Macroeconomic policies and increasing social-health inequality in Iran

Rouhollah Zaboli1*, Seyed Hesam Seyedin2, Zainab Malmoon2

Abstract

Background: Health is a complex phenomenon that can be studied from different approaches. Despite a growing research in the areas of Social Determinants of Health (SDH) and health equity, effects of macroeconomic policies on the social aspect of health are unknown in developing countries. This study aimed to determine the effect of macroeconomic policies on increasing of the social-health inequality in Iran.

Methods: This study was a mixed method research. The study population consisted of experts dealing with social determinants of health. A purposive, stratified and non-random sampling method was used. Semi-structured interviews were conducted to collect the data along with a multiple attribute decision-making method for the quantitative phase of the research in which the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) was employed for prioritization. The NVivo and MATLAB softwares were used for data analysis.

Results: Seven main themes for the effect of macroeconomic policies on increasing the social-health inequality were identified. The result of TOPSIS approved that the inflation and economic instability exert the greatest impact on social-health inequality, with an index of 0.710 and the government policy in paying the subsidies with a 0.291 index has the lowest impact on social-health inequality in the country.

Discussion: It is required to invest on the social determinants of health as a priority to reduce health inequality. Also, evaluating the extent to which the future macroeconomic policies impact the health of population is necessary.

Keywords: Macroeconomic Policies, Social Determinants of Health (SDH), Inequality, Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), Iran

Introduction

During the past two decades, the public health attention has shifted toward the Social Determinants of Health (SDH). The World Health Organization’s Commission of Social Determinants of Health (CSDH) has defined SDH as the conditions in which people are born, grow, live and work (1). The term SDH includes factors which can influence health-related behaviors. Socio-economic factors such as income, wealth, and education fundamentally affect health outcomes (2). Also, social infrastructures and socio-economic policies are the major determinants of health (3).

Despite a dramatic growth of research in SDH and health equity and great interest of governments and policy-makers to promote equity in healthcare, there is little evidence that healthy public policies are being adopted and implemented (4–7). From the early 1990s to 2000, SDH was considered as the main concern of countries, but evidence shows that the social measures taken by these countries, particularly developing countries, to decrease the inequality and promote health justice were unsuccessful (8–11).

Health inequality means inappropriate system functioning which result in inequality in social status and living conditions. CSDH was founded in 2003 to study health justice. The report of CSDH in 2008 encouraged action against health inequalities and fills the gap between socio-economic and political factors through research on SDH.

The report proposed that inequities in power, money, and resources are responsible for the majority of the inequalities in health within and between countries (11–14). A toxic combination of poor policies and programs, unfair economic arrangements, and bad governance lead to inequalities in the conditions of daily life: the circumstances in which people are born, grow, live, work, and die (15).

Despite the improvement in health status during the past 30 years, health inequalities have caused various problems in different countries (16–18). Low- and middle-income countries face many challenges to achieve the Millennium Development Goals (MDGs). Developing countries should undertake appropriate efforts to promote maternal education, improve access to clean water and safe sanitation and better living circumstance. In developing countries, macroeconomic policies have a great influence on reducing health disparities (19–24), but there is little evidence about impact of macroeconomic policies on SDH (19,25,26).

One of the main challenges of healthcare systems of Iran is health inequality. Zaboli and colleagues reviewed and prioritized SDH in Iran. They believe, socio-economic status, living facilities such as housing, and social integrity had the greatest effect on decreasing health inequality in Iran (27).

Addressing SDH requires an understanding of the impact of macroeconomic policies and social policies on the health. Evidence-based policies must be relevant and integrated
into health systems to function efficiently (28–31). Based on the conceptual framework of social determinants of health inequality, this research aimed to determine the effect of macroeconomic policies on the social-health inequality in Iran based on expert opinion and identify the drivers of SDH in Iran.

**Materials and methods**

This study is a mixed method research which was conducted in two phases as presented in below:

**Qualitative phase**

The aim of qualitative phase of this study is to determine the main themes of macroeconomic policies on SDH. In this study, experts in SDH were the study population. Purposive non-random stratified sampling was used. We divided experts into three strata including governmental, academic and independent experts, and purposeful sampling were used based on the inclusion criteria. The aim was to include individuals from a variety of backgrounds. Experts in the areas of health management and policy, clinical, social science and other spatiality were identified and via recommendations from other recruited participants as well as individuals at SDH commission of ministry of health. Experts were defined as individuals whose past or present field contains the subject under study i.e. health policy, epidemiology, and/or clinician. Inclusion criteria followed recommendations which include evidence of expertise, understanding of the problem area, reputation, availability, and willingness to participate. Experts were invited to take part in the research via walk-through and personal visit that explained the aim, methods, and use of study data. We also used semi-structured interviews to collect qualitative data. The interview guide included a number of main questions regarding the SDH. The conceptual framework of study was based on the CSDH model in Figure 1. A pilot interview was conducted. Interviews were continued to reach the data saturation. The participants in this study were 24 experts. Data were collected during December 2012 and April 2013. The majority of participants were based in Tehran.

