Iran J Public Health, Vol. 44, No.6, Jun 2015, pp.728-741

Review Article

The Social Determinants of Health (SDH) in Iran: A Systematic Review Article

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(Received 15 Sep 2014; accepted 10 Mar 2015)

Abstract

Background: Many studies have been conducted in Iran in order to investigate the status of social determinants of health (SDH) and their associations with health indicators. This study aimed to review the Iranian studies conducted on SDH.

Methods: A systematic review of all Iranian Persian and English languages articles published between 2005 and 2014 on the SDH was conducted using the search of SID, Iran Medex, Iran Doc, Medline, Embase, Scopus, and Google Scholar databases. The eligibility criteria were studies describing SDH status, designed based on the WHO conceptual framework of SDH, published in Persian or English languages, and full text articles. The structured narrative approach was used to synthesize the data.

Results: The entire review process led to the selection of 21 papers. Most of studies had been conducted on the intermediary (38%) and structural (33%) components and determinants in Iran, 4 studies (19%) on the study of all components affecting the health and health inequality and, finally, the minimum number of studies (10%) on the context components and determinants. The focus of 43% of selected studies was on the WHO conceptual framework of SDH and had evaluated this model as an appropriate conceptual framework.

Conclusion: In order to fill the gap in the scientific evidence of SDH and make appropriate policies and plans in Iran, it is needed to conduct studies on all SDH according to the WHO conceptual framework.

Keywords: Social Determinants of Health (SDH), Health, Socioeconomic Factors, Systematic Review, Iran

Introduction

Today, the concept of health has been tied to the social determinants, and a lot of mental and physical diseases have a strong association with the social factors (1-4). The results of more than three decades of research have shown that health is clearly affected by the conditions referred to "Social Determinants of Health (SDH)" and investment in providing these services widely and with high quality will improve community health indicators that in this improving, the different social strata should always be considered to establish equity (5). These factors are associated with the physical, social and economic environments in which people live and influence the health through the people's living conditions and quality of life. These conditions are income or wealth and its distribution, childhood care, education, employment and working conditions, unemployment

and job security, food Security, health care services, housing, social exclusion, culture, religion, and social safety nets (6-8).

From the early 1990s until 2000, SDH were considered as the main concern of countries, however, the evidence indicates that measures taken to reduce disparities and increase health equity by these countries, especially developing countries, were unsuccessful (9-12). To achieve the elimination of health disparities, the partnership between the sectors and organizations having effects on the SDH and the health sector is essential. The results of some studies have shown the fact that health intervention programs commonly carried out are unable to decrease the mortality inequality gap between poor and rich people (13).

The effects of social determinants on human health are much greater than those of health care and health system performance. Therefore, understanding the importance and necessity of these determinants by policy makers has an important role in increasing equity (14, 15). WHO set up The Commission on Social Determinants of Health (CSDH) in 2005 (2). One of the goals of this Commission is to fill the gap in the scientific evidence about the social determinants and to develop and implement effective policies and procedures for addressing SDH scope. This Commission is collaborating with the successful countries in order to take measures targeting SDH and their inequalities. The CSDH in its 2008 report has expressed that the political reasons for slowness of measures taken to improve SDH are knowledge and power issues and encourages countries to take actions against health inequalities to fill the gap between social classes in political, social and economic factors and recommends conducting studies to identify the SDH (3, 16, 17).

The Commission provided a conceptual framework for the action of member countries indicating the relationships between social determinants and their effects which was finalized in 2008 (18) (Fig. 1). CSDH framework provides guidance for policy makers by which inequalities in health can be prevented. Strengthening national and global health equity means going beyond the current focus on primary and direct causes of diseases. CSDH emphasizes on roots of factors threatening health more than any other endeavor in the field of global health (19). The 66th World Health Assembly of WHO in May 2013 approved the report on the progress on action on SDH (20).

