not focusing on a clinical question which would more closely align with a systematic review, whereas, the scoping review is more aligned with mapping the evidence related to the types of smoking cessation interventions and the characteristics of individuals accessing such programs [21]. After consideration, a scoping review was deemed as best serving the aim of this study.

Methodology and Analysis

The title of this protocol has been registered with ‘Joanna Briggs Institute (JBI) systematic review register’ page 10, on January 28, 2020 and can be found on their website, (https://jbi.global/systematic-review-register?combine=&items_per_page=10&page=17&order=title&sort=asc).

Besides, the conduct and reporting of the scoping review report will be guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping
Review (PRISMA-ScR) as recommended in literature [23-24]. Moreover, to advance the development process and reporting of this protocol, the recommended PRISMA-P checklist was used [25], (Attached as Appendix I). In addition, the record and data of the review will be saved in computer and in hard drive for back up. Also, the computer files will be connected to campus cloud in order to secure the data.

This review will be part of a multiphasic mixed method research to include contextually relevant smoking cessation interventions and associated factors that will help in development of a model for smoking cessation in SAR. Since the review is from existing published and publicly available literature, it does not require an ethical approval. A tentative timeline for the conduction of the review is attached as Appendix II.

**Patient and Public Involvement**

This review will not include any research participants or patients for data collection. The stakeholders’ involvement in initial planning and research question setting will be acknowledged in original report of the review as per their permission. Moreover, the findings of the proposed review will be disseminated to smokers and relevant stakeholders to encourage their involvement in further planning for smoking cessation.

**Protocol Design**

The JBI guidelines proposed by Peters and colleagues [24] underpinned by the framework presented by Arksey and O’Malley [20] and Levac, Colquhoun & O’Brien [26] will guide the scoping review to examine the extent and nature of work done on smoking cessation in SAR with the factors impacting these efforts. Thus, the review will be carried out in the nine stages mentioned herein. Also, we have experts in our team who have worked on topic of the
For peer review only

SMOKING CESSATION

In addition to that, we will consult a smoking cessation consultant (JA) available in our university. The stated expertise will be instrumental in how to conduct an informed search, review, and synthesis process.

**Stage 1: Defining and aligning the objective/s and question/s.** The scoping review is planned to systematically search literature across the range and nature of interventions for smoking cessation and to map the factors associated with such interventions. Following this, questions for the proposed scoping review are designed as: what is known from existing literature about the range of interventions/control measures devised for smoking cessation in SAR? And, what are the factors associated with smoking cessation in SAR in the available literature?

**Stage 2: Developing and aligning the inclusion criteria with the objective/s and question/s.** Aligned with the questions and objectives of the review, studies regardless of design including qualitative studies, randomized control trials, quasi experimental studies, case–control studies, cohort studies, or descriptive studies addressing the phenomenon of smoking cessation or intervening smoking behavior or factors associated with smoking cessation or combination of one or more of these phenomena will be included. The target population of the included studies will be adults (age above 18 years) from any country in SAR. Literature written in English or any other language with English translation available will be included. Furthermore, due to rich availability of data, studies published within five years from search date will be included.

Studies will be excluded if not available as free full text. Moreover, studies having participants from any country other than countries in SAR will not be included.
Stage 3: Describing the planned approach to evidence searching, selection, data extraction, and presentation of the evidence. Initially, two reviewers will extensively search the selected databases (PubMed, CINAHL, Proquest Theses & Dissertations, EBSCO Dentistry & Oral Sciences & Wiley Cochrane Library) for relevant qualitative and quantitative data on the phenomena of interest during the period mentioned in timeline. PubMed is recommended for inclusion in systematic/scoping reviews as it covers an extensive range of literature [27]. Moreover, most of the rest are health related literature databases; therefore, their inclusion in the present scoping review can add significant data on preventing health hazards of smoking through different interventions. CINAHL, on the other hand, is a specialized database for nursing related literature [27], thus adding to the phenomenon from nursing lens; and broadening the range of the data beyond positivist view.

The anticipated dates for the literature search are mentioned in Appendix II. The literature search will be carried out in the four steps discussed below in ‘Search Strategy’ section. To maintain a rigorous record of the searched literature, the PRISMA flow diagram will be used.