The interviews were transcribed and the transcriptions were sent to the interviewees for confirmation. Framework analysis technique was used using Nvivo software (QSR International, Australia) for the analysis. The main themes and constructs were extracted in the qualitative phase and in the quantitative phase they were prioritized.

**Quantitative phase**

The quantitative phase of this study is aimed to prioritize and determine factors with the greatest impact on the macroeconomic policies which result in social-health inequality in Iran. There are various decision-making methods. A Multiple Attribute Decision-Making (MADM) approach was used to obtain feedback from the experts at the study because there are useful and simple methods to deal with decision-making problems. This methodology builds on the frequently-used MADM techniques of Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). TOPSIS methodology has a simple process and easy to use and programmable but it overcomes some typical limitations that exist in relying on these deterministic techniques. It is difficult to weight attributes and keep consistency of judgment, especially with additional attributes. TOPSIS is one of the compensatory classic methods in MADM for prioritization based on similarity to ideal solution. The Simple Additive Weighting (SAW) method was exploited to identify the weights of each factor (33–35). The experts could use the following nine-points for expressing the intensity of the preference for one criterion versus another:

- 1= Equal importance or preference
- 3= Moderate importance or preference of one over another
- 5= Strong or essential importance or preference

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**Figure 1.** Final form of the CSDH conceptual framework (Reprinted with permission from WHO (32) (p. 7)
7 = Very strong or demonstrated importance or preference
9 = Extreme importance or preference

The TOPSIS technique is consist of the following steps:
1. Compute the normalized decision matrix. The normalized value rij is calculated as:
\[ r_{ij} = \frac{f_{ij}}{\sqrt{\sum f_{ij}^2}} \quad j=1, \ldots, J \quad i=1, \ldots, n \]

2. Calculate the weighted normalized decision matrix. The weighted normalized value vij is calculated as:
\[ V_{ij} = w_i r_{ij} \quad j=1, \ldots, J \quad i=1, \ldots, n \]

Where \( w_i \) is the weight of the i attribute or criterion, and \( \sum_{i=1}^{n} w_i = 1 \)

3. Determine the ideal and negative-ideal solution.
\[ A^+ = \{ V_{i1}^+, \ldots, V_{in}^+ \} = \{ (\max V_{ij} \mid i \leq n), (\min V_{ij} \mid i \leq n) \} \]
\[ A^- = \{ V_{i1}^-, \ldots, V_{in}^- \} = \{ (\min V_{ij} \mid i \leq n), (\max V_{ij} \mid i \leq n) \} \]

Where \( I^+ \) is associated with advantage criteria and \( I^- \) is associated with cost criteria.

4. Calculate the separation measures, using the n-dimensional Euclidean distance. The separation of each alternative from the ideal solution is given as:
\[ D_j^+ = \sqrt{\sum_{i=1}^{n} (v_{ij} - V_{ij}^+)^2} \quad j=1, \ldots, J \]

Similarly, the separation from the negative-ideal solution is given as:
\[ D_j^- = \sqrt{\sum_{i=1}^{n} (v_{ij} - V_{ij}^-)^2} \quad j=1, \ldots, J \]

5. Calculate the relative closeness to the ideal solution. The relative closeness of the alternative j with respect to \( A^+ \) is defined as:
\[ C_j^+ = \frac{D_j^-}{D_j^+ + D_j^-} \quad j=1, \ldots, J \]

6. Rank the preference order based on TOPSIS index. Its use of Euclidean distance does not consider the correlation of attributes; the index range does from 0 to 1. The whole process was performed by MATLAB software MATLAB (MathWorks Inc, Natick, MA).

Results
Twenty-four experts, 14 male and 14 female, in the area of health management and policy, clinical, social science, and others spatially were chosen. Their average age was 49.881 ± 14.263 years, and average years engaged in the work was 24.616 ± 11.542 years. The expert response rate was 100% (Table 1).

Based on the qualitative results, macroeconomic policies have an impact on health and health inequalities in the country. All participants believe that macroeconomic factors affect social health inequalities in Iran.