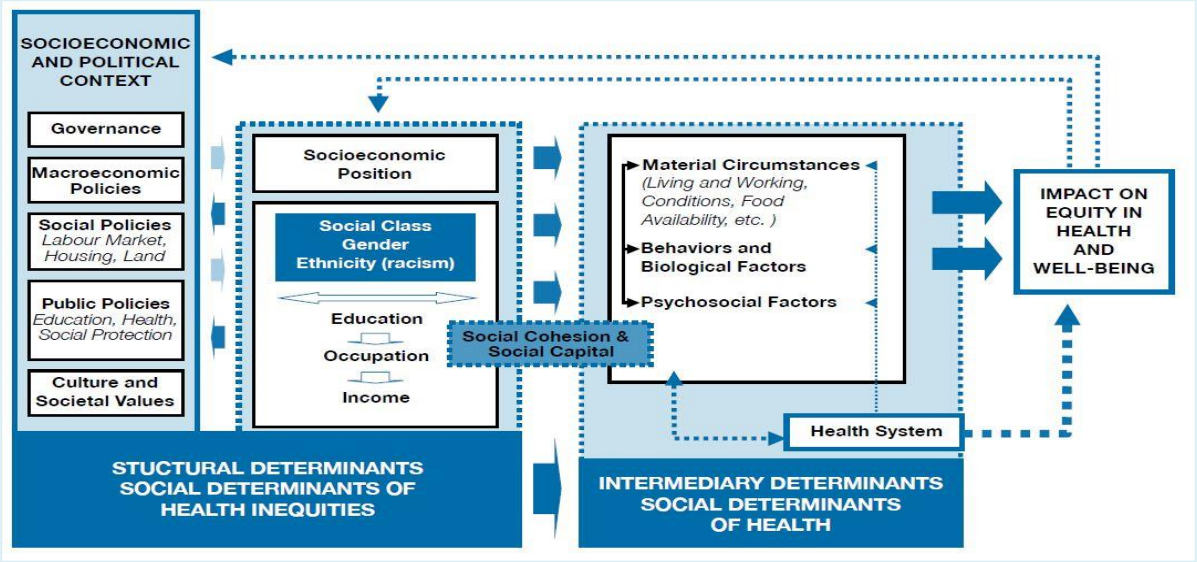

Fig. 1: Final form of the CSDH conceptual framework (18)

In Iran, the main strategy of the government to increase social equity and health service equity has been focusing on the PHC, education and training, electricity and water supplies and improving the communication and indicators such as mortality rates and life expectancy in rural areas. However, despite the improvements in the national and public health status in the past 30 years, the inequalities especially the disparities between urban and rural areas, is quite evident (21, 22). Given the experiences in the increase of health equity, Islamic Republic of Iran was known as the WHO collaborator country in the field of SDH at the end of 2005 (21).

The results of numerous studies conducted in Iran show the effects of SDH on the individuals' health (22-24). Seven social determinants of health were determined from the women's viewpoint including gender disparities, economical problems, burden, appropriate occupation, women sport and cultural and educational growth which reflect effective social factors on women's health (25). Five social determinants of health were identified from the adolescents' perspectives community including communication, socio-economic situation, mental health, religion and educational facilities (26). Psychosocial health related factors were also more important for them than physical factors (25, 26). Bahadori and Ravangard introduced the improvement of living conditions (economic and social), paying attention to the early years of life, improving the quality of education, and reducing unemployment and stress as the important SDH in Iran providing opportunities for increasing equity (27). The socioeconomic status, physical environment, and other social factors were the indicators of health equity in Iran (28). Also, the results of another study indicated that prerequisites for equity in health were social factors and eliminating inequalities in social groups (29).

Focusing on the SDH requires a certain and specific framework. Despite providing the conceptual framework of SDH by authorities such as WHO, this organization recommended to developing and mapping conceptual model proportional with condition countries (1, 2). The WHO Commission on SDH has put a great emphasis on research in the field of SDH in the World Health Report 2010 (30). Establishment of community-based research can create good opportunities for developing original solutions for dealing with SDH (31). In addition, the suitability of the conceptual framework of social determinants of health developed by the WHO to investigate the social determinants and health inequalities in Iran has been confirmed according to the results of a study (32). Although many studies have been carried out in Iran in order to review and investigate the SDH status and their associations with various indicators of health, given the wide range of the determinants, there is not any proper understanding of and consensus on these determinants. The present study aimed to review the Iranian studies conducted on SDH based on the WHO conceptual framework.

Methods

The improvement of systematic review using a standard guideline is essential. The authors of the present study used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol. This protocol includes 27 items for reporting systematic reviews.

Search strategy

First, the available literature and articles published on the SDH were reviewed through referring to the documentation and library resources, as well as the website of the Secretariat of Ministry of Health and Medical Education Commission on SDH (available from: http://sdh. behdasht. gov. ir**)**. These literature and articles contained the related basic information and publications on the SDH in Iran published between 2005 and 2014.

