The Slums in the Mirror of Health: A Systematic Review Analysis from IRAN

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Abstract

Background: One billion worldwide population are living in slum areas that mostly accompanied with high rates of poverty, illiteracy, unemployment, unhealthy situation, and inappropriate health-care services. The prediction of enormous growth of slums by 2030, led to a raise to address the “plight of slums” in Sustainable Development Goals (SDGs). To address evidence based health related priorities, we conducted a systematic review to summarizing evidences on health situations of slums population in Iran.

Methods: Six electronic databases were systematically searched for published studies without any restriction on age, time and language to assess health situations of slums in Iran by following the PRISMA protocol. All identified articles were screened, quality assessed and data extracted by two authors independently.

Results: The finding of this systematic review in addition to overall view categorized in five categories: Health System, Reproductive Health, Infectious Diseases, Non-communicable Diseases and Their Risk Factors, Social Issues besides overall situation of Slums.

Conclusions: Community-based participatory interventions with socioeconomic approach on modifiable risk factors; active response of health system; establishment new health care centers in slum areas; augmenting the quality of care; active case finding; and elevating health knowledge, attitude, and practice among slum dwellers is crucial to achieving SDGs.

1. Background

Over the past decades, rapid urbanization was accompanied by the slums expansion, mainly in large in low-income and middle-income countries (LMICs) (1). Due to relative poverty, lack of security, lack of financial resources and lack of political commitment, slum inhabitants are often vulnerable in comparison to other areas (2) and morbidity and mortality for several health problems are worse in slum residents than other populations (3). Slumming is usually seen as a "breeding ground" for social problems such as crime, drug and alcohol addiction, high rates of mental diseases as well as suicide (4). A study revealed that morbidity rate in slum area was higher than other area with better socioeconomic status (5). Also, the other studies demonstrated slums people in the less-developed countries faced to major problems of child health related to access to safe water and sanitation (6) and more infant or child mortality and also infectious diseases (7, 8). Accordingly, by the rapid growth of slums in LMICs, we need to reduce health inequity, and promote environmental and health status particularly in slum and disadvantaged areas in middle east (9).

In Iran, slums expand by growing urbanization and hosting several thousand migrants from rural areas to large cities (10, 11). Unfortunately, the poverty, unemployment rate, and maternal and neonatal mortality rates in slum area was higher than urban area of Iran (12). Also, risky behavior, and infectious diseases including HIV/AIDS, hepatitis B and C, and sexually transmitted diseases (STD) was more obvious in

disadvantaged area in Iran (13). Despite many advancements in deprived areas in Iran, such as access to safe water, primary health care, and social services, there is need to specific interventions (14, 15).

So, there is need to urgent action to reverse their current situation. To make cities and human settlements inclusive, safe, resilient and sustainable as a Sustainable Development Goal (SDG) (16). We should be implement appropriate interventions to improve slums health. In this way, we must find ways to motivate key local policy makers for partnership and resource mobilization to improve health outcomes in slums. As, slum-specific health priorities might be different from the national or even urban area (17), this review aimed to provide an inclusive picture of slum's health related situations in Iran based on conducted studies for implementing multiple interventions for multiple outcomes.

2. Methods

This systematic review followed the aim of study to create a comprehensive, and reliable evidence for health related conditions contributing to slums in Iran.

2.1. Terms' Definition

Slums defined as "a densely populated usually urban area marked by crowding, dirty run-down housing, poverty, and social disorganization." (17) and the World Health Organization (WHO) defined human health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." (18).

2.2. Data sources and search strategy

We carried out a systematic search among three international databases; PubMed/Medline, Institute of Scientific Information (ISI), and Scopus. In addition, as the study setting in this systematic review was Iran, we searched three national bibliography databases; IranMedex, Scientific Information Database (SID), and Irandoc from 1990 to 2020, but without language restriction and limitation on sex and age.

To obtain the most comprehensive and efficient results, we searched these data sources using Medical Subject Headings (MeSH) terms, Emtree, and related keywords. Moreover, in national databases, we considered related Persian keywords in addition to English search terms. In search strategy, we considered "Poverty Area*" OR suburban OR ghetto* OR shant OR shack* OR bidonville* OR bustee* OR bosti* OR squat* OR "informal settlement" OR barrada OR "barrio baja" OR taudi* OR "irregular settlement" OR "informal housing" OR favela OR basti besides slums OR slum. Geographic area limited to Iran by considering various related search words such as Iran, I.R. Iran, Iranian, and Persia. To achievement additional studies, we reviewed manually the references and citations of relevant articles. In this way, we included primary studies identified from searching the references from other review articles identified in the search that fitted inclusion criteria. All kinds of published studies performed in Iran related to slums health were included. We included related studies to health of slum involving various aspects of health of urban slum dwellers. The full electronic search strategy in PubMed present in Table 1.