Stage 4: Searching for the evidence. Step 1. After a thorough discussion with research team and the librarian on the selection of appropriate keywords, controlled vocabulary and going through relevant literature, the following key terms supported by Mesh terms, Boolean phrases and wildcards were considered for literature search; tobacco, cigarette, smoking cessation, quit, interventions, measures, strategies, and South Asian Region. Consequently, a nested search syntax was developed as, (Intervention* OR measure* OR strateg* OR program) AND ("Smoking"[Mesh] OR smok* OR Tobacco OR Nicotine OR Cigarette) AND ("Smoking Cessation"[Mesh:NoExp] OR Cessation OR Quit*) AND ("South Asia*" OR Pakistan OR Afghanistan OR Bangladesh OR Bhutan OR India OR Nepal OR Maldives OR Sri Lanka). The
filters applied included full text articles and publications in last five years. The mentioned key terms were used to develop full strategy for search in PubMed (attached as figure I in image). Step 2. The reference list of selected articles will be manually checked and identified relevant references will be used for additional articles retrieval through citation chaining. This will also assist in identifying relevant organizational websites in SAR. Step 3. Hand searching of print journals will be carried out in order to capture the literature available in library that might have been missed while searching through selected search engines. Step 4. Data received through coordination with other research colleagues or key informants, information printed in alternate formats (i.e., reports, briefs), and any available unpublished material will be sought and reviewed for relevancy to the intent of this review. Unpublished literature search will be supported through email contacts with authors of published articles to share any source of grey literature. Moreover, we will access “Proquest Theses & Dissertations Database”, “OpenGrey” database, and Higher Education Commission Research Repository. Also, we will use WHO country reports on cigarette smoking.

**Stage 5: Selecting the evidence.** Based on relevance, accessed studies will be considered for inclusion through endnote software. Initially, two reviewers, will independently read the title and abstract of a retrieved study. Based on relevancy, the reviewers will recommend include or exclude. Then, individually, the reviewers will read the included full length articles and independently rate the appropriateness of the article or any reading material for inclusion. The reviewers will then crosscheck the list of included and excluded studies. If any discordance occurs respecting inclusion or exclusion of any full text article or any other material (e.g. reports or brief etc.) selected at the preliminary stage, the article or other material will be re-read and if still not clear to include or exclude, a third reviewer will be involved to build consensus. The
appropriateness of the selected material will be based on inclusion criteria and authenticity of the publishing authority or of the organization to which unpublished work is associated.

**Stage 6: Extracting the evidence.** Data will be collected using a study instrument developed by researchers that include, but not limited to, study reference, location, participants’ characteristics (i.e. age, gender and ethnicity), methodology, research purpose, data collection, and main relevant outcomes. This analytical form will be pretested and discussed with research team to ensure it is capturing all relevant information (numerical data and narrative accounts) from a selected study. Quality assessment of included literature will not be performed as the intent of scoping review is to examine the breadth and depth of a phenomenon and not to check the robustness of the selected studies [20, 28]. At this stage, both the reviewers will share the extracted data sheets filled from the included articles.

**Stage 7: Analysis of the evidence.** The scoping reviews aim to develop a map of the underpinning concepts of the selected research area, the formulation of results lead to the range of work being done [27]. The proposed review will extract the extent and nature of work done for smoking cessation as well as the range of factors that might have affected such work. Furthermore, the review will not weigh or assess the impact of the interventions on smoking cessation as they all will be taken into consideration to further guide the linear analysis process described here. In the proposed scoping review, the extracted interventions will be coded based on the FCTC set forth by WHO [29], and the smoking cessation associated factors will be coded thematically. All the factors that have been described in selected studies, reports or briefings will be color coded. Based on the nature of codes, they will be put under relevant categories, such as personal factors, social factors, and so forth. Finally, according to the focus of categories, themes will be assigned to make it more comprehensible.
To clarify the results, quantitative and qualitative studies will be synthesized separately. First, individually, both reviewers will summarize findings from all included studies. Second, the reviewers will discuss their findings and will merge them. Findings will then be shared with the whole research team including the supervisor of the study.

To minimize bias arising from personal values, preconceptions, and judgments, the reviewers will undertake bracketing before data collection. The review process will involve two or more members of the research team in conducting the reviews in order to ensure capturing/revealing multiple perspectives. Moreover, reviewers will maintain a diary to capture their feelings and learning experience in real time. In order to keep an organized and detailed record of reflexive bracketing, an iterative process of reflexive journey will be maintained throughout the review process [30]. Through these strategies, we believe reflexivity will be achieved.