Then, all Iranian Persian and English languages articles published between 2005 and 2014 on the SDH were searched in the SID, IranMedex, IranDoc, Medline, Embase, Scopus, and Google Scholar databases. Also, the following keywords were searched: "social determinants of health" AND "Iran" and their Persian equivalence for articles published in English and Persian language

journals. The searches were completed with other subject headings and text words which were synonyms of or related to "social determinants of health" according to the WHO framework.

Inclusion and exclusion criteria

The inclusion criteria were: studies describing the SDH status, articles published in the scientific journals, designed based on the WHO conceptual framework of SDH, articles published in Persian or English languages, and full text articles. The exclusion criteria were: the lack of access to the full texts of articles, letter to the editor, articles published in invalid journals, studies conducted on the social determinants affecting areas other than health, and articles that had only explained about SDH and health inequalities or expressed them as a conclusion or recommendation. Also, the articles with the same title and topic that were published in both Persian and English languages were considered as similar and identical. All mentioned searches were carried out by a reviewer and were reviewed and investigated by another reviewer.

Data extraction and quality assessment

For studying the selected articles, a data extraction form, developed by the researchers according to the aim of study, was used. At this stage, tow researchers involved in screening papers and extracting data. The quality assessment and data extraction were carried out by a reviewer and checked by another reviewer. The main characteristics of the selected studies were classified whose results have been summarized in Tables 1 to 5 considering the following variables:

- Types of determinants**:** This classification had been according to the WHO conceptual framework which was as follows:

1) Structural: socioeconomic position, social class, gender, racism, ethnicity, occupation, education, income;

2) Intermediary: early childhood years, living conditions, working conditions, nutrition and food security, housing, psychological factors, behavioral and biological factors, health care availability;

3) Context: governance, macroeconomic policies, social policies (labor market, housing, and land), public policies (education, health, and social protection), culture and societal values.

4) Social determinants and factors affecting the health inequalities.

- Study design of paper: documents were classified according to the design type of the research conducted. The categories were: case-control studies, case studies, descriptive studies, analytic studies, descriptive-analytic studies, qualitative studies, review articles, and mixed studies.
- Target population: a variable consisting of three categories according to the research samples and participants of studies conducted: policy makers, community members, and experts in SDH.
- The approach of studies: The approaches of studies were identified based on the following items: identification and prioritization SDH, description state SDH, the study of the components SDH associations with health, indicators and diseases status and the identification and evaluation of the preventive interventions in Iran.
- Focusing on the WHO conceptual framework: This variable indicated that if the study had been designed and conducted based on the WHO conceptual framework of SDH or not .

The language of study**:** This variable showed that if the study and article had been published in Persian or English language.

- Year of publication: This variable categorized in two groups, including 2005-2009 and 2010-2014.

The structured narrative approach was used to synthesize the data. Different checklists were used for quality assessment according to the type of study. The indicators for quality assessment included: the quality of methods used, the quality of data collection, the quality of data analysis, and the quality of data presentation.

Results

The output of this search was 169 articles (118 Persian articles and 51 English articles). The titles and abstracts of all articles were studied systematically by the researchers. At this stage, 45 articles were included in the study among which 12 articles were excluded because there was not any access to their full texts or they had been published

by two languages (English as well as Persian). Overall, 33 articles remained. After excluding articles which did not meet the inclusion criteria, the articles which had more complete data and were more relevant to the aim of study were selected and their full texts were given to two independent judges and experts in SDH and, eventually, 18 articles were selected. In addition, 3 other articles were selected using the references of the selected articles and included in the study. Therefore, 21 articles were selected. In Fig. 2, the literature review and data extraction flow chart has been shown.