Table 1
Search strategy in PubMed

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((("Poverty Area"[Title/Abstract] OR suburban[Title/Abstract] OR ghetto*[Title/Abstract] OR shunt[Title/Abstract] OR shack*[Title/Abstract] OR bidonville*[Title/Abstract] OR bustee*[Title/Abstract] OR bosti*[Title/Abstract] OR squat*[Title/Abstract] OR "informal settlement"[Title/Abstract] OR barrada[Title/Abstract] OR "barrio baja"[Title/Abstract] OR taudi*[Title/Abstract] OR "irregular settlement"[Title/Abstract] OR "informal housing"[Title/Abstract] OR favela[Title/Abstract] OR "basti besides slums"[Title/Abstract] OR slum[Title/Abstract])) OR ("Poverty Area*" OR suburban OR ghetto* OR shunt OR shack* OR bidonville* OR bustee* OR bosti* OR squat* OR "informal settlement" OR barrada OR "barrio baja" OR taudi* OR "irregular settlement" OR "informal housing" OR favela OR "basti besides slums" OR slum[MeSH Terms])) OR ("Poverty Area"[Other Term] OR suburban[Other Term] OR ghetto*[Other Term] OR shunt[Other Term] OR shack*[Other Term] OR bidonville*[Other Term] OR bustee*[Other Term] OR bosti*[Other Term] OR squat*[Other Term] OR "informal settlement"[Other Term] OR barrada[Other Term] OR "barrio baja"[Other Term] OR taudi*[Other Term] OR "irregular settlement"[Other Term] OR "informal housing"[Other Term] OR favela[Other Term] OR "basti besides slums"[Other Term] OR slum[Other Term])
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AND

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((iran OR iranian OR i.r.iran OR persia[MeSH Terms])) OR (iran[Other Term] OR iranian[Other Term] OR i.r.iran[Other Term] OR persia[Other Term])) OR (iran[Title/Abstract] OR iranian[Title/Abstract] OR i.r.iran[Title/Abstract] OR persia[Title/Abstract])
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AND

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((health[MeSH Terms]) OR health[Other Term]) OR health[Title/Abstract]
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Publication date from 1990/01/01 to 2020/12/31

2.3. Study selection, and data collection process

At the first stage of study selection process, the two reviewers read the titles and abstracts independently. If they did not related to our study objectives, these articles excluded. We included original articles. To achieve comprehensive results, review articles considered for backward and forward assessment of their references and citations. Qualitative studies, letters, editorial and all of other article types were excluded.

In second stage, for all of included articles, full texts reviewed by two independent reviewers for quality assessment and data extraction. In cases of difference between reviewers, the third reviewer resolved discrepancy.

2.4. Quality assessment and data extraction

For quality assessment of included articles, we used the critical appraisal skills program (CASP) checklists (19). The assessment conducted by two independent reviewers. Discrepancies have resolved by a third reviewer. Risk of biases assessed in individual studies based on mentioned tool.

Data extraction sheet was designed including two main parts of; study characteristics', and extracted data. The study characteristics sheet contained; article's specifications, corresponding author's characteristics, study's method, and study's quality scale. The data extraction sheet also, contains

detailed information on prevalence of outcome, Odds ratio (OR), main conclusion and comments. In Fig. 1, the process of Study selection, and data collection process reported according to PRISMA Flow Diagram.(20)

2.5. Data synthesis

We systematically categorize results according to various aspects of health in slums. So in this review, each aspect of results summarized and presented in different tables.

2.6. Ethical consideration

As this study is a systematic review, it didn't need to ethical approval. Regarding ethical consideration in this study, we cited all scientific documents

3. Results

Considering inclusion and exclusion criteria, of 126 articles, 78 abstracts screened and consequently 25 articles that met eligible criteria remained for data extraction (Fig. 1). All retrieved articles published in English or Persian language and related to 2001 to 2019. Three interventional study, a historical cohort study, a case control study, a descriptive analysis of information in health centers, two data analysis of referral system and screening, and remained article by 18 cross sectional study bring out this systematic review results. All studies were at sub-national level. Except two study that use information of referral systems, the others targeted households or individual people live in suburban and slums area. In general, present result attributed to 1769 household, 35918 individuals (4164 children), and 374 peoples attempt to suicide. Eight studies focused on female sex and the remained considered both sex. In included articles, health related subjects were studied. Therefore, we categorized them according to their main theme in seven categories; *Quality of life, Reproductive health, Communicable diseases, Non-communicable diseases and their risk factors, Mental health, Social health, Health system*. The result of one article present in three categories. The details of results presented in Table 1.