**Stage 8: Presentation of the results**

The findings of this review will be presented in tables, appropriate diagrams, and texts. The findings of the review will be shared through publications, posters, conference presentations, and meetings with different stakeholders.

**Stage 9: Summarizing the evidence in relation to the purpose of the review, making conclusions and noting any implications of the findings.** Based on the findings, inferences will be drawn for presentation of the whole scenario with clarity and brevity. Moreover, recommendations will be set forth to make effective use of the findings in future planning for smoking cessation in SAR.

**Ethics and Dissemination**
The study does not require an ethical approval. However, every effort will be put to maintain transparency in the conduct of the study. The results of this scoping review will be disseminated through publications, presentations in conferences, and meetings with stakeholders.

References

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Authors’ Conflict of Interests statement

The authors have no interpersonal conflict on any aspect of the phenomenon and conduct of this scoping review nor do they have any conflict of interest with any organization. Moreover, the scoping review protocol is not based on any previous systematic review nor submitted for publication to any source other than BMJ. Besides, the protocol amendments, if any, will be reported to protocol publishing journal.

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Authors’ contributions

Mr. Sajid Iqbal:

Formatted and outlined the protocol. Also, conducted frequent meetings with librarian and reviewers to finalize the included databases, frameworks, and inclusion and exclusion criteria. He wrote the protocol Mr. Sajid Iqbal is the guarantor of this review.

Dr. Rubina Barolia:

Came up with the initial idea of the review. Supervised the whole activity and made sure that all requirements of a scoping review are covered in the protocol.

Dr. Pammla Petrucka:

Contributed in shaping up the idea of the scoping review. She suggested the idea of conducting the review in SAR. Also, shared her expert opinion on overall conduct of the study.

Dr. Laila Ladak:

Contributed in selection of databases inclusion for the review. Also, did major editing on initial draft of this protocol. She will also contribute to the literature review process.

Figure Legend: PubMed Search conducted in November 2020

Word Count excluding title page, references and diagrams: 3131
| Search | Actions | Details | Query |
|--------|---------|---------|-------|
| #7     |         |         | Search: \(((#1) \text{ AND } (#2)) \text{ AND } (#3) \text{ AND } (#4)\) Filters: Full text, in the last 5 years |
| #6     |         |         | Search: \(((#1) \text{ AND } (#2)) \text{ AND } (#3) \text{ AND } (#4)\) Filters: Full text |
| #5     |         |         | Search: \(((#1) \text{ AND } (#2)) \text{ AND } (#3) \text{ AND } (#4)\) |
| #4     |         |         | Search: \((("South Asia*" \text{ OR } \text{Pakistan}) \text{ OR } \text{Afghanistan}) \text{ OR } \text{Bangladesh) \text{ OR } \text{Bhutan}) \text{ OR } \text{India}) \text{ OR } \text{Nepal}) \text{ OR } \text{Maldives}) \text{ OR } \text{Sri Lanka})\) |
| #3     |         |         | Search: \("\text{Smoking Cessation\}[\text{Mesh:NoExp}] \text{ OR } \text{(Cessation)) OR (Quit*)}\) |
| #2     |         |         | Search: \("\text{Smoking}[\text{Mesh}] \text{ OR } \text{(smok*)} \text{ OR } \text{(Tobacco)) OR (Nicotine}) \text{ OR } \text{(Cigarette})\) |
| #1     |         |         | Search: \((\text{Intervention*}) \text{ OR } \text{(measure*)) \text{ OR } \text{(strateg*)) \text{ OR } \text{(program)}\) |
# PRISMA-P 2015 Checklist