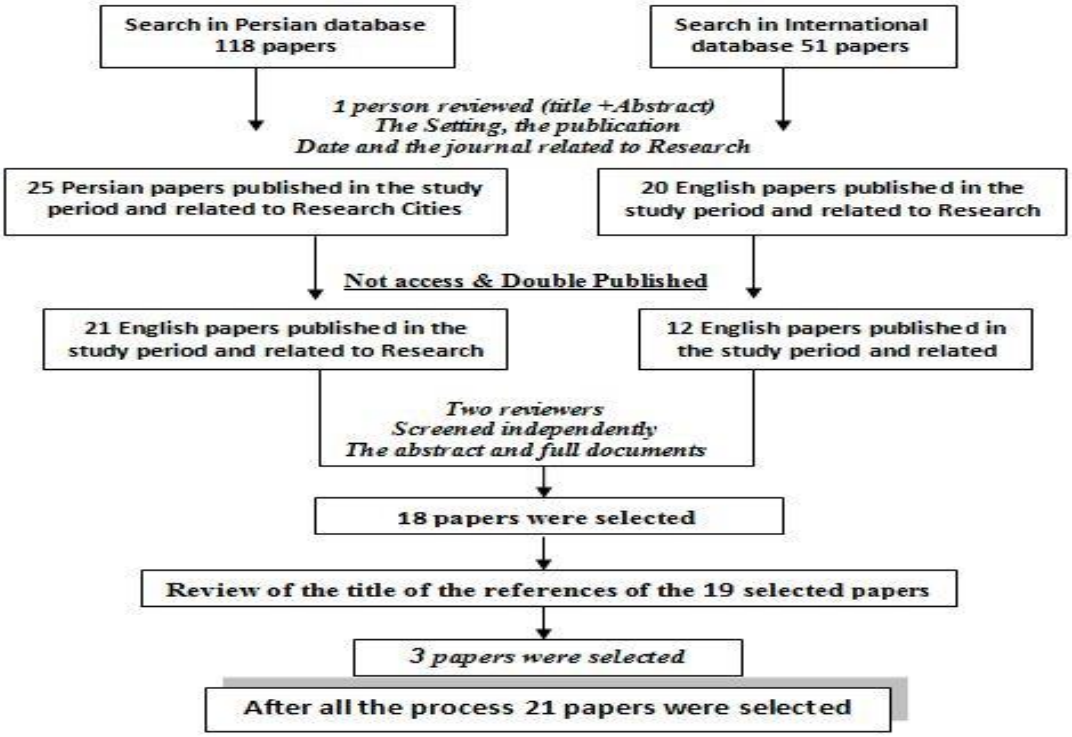

Fig. 2: Literature review and data extraction flow chart

The entire review process led to the selection of 21 papers. The main characteristics of these selected papers according to the aim and variables of the study have been presented in Tables 1 to 5. The publication of articles on the SDH in Iran has increased considerably over the past 10 years. The results showed that 5 articles (24%) had been published from 2005 to 2009, and 16 articles (76%) had been published from 2010 to the end of March 2014, which had been a growing trend. Among these published articles, there were 5 review articles (23%), 5 descriptive-analytic studies (23%), 3 qualitative studies (14. 5%), 3 analytic studies (14. 5%), 2 descriptive studies (10%), 1 mixed study (5%), 1 case study (5%), and 1 case-control study (5%). Among these 21 articles, 12 articles (57%) had been published in Persian language and 9 articles (43%) in English language.

The target population in 24% of articles was Iranian health policymakers, 43% was different community members, 14% was the experts in SDH, and 4 articles (19%) had been conducted as literature reviews. The approach of study in about half of the studies (48%) was the study of the components SDH associations with health, indicators and diseases status, in 4 studies (19%) was the identification and evaluation of the preventive interventions, in 4 articles (19%) was the description state SDH in Iran, and in 3 articles (14%) was the identification and prioritization SDH in Iran.

Most of studies had been conducted on the intermediary (38%) and structural (33%) components and determinants in Iran, 4 studies (19%) on the study of all components affecting the health and health inequality and, finally, the minimum number of studies (10%) on the context components and determinants. The focus of 43% of selected studies was on the WHO conceptual framework of SDH and had evaluated this model as an appropriate conceptual framework.

Table 1: Descriptive characteristics of the 21 selected articles classified by type of determinants

Variables		Type of Determinants				Total	
		SDH& Inequality Health Factors (n=4, 19%)	Structural (n=7, 33%)	Intermediary (n=8, 38%)	Context (n=2, 10%)	n	%
Study design	Case-control	0	0	1	0	1	5
	Case study	0	0	1	0	1	5
	Descriptive	0	0	2	0	2	10
	Qualitative	1	0	1	1	3	14. 5
	Descriptive Review	1	2	2	0	5	23
	Descriptive-analytical	1	2	1	1	5	23
	Analytical	0	3	0	0	3	14. 5
	Mixed methods	1	0	0	0	1	5
Target population	Policy maker	2	0	2	1	5	24
	Society	0	4	4	1	9	43
	Expert SDH	2	0	1	0	3	14
	Researches	0	3	1	0	4	19
Approach	Identification & Prioritization SDH	3	0	0	0	3	14
	Description state SDH	1	2	1	0	4	19
	Associations SDH with Health& illness	0	5	4	1	10	48
	Prevention interventions Evaluation	0	0	3	1	4	19
Focus	Yes, WHO model	3	1	4	1	9	43
	No, WHO model	1	6	4	1	12	57
Language	Persian	1	7	2	2	12	57
	English	3	0	6	0	9	43
Year of publication	2005-2009	0	5	0	0	5	24
	2010-2014	4	2	8	2	16	76

Social determinants and factors affecting the health inequalities in Iran

Correct and complete identification and understanding of the SDH has been considered by researchers and policymakers. The summary results of the present systematic review have been presented in Table 2.