3.1. Quality of life

Four articles address Quality of life in slums of Kermanshah, and Hamadan. Their participants' recruitment was done through random sampling methods. They were young-adult. Two studies focused on female sex, and the others considered both sex (21–24).

The studies revealed that women worried about their security and health. The woman reported the health related quality of life factors in slums were not acceptable they need to improve physical ,and environmental health. The other study on women demonstrated one fifth of participants were not satisfied from their leisure time. Unavailability of facilities and their economic situation led to unpleasant leisure time for them (22, 23).

The studies on both sex shown the slum residence have not been satisfied with physical environment. Also, the slums had concern about their social and environmental situation. They need to socio-environmental promotion, socioeconomic status improvement, and their awareness increment related to quality of life. Comparison the mean scores of health-related quality of life subscales revealed the mean score in mental health was lower than general health (58.67 vs 60.41) (22, 24).

3.2. Reproductive health

From three studies categorized in reproductive health subject, two case related to child health and the other one was about women health. A case control study in slum area of Ardabil revealed that the important cause of death among neonates was prematurity and congenital abnormality. There was association between neonatal mortality and parents' education, income, and smoking of father (25).

A two years' interventional study on under five children living in slum area of Kerman bring about decrease stunting and proper nutrition in children. This study showed positive correlation between appropriate nutrition status and mothers' literacy and their socioeconomic level (45).

A study in Shiraz demonstrated about 5% of the eligible women use contraceptive method, and about 50% of slums women screened by pap smear test. About One third of pregnant women hadn't received prenatal and postpartum care. The most important reason of this situation was low awareness of women, and low access of them to health services in slum area. (15)

3.3. Communicable Diseases

Three studies in slums area of Gorgan and Mashad, and Shiraz performed through a screening data analysis, a descriptive study on health centers information, and a cross sectional study, respectively. These studies showed tuberculosis (TB) incidence rate in slums of Gorgan was 17.5 per 100000. In addition, they revealed living area situation such as living near major traffic arteries correlate with risk of TB in Mashad (28, 29).

The other study in Shiraz showed the prevalence of leishmaniosis in slum area was 8.5% witch one third of them referred to public health sector. Also, HIV infection was important issue in this area, but 18.6% of slum residential had poor knowledge about prevention of HIV/AIDS.(15)

3.4. Non-Communicable Diseases and their Risk Factors

Three cross sectional study by participation women of slum area address the risk factors of NCDs. These studies showed unhealthy life style and unsuitable health status of slum dwellers women. Among them, inadequate intake of fruits and vegetables, low physical activity, and smoking were considerable health problems in slums of Bandar-abbas, Zahedan, and Tehran (31, 32, 34).

A community based intervention in suburb residence of Yasouj showed the effect of nutrition education and physical activity promotion on decreasing FBS, HbA1C, TG and cholesterol significantly (33).

3.5. Mental Health

A cross sectional study in suburb area of Tehran showed the inhabitants preferred receiving help from friends. In addition, most of them had concern about cost of mental health services. The other study in Tehran demonstrates 67.1% of Self-burning suicide cases were residents in suburban areas. Self-burning suicide was frequent in females, youth, and who had low level education. Socioeconomic factors could be determinants of mental health status (35, 36).

3.6. Social Health

A cross sectional study in households living in suburb of Ardabil demonstrates the most prevalent social harms in this area was addiction, and stealing (38). Another study in Qom showed health indicators measure was lower in illiterate slums than educated people. There is correlation between social support and social health (37).

3.7. Health system

A comprehensive study in Fars province on 372 household slums showed one fifth of them has not access to health centers. Health care coverage among them was about 10%. The essential source of health information in slums was radio. Although, health workers had inconspicuous role in informing slums peoples. Inadequate awareness of slums' inhabitants about health care facilities was the main barrier of their utilization. But, vaccination coverage among children of this area was 98% (15).

The other studies about vaccination in slums settled in Kermanshah, Tehran, Esfahan, Arak, Mashhad, and Zahedan. These studies showed the most important reason for delay in vaccination was unawareness of parents about the time and necessity of vaccination. Delay in vaccination mostly occurred for MMR vaccination at 18 months. There is positive correlation between on-time vaccination and parents' educational level (40–42, 46).