This checklist has been adapted for use with protocol submissions to *Systematic Reviews* from Table 3 in Moher D et al: Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews* 2015 4:1

| Section/topic       | #  | Checklist item                                                                 | Information reported | Line number(s) |
|---------------------|----|-------------------------------------------------------------------------------|----------------------|----------------|
| ADMINISTRATIVE INFORMATION |    |                                                                               |                      |                |
| Title: Smoking Cessation Interventions in South Asian Countries: Protocol for scoping review |    |                                                                               |                      |                |
| Identification 1a  |    | Identify the report as a protocol of a systematic review                       | ☒                    | 1              |
| Update 1b          |    | If the protocol is for an update of a previous systematic review, identify as such | ☒                    | 17             |
| Registration 2     |    | If registered, provide the name of the registry (e.g., PROSPERO) and registration number in the Abstract | ☒                    | 8              |
| Authors            |    |                                                                               |                      |                |
| Contact 3a         |    | Provide name, institutional affiliation, and e-mail address of all protocol authors; provide physical mailing address of corresponding author | ☒                    | 1              |
| Contributions 3b   |    | Describe contributions of protocol authors and identify the guarantor of the review | ☒                    | 19             |
| Amendments 4       |    | If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments | ☒                    | 17             |
| Support            |    |                                                                               |                      |                |
| Sources 5a         |    | Indicate sources of financial or other support for the review                  | ☒                    | 2              |
| Sponsor 5b         |    | Provide name for the review funder and/or sponsor                              | ☒                    | 2              |
| Role of sponsor/funder 5c | | Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol | ☒                    | 2              |
| INTRODUCTION       |    |                                                                               |                      |                |
| Rationale 6        |    | Describe the rationale for the review in the context of what is already known  | ☒                    | 6-7            |
| Objectives 7       |    | Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) | ☒                    | 10             |
| Section/topic | #  | Checklist item                                                                 | Information reported | Line number(s) |
|---------------|----|---------------------------------------------------------------------------------|----------------------|----------------|
| **METHODS**   |    |                                                                                  |                      |                |
| Eligibility criteria | 8  | Specify the study characteristics (e.g., PICO, study design, setting, time frame) and report characteristics (e.g., years considered, language, publication status) to be used as criteria for eligibility for the review | No                    | 10             |
| Information sources | 9  | Describe all intended information sources (e.g., electronic databases, contact with study authors, trial registers, or other grey literature sources) with planned dates of coverage | No                    | 11             |
| Search strategy | 10 | Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated | No                    | Figure I       |
| **STUDY RECORDS** |   |                                                                                  |                      |                |
| Data management | 11a| Describe the mechanism(s) that will be used to manage records and data throughout the review | No                    | 9              |
| Selection process | 11b| State the process that will be used for selecting studies (e.g., two independent reviewers) through each phase of the review (i.e., screening, eligibility, and inclusion in meta-analysis) | No                    | 12-14          |
| Data collection process | 11c| Describe planned method of extracting data from reports (e.g., piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators | No                    | 13             |
| Data items | 12 | List and define all variables for which data will be sought (e.g., PICO items, funding sources), any pre-planned data assumptions and simplifications | No                    | 5              |
| Outcomes and prioritization | 13 | List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale | No                    | 7              |
| Risk of bias in individual studies | 14 | Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis | No                    | NA            |
| **DATA** |   |                                                                                  |                      |                |
| Synthesis | 15a | Describe criteria under which study data will be quantitatively synthesized | No                    | 14             |
|            | 15b | If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data, and methods of combining data from studies, including any planned exploration of consistency (e.g., \( P \), Kendall’s tau) | No                    | NA            |
|            | 15c | Describe any proposed additional analyses (e.g., sensitivity or subgroup analyses, meta-regression) | No                    | NA            |
|            | 15d | If quantitative synthesis is not appropriate, describe the type of summary planned | No                    | 13             |
| Meta-bias(es) | 16 | Specify any planned assessment of meta-bias(es) (e.g., publication bias across studies, selective | No                    | NA            |
| Section/topic                  | #  | Checklist item                                                                 | Information reported | Line number(s) |
|-------------------------------|----|---------------------------------------------------------------------------------|----------------------|----------------|
| Confidence in cumulative evidence | 17 | Describe how the strength of the body of evidence will be assessed (e.g., GRADE) |                      | N/A            |
Tentative Timeline

Smoking Cessation Interventions in South Asian Region: A Scoping Review

2020-2021

Jan-March
1. Research team meetings
2. Meetings with librarian
3. Outline development

April-May
1. Protocol development
2. Protocol publication

June-Nov
1. Protocol publication
2. Preliminary literature search

Dec-Jan
1. selected database search 2. Data extraction
3. Findings
4. Final Write up

Feb
1. Final manuscript publication