The results showed that 4 articles had been published in Iran on the identification of determinants, sub-determinants, priority determinants, as well as the experiences of previous interventions, future approaches, and organizations responsible for SDH and health inequalities. In this section, the results of studies indicate the emphasis on the cooperation, coordination and interaction of all organizations responsible for SDH and health inequality in Iran.

Structural determinants of SDH in Iran

The results of studies on the effects of structural determinants in Iran indicated the effects of these determinants on health. The characteristics of the similar studies, which were 7 articles, have been shown in Table 3.

Table 2: Summary results of SDH and factors affecting the health inequalities in Iran

Citation	Aims	Summary results
(27)	Analyzing the systematic relationships among social factors affecting Iran health system and identifying their causal relationships	In this study, 10 SDH in Iran according to the WHO conceptual framework of SDH and also their causal relationships and their effects on each other were studied. Based on the results, health is intersectional and the improvements in health indicators are not affected only by the Ministry of Health and Medical Education (MoHME) performance, but need cooperation, coordination and interaction of all social and economic organizations.
(32)	Identifying and prioritizing factors affecting health disparities and inequalities in Iran	15 main determinants and 31 their sub-determinants were determined as SDH inequalities. The socioeconomic status, living facilities such as housing, and social cohesion had the greatest effects on reducing inequalities in health. However, many inequalities in health distribution had been inevitable.
(33)	Studying the experiences of previous social interventions affecting people's health in Iran in the past 30 years	Identifying eight priority determinants of SDH, describing the activities and actions taken by the country executive organizations during the past 30 years in order to improve SDH, and offering suggestions for future improvements in SDH indicators
(34)	SDH and influential organizations in Iran	Identifying 25 SDH in Iran and determining the organizations in the country having the greatest effects on health with this approach such as Governor Generalship, University of Medical Sciences, Islamic Republic of Iran Broadcasting (IRIB), Departments of Education, Social Security Organization, Environmental Protection Organization, Ministry of Agriculture, Ministry of Commerce, Water and Sewage Company, Ministry of Youth and Sports, Imam Khomeini Relief Committee, Ministry of Industries and Mines, Ministry of Roads and Urban Development, Police, and Medical Council.

The results of the present systematic review showed that the focus of aims and results of the studies had been more on the individuals' health association with their income and economic status. The structural determinants of health can be described as the SDH inequity.

Intermediary determinants of SDH in Iran

The results of the current systematic review showed that most of studies conducted in Iran had been on intermediary determinants. The summary results of 8 articles have been presented in Table4.

Table 3: Summary results of Structural determinants of SDH in Iran

Citation	Aims	Summary results
(35)	Studying some social determinants of health and social equity relationships with the children's health status in Iran	According to the SDH conceptual model, the associations of 4 structural social determinants, including gender, income, education, and ethnicity, which their inequalities and inequities have great effects on health, with the children's health status in Iran were confirmed.
(36)	Evaluating the effects of socioeconomic inequalities on the indicators of health and health development such as life expectancy	Social factors such as gender, expenditures per capita, non-food expenditures of households, education, socioeconomic subgroups, family size, had significant associations with mortality rates and life expectancy.
(37)	Study of the association between income inequality and health in Iran	Income inequality in the society was known as the most important factor affecting the health in Iran. During the study period, life expectancy had declined and mortality rate had increased with the increase in inequality. The government, as a policy maker, should attempt to reduce inequalities through making redistributive policies.
(38)	Study of the health inequalities and the role of social trust as a social determinant of health in cancers	Every more effective social intervention can be developed and implemented to reduce the risk of cancer through adopting an interdisciplinary approach. Social trust, as a social determinant of health was not a valid social determinant of health inequality affecting cancer.
(39)	Developing the model of age, gender, employment status physical health, mental health factors effects on the social capital determinants in Tehran	Social trust is affected by, respectively, family size, physical health and age. Social capital is directly affected by employment status, marital status, family size, education, physical health, and length of stay and life in the place. Planning to improve education, employment status, physical health, and living facilities, marital status and utilities can increase the social capital in Iran.
(40)	Reviewing the studies conducted in Iran on the association between income and health, and the related effective strategies	About 40% of the studies reporting significant association between health status and income had shown that the health status had been poorer in the groups with weaker economic status; however, other studies had not shown the type of association and causal relationship. Understanding and identifying the type of association and causal relationship between income and health status requires further studies conducted by using appropriate methods.
(41)	Study of the association between economic poverty and health-related quality of life	Deprivation and poverty is one of the most important SDH which can lead to the decrease in the health-related quality of life. Promoting social and economic status of disadvantaged and deprived individuals can improve the health status and quality of life. Further studies are required in this field.