The other study in Kerman demonstrate, 21% of people who required outpatient services and 31% of people who needed hospitalization were able to use these services. In slums of Karaj, a cross sectional study by participation of married woman showed they need to nutritional and psychological consultation (43).

4. Discussion

The considerable growth of urbanization in Iran (47) led to slums growth impulsively (48) that has not been matched by knowledge production in this area. In this systematic review, we tried to cover all relevant studies in Iran to summarize the evidence on different aspects of Iranian slums' health status. Our study verified the relationship between socioeconomic factors and health status based on included studies. Unfortunately, they fall to worse health situation because of poverty and unawareness (48).

In this regards, the other study reported that poverty, illiteracy, unemployment, low incomes, unfavorable living conditions, inappropriate housing, lack of security are the main characteristics of informal

settlement in slum areas (49). So, implementation of interventions by socio-cultural approach, and raise their awareness about health could be promote their situation (50).

Reproductive health is one of the most important issues in slums health. This systematic review revealed the association between neonatal mortality and parents' education, income, and father's smoking (25), Also the correlation between child nutrition status and their mother's education status was shown.(45) Unfortunately, low access to reproductive health services and low awareness of women about these services led to low utilization of them (15). Accordingly, improvement reproductive health services and develop appropriate interventions by considering cultural issues recommended in slum area (51).

Our study showed incidence rate of tuberculosis (28, 29), prevalence of leishmaniasis, and the importance of HIV infection in slums (15). The other studies emphasized on Mosquito-Borne diseases and Ebola in poverty (52, 53). A study indicate determined socioeconomic inequalities in infectious diseases (54). Now, by COVID-19 pandemic, we worried about this novel corona virus epidemic in slum area. Consequently, we should plan to control disease by train and set up community health workers in slum area and utilization previous experiences about communicable diseases (55).

In addition to infectious diseases, inadequate intake of fruits and vegetables, low physical activity, and smoking exposed slums to risk of non-communicable diseases (31, 32, 34). A study in Brazil demonstrated slum residents had higher prevalence of diabetes mellitus, overweight/obesity, and smoking compared to the general population (56). Another study Bangladesh showed all NCDs risk factors are high among the urban slum adults (57). Therefore, we need appropriate action plan for this population (58).

In addition to NCDs, mental health is an essential issue in this areas, especially in women and youth (35, 36). A Cross-Sectional Study among teenage girls living in urban slums in India revealed more than half of them had high levels of anxiety, depression, or psychological distress (59). These situations could be modified through participatory community-based interventions (60). There is some people who needed inpatient or outpatient services, but they didn't able to use the services (43). Multi-sectoral approach in establishment new health care centers, augmentation the quality of health care, developing counseling centers, and elevating health literacy among slum dwellers constitute major strategies that should be adopted in order to combat this challenges (58, 61, 62).

In our knowledge it was the first time that health status of slum dwellers in Iran has been reviewed systematically, but we faced to some limitations. The present study was dependent on validity and the applicability of its results to the quality of the initial included studies that considered by precise quality assessment. Because of data scarcity, variations in studied groups, differences in living areas, and inconsistency of the measures, we couldn't statistically compare and aggregate the results, but we summarize the information in different categories.

5. Conclusions

In conclusion, our findings could provide practical evidence about health situations of slums in Iran for better policy making and more detailed studies in this area. This important health issue required special attention of the government and policymakers to implement community-based interventions by socioeconomic and cultural approach to improve slums situation (49, 51), and we proposed health problem solving based on each community priorities (63).

Abbreviations

- LMICs: low-income and middle-income countries
- STD: sexually transmitted diseases
- SDG: Sustainable Development Goal
- WHO: World Health Organization
- ISI: Institute of Scientific Information
- SID: Scientific Information Database
- MeSH: Medical Subject Headings
- CASP: critical appraisal skills program
- OR: Odds ratio
- RII: Relative Index of Inequity
- TB: tuberculosis

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

Competing interests

The authors declare that they have no competing interests.

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Authors' Contributions

AR, contributed in data interpretation and drafted the manuscript; **MA**, systematically reviewed and interpreted data; **MM**, screened articles and extracted data; **NP**, conceptualized and supervised the study and critically edited and reviewed final version of the manuscript.

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Declarations of Interest

None.

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Table

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Figures

Figure 1

PRISMA Flow Diagram

Figure 1

PRISMA Flow Diagram

Supplementary Files

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