Table 4: Summary results of the intermediary determinants of SDH in Iran

Citation	Aims	Summary results
(42)	Using SDH to prevent disability by laying emphasis on maternal lifestyle during pregnancy	According to the SDH conceptual model, life style is an intermediary determinant affecting health in different ways. Considering the importance of the pregnancy period because of the possibility of emerging and developing disabilities and the importance of attention to the mother and infant's SDH in Iran, it is essential to provide the required care and public education.
(43)	Study is first 3 years performance assessment of the Provincial Health and Food Security Council members in Iran(PHFSCs.)	In this study, the performance of the Provincial Health and Food Security Councils(PHFSCs) and its effects on food, which was a social determinant of health, had been evaluated. The results show that the meeting agendas of the PHFSCs were less following the major prioritized health issues of provinces and national burden of diseases; and though the majority of issues were related to the communicable disease control, the control of non-communicable diseases risk factors was not paid careful consideration. .
(44)	Study of the association between social determinants of health and survival of colorectal cancer patients	SDH had important effects on the status of cancer patients. The results indicated that SDH had effects on improving patients' survival. Planning on these determinants is necessary in the long run.
(45)	Study of the SDH role in the prevalence of low birth weight in Iran	Low birth weight provides a crucial basis for all life and investment in period is the greatest potential for reducing health inequities in a generation. The structural determinants (demographic factors), socioeconomic factors, lifestyle and social support had effects on low birth weight, and demographic factors had the greatest effects.
(46)	Study of the impact of some macro-economic factors specially inequality factors on the Iranian rural health status since 1986 through 2012.	Inequality in households and individuals' consumption expenditures is one of the most important aspects of health status difference among households and individuals. There was a significant negative correlation between transloged forms of maternal mortality rate. Iranian policy makers should consider the rural health and food expenditures inequality and try to adopt more effective policies and plans to decrease it and should improve the macro-economic factors to improve the rural households' health status.
(47)	Study of the relationship between working conditions, socioeconomic factors, and birth weight	Based on the path analysis model, working conditions socioeconomic status had direct and indirect effects on low birth weight among the employed women. Thus, in addition to the attention to treatment and health care (biological aspect), special attention should also be paid to mothers' socioeconomic factors.
(48)	Study of the association between family health and the influential environmental factors	The family health is affected by the society. Social, political, economic status, as well as the social institutions had structural effects on the family both directly and indirectly.
(49)	Formulating a Conceptual framework of associations between urban man-made lakes and social determinants of health	Two structural and mediating determinants categories as well as their sub-sets were created. In addition, some extra sub-sets including environment, air quality, weather changes, noise pollution, pathogenesis, quality of life, shortage of available resources, region popularity, ethnicity, tourism, social and physical development of children, unintentional injuries, aesthetic, and spirituality were known as the influential factors which were placed in the relevant themes. The results showed that the quality and kind of artificial lakes created in the urban communities could have a significant effect on the community health and wellbeing. Therefore, in order to enhance the positive effects and reduce the negative effects of the development projects in the community, their effects on public health should be considered.

Context determinants of SDH in Iran

Governance, macroeconomic policies, social policies (labor market, housing, and land), public policies (education, health, and social protection), culture and societal values are the context determinants have been referred to in the WHO conceptual framework. The most important context determinants are those that play the greatest role in creating inequalities and may differ from country to country.

Table 5: Summary results of context determinants of SDH in Iran

Citation	Aims	Summary results
(50)	The evaluation of the role of the family physician program, as a health program, in education, economics and social issues of the population covered: overview policy maker, manager and society	According to the WHO conceptual framework of SDH, social and health effects were evaluated. The results showed that the family physician program had associations with some socioeconomic factors. However, it had not any significant association with the culture and lifestyle. From the participants' perspective, the most important roles of the family physician program were in reducing health care costs and easy access to services which had improved the quality of life and welfare of the population.
(51)	Reviewing social health situation of Iranian community and analysis of its determinants, improvement strategies have been provided and MoHME proposed.	Several approvals and interventions were being followed by the authorities to reduce the social harms and improve the social health. However, they were inadequate for various reasons such as improper interventions, focusing on tertiary prevention, the lack of attention to the macro-economic and international issues, etc. , and required the cooperation of all sectors to perform effective and health-centered interventions. In this study, a conceptual model was proposed for social health in Iran that included the following components: supportive and encouraging social environment, healthy social behavior, access to the health services and health education.

Discussion

The present study reviewed 21 scientific published articles presenting a picture of the status of studies conducted on the SDH in Iran. Despite the growth of SDH publications on the SDH over the past years in Iran, there are still relatively few papers published in scientific journals related to policies and interventions focused on real experiences to tackle health inequalities. Different factors may contribute to this fact. As the literature shows, searching for studies on the SDH or health inequalities is difficult and time-consuming (52). The wide range of the SDH has led to the heterogonous combination of their studies which has made it difficult to access the required data (30).

Given the wide range of the SDH and their effects on health, the results of these studies show that SDH in Iran need further scientific research and evidence in all areas. The results of studies in this systematic review indicate that the importance of focusing on and adopting the SDH approach has been proved in Iran and is consistent with the results of studies conducted in other countries. (30,52)

Based on the results of this study, health is intersectorally and the development of health indicators is not only influenced by the performance of the Ministry of Health and Medical Education (MoHME) and requires the cooperation, coordination and interactions of all social and economic organizations to which the majority of studies have pointed (27, 32, 34, 51).

The results indicated the social health progress will not be achieved without intersectorally collaboration. Improvement of existing situation is not under duties and responsibilities of MoHME and designing corrective requires the cooperation, coordination and interaction of all the social and economic organizations. The roles of the MoHME in improving the social health in the country including knowledge development, advocacy to be done by other sectors and leadership, coordination of other organizations and providing special services (43, 53).

Explaining the role of organizations and their activities in making policies on developing SDH interventions in Iran was one of the studied articles challenges to which very little attention had been paid. However, these articles had given more consideration to the investigation of the past and current measures which have been taken. To develop effective interventions, it is required to conduct intersectional studies in collaboration with the stakeholders so that the future strategies and plans to be useful.

CSDH framework provides guidance for policy makers by which inequalities in health can be prevented. Strengthening national and global health equity means going beyond the current focus on primary and direct causes of diseases. The recent

WHO review of social determinants suggests that addressing the "causes of the causes" is the right way to reduce health inequalities and CSDH emphasizes on roots of factors threatening health (17, 19). Fortunately, the results of studies conducted in Iran showed that although the necessity and importance of identifying the components and determinants had been understood, only the design of a limited number of studied researches (9 articles) was according to the CSDH framework. Therefore, it is required for future studies to be conducted according to the WHO conceptual framework. According to the results of the present study, about half of the studies were descriptive and descriptive-analytic, and their required data had been collected using researcher-made instruments and questionnaires. The type of study and the instruments and questionnaires used for collecting data have great effects on the outputs and results. Therefore, the diversity of the type and design of the SDH studies have been seen not only in the studies conducted in Iran but also those conducted in other countries. Thus, the type of study and the instruments and questionnaires used should be paid special attention in the future studies. Also, the target population should be considered carefully because the target population of more than 40% of the studied research in the current study, which was the different community members, was not appropriate in terms of its diversity (age, gender, racism, ethnicity, etc.) and samples volume had not generalizability.

The results of the present study about structural determinants showed that deprivation and poverty was one of the most important SDH which could lead to the decrease in the health-related quality of life (35-39, 44-45, 49). In all studied research conducted in Iran, the income and economic inequality associations with health have completely proved, however, the results of a study showed that understanding and identifying the type of association and causal relationship between income and health status required further studies conducted by using appropriate methods (40). In the current study, the researchers of only one research had specifically studied the associations of 4 structural social determinants, including gender, income, education, and ethnicity with the children's health status. Ethnic diversity in Iran has led to the different population behavior among different Iranian ethnics and it is required to conduct studies on these populations (35). In many studies, researchers have examined the association between education and health from the SDH perspective and have concluded that there is a positive association between them (30, 35, 45, 52). In addition, there are different studies investigating the gender and gender inequalities associations with health (35), which requires more accurate evidence and studies. Accordingly, some challenges of studies conducted in Iran on the structural determinants are the lack of a clear framework and proper methodology for conducting studies and the existence of knowledge gap in the structural sub-determinants such as education, age, gender and ethnicity.

According to the present study, the most of studies in Iran had been conducted on the intermediary determinants. The results of this systematic review showed that, among intermediary determinants, lifestyle had been paid more attention. However, very few studies were found on the other sub-determinants such as living conditions, working conditions, nutrition and food security, and housing. Therefore, it is required to conduct some studies on these sub-determinants. Based on the results of the current study life style is an intermediary determinant affecting health in different ways and lifestyle is originated from the culture and social and economic conditions. Some health issues are easily preventable, but many others like physical inactivity, poor nutrition, smoking and substance abuse are deeply rooted in one's culture and socio-economic status, and are very difficult to deal with (45). Also, only one study had been conducted on the working conditions investigating the effects of physical activities, job satisfaction, household income and unemployment on the low birth weight among employed women (47). In two studies, the researchers concluded that the working conditions have great effects on the inequalities (6, 30). In another study, the researchers evaluated the performance of the Provincial

Health and Food Security Council and its effects on food, which was a SDH determinant, and concluded that this council had low effectiveness and classified its reasons into three groups, including macro (legal & public policies), functional (structural) and cultural (behavioral) (43, 51). The results of another study conducted on food and food security, and found in the present systematic review showed the economic inequality in food and its effects on the rural households' health (46). Despite the effects of intermediary determinants on public health and their clear classification in the models (7, 32), the lack of scientific evidence about housing, living conditions, employment and unemployment, stress, addiction, water and environment, and access to the health services is evident.

The fewest number of studies had been conducted on the context determinants. In this systematic review, the results indicate that the growth of social harms in Iran by an annual average of 15%. Several approvals and interventions were being followed by the authorities to reduce the social harms and improve the social health. However, they were inadequate for various reasons such as improper interventions, focusing on tertiary prevention, the lack of attention to the macro-economic and international issues, etc., and required the cooperation of all sectors to perform effective and health-centered interventions. In other words, these goals couldn't be achieved only by the Ministry of Health and Medical Education measures and activities (51).

According to the important role of context determinants in the creation of social inequalities, as well as the differences of context determinants among countries, there is a gap in knowledge and scientific evidence in Iran. For example, religion and ethnicity are important in some countries such as Iran; however, they are not important factors in other countries (32, 35). Therefore, studies should be conducted according to the structural characteristics of each social class in Iran, and required planning should be done to improve the health.

Furthermore, 4 articles had been published in the field of identifying the determinants and had provided scientific information for policymakers. It is recommended that these articles to be used as the basic studies for developing the preventive interventions. Developing and evaluating the preventive interventions in the SDH in Iran had been studied only in 4 articles. This approach requires further and more accurate research and the similar studies have also emphasized more on this approach (30, 52). The results showed that the most of studies had been conducted on identifying, describing and proving the associations between social determinants and health, indicators and diseases. . However, it should be noted that the determinants and "causes of the causes" of diseases should be identified in line with making the preventive policies and interventions. It seems that the importance of recognizing and describing the SDH in Iran has been explained in the studies and now is the time for conducting more careful studies on determinants and factors of SDH. Every more effective social intervention can be developed and implemented to reduce the risk of diseases and deal with health inequalities through adopting an interdisciplinary approach.

In this field, many studies have been conducted in Iran and other countries. According to the results of the present study, what should be considered is using the WHO framework for studying the SDH, as well as considering the inequalities, structural, intermediary and context determinants.

This systematic review is the first review of the SDH in Iran in which the researchers tried to follow the steps of PRISMA standard protocol. However, this study had some limitations. The lack of access to Web of Science database, the lack of access to authors of published article, the limitation of search facilities in Iranian databases, and the low quality of some Persian articles were the main limitations of the present study.

Recommendations

Future research on SDH should be conducted based on mixed method so that the sub-groups related to the SDH in Iran be explored by qualitative study and their measurement be performed

using quantitative tools. In this way, the health policy makers can use the results of these studies to design and implement appropriate and effective interventions to reduce health inequalities and inequities.

Conclusion

The publication of articles on the SDH in Iran has increased considerably over the past 10 years. However, there are few studies conducted according to the WHO conceptual framework of SDH in the scientific journals and databases. The focus of studies is not on the actual experiences to deal with health inequalities and make policies and interventions effective. In order to fill the gap in the scientific evidence of SDH and make appropriate policies and plans in Iran, it is needed to conduct studies on all SDH according to the WHO conceptual framework.

Ethical considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgements

Our study was funded by Baqiyatallah University of Medical Sciences. The authors declare that there is no conflict of interests.

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