“One of the things that have a great impact on the health is the general policies debate in the country including setting the tariffs, share of private sector in the financing and delivery of health services and stewardship”.

Experts believed that the general economy instability have a big impact on social health inequalities.

“Economic uncertainty and high inflation impact on health inequalities and social determinants of health”.

Some experts highlighted the fact that the macroeconomics policies such as subsides are important in rising inequality “Macroeconomic policies, such as subsidies have made major problems in health financing”.

There were some discussions regarding private sector policies on health inequalities. It was reported by the majority of the interviewees that expanding the private sector role in health services delivery will have a devastating impact on the concept of justice especially on poor and low-income population.

Seven themes and fifteen subthemes of macroeconomic policies were identified in which affect the social-health inequality in Iran (Table 2). The themes are Inflation and economic instability, public and private sectors policies, overall economy situation, health policy, out-of-pocket, policies context and the subsidies.

Based on experts' knowledge, we prioritized these factors as follows: Inflation and economic instability has the greatest impact on social-health inequality, with a 0.710 as a TOPSIS Index and the subsidies with a 0.291 as a TOPSIS index has the lowest impact on social-health inequality in the country (Table 3).

Discussion
Despite major advances in medicine and public health during the past few decades, there are disparities in health and healthcare inequities. Evidences show in order to decrease health inequality, macroeconomic policies in all of the countries must be appropriately considered. Policy-makers should attempt to reduce health inequality by paying attention to SDH. Current approaches to SDH generally focus on population-level and policy interventions. Public policy that seeks to achieve sustainable improvements in the SDH,

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>Subject Area Studied</th>
<th>Work Experience</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male n (%)</td>
<td>Female n (%)</td>
<td>HMP n (%)</td>
<td>C n (%)</td>
</tr>
<tr>
<td>Experts</td>
<td>14 (50)</td>
<td>14 (50)</td>
<td>6 (25)</td>
<td>7 (29)</td>
</tr>
</tbody>
</table>

HMP = Health Management and Policy, C = Clinical, SS = Social Science, OS = Other Specialty
The subsidies
General environment, trustfulness of the economy, trade rule, market to participate in well-being
0.623

Policies context
Health in all policies, market penetration, the incentive made for organizations
Inflation and economic instability
To increase the price of services, catastrophic expenditures
0.355

Public and private sectors policies
To empower the people, available programs and services related to SDH
6

Social determinants of health inequality
0.380

Inflation and economic instability
To increase the price of services, catastrophic expenditures
0.573

Economic factors
Increasing the OOP payment, weakness of social insurance
0.469

Health policy
To empower the people, available programs and services related to SDH
0.346

Out-of-pocket
Health in all policies, market penetration, the incentive made for organizations
0.572

Subthemes
4

Economic factors
0.631

Health policy
0.573

Out-of-pocket
0.556

Policies context
0.393

The subsidies
0.380

A6 Economic factors
General environment, trustfulness of the economy, trade rule, market to participate in well-being

A7 Inflation and economic instability
To increase the price of services, catastrophic expenditures

Table 2. Frame-worked-Derived Themes and Constructs

<table>
<thead>
<tr>
<th>Items</th>
<th>Themes</th>
<th>Subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Public and private sectors policies</td>
<td>Policy-making process, trust in results, to increase market power in health</td>
</tr>
<tr>
<td>A2</td>
<td>Health policy</td>
<td>To empower the people, available programs and services related to SDH</td>
</tr>
<tr>
<td>A3</td>
<td>Policies context</td>
<td>Health in all policies, market penetration, the incentive made for organizations</td>
</tr>
<tr>
<td>A4</td>
<td>Out-of pocket</td>
<td>Increasing the OOP payment, weakness of social insurance</td>
</tr>
<tr>
<td>A5</td>
<td>The subsidies</td>
<td>To increasing the cost/benefit ratio</td>
</tr>
<tr>
<td>A6</td>
<td>Economic factors</td>
<td>General environment, trustfulness of the economy, trade rule, market to participate in well-being</td>
</tr>
<tr>
<td>A7</td>
<td>Inflation and economic instability</td>
<td>To increase the price of services, catastrophic expenditures</td>
</tr>
</tbody>
</table>

Table 3. Prioritize the social determinants of health inequality by TOPSIS technique

<table>
<thead>
<tr>
<th>Items</th>
<th>Social determinants of health inequality</th>
<th>Separation from the positive-ideal solution $d_j^+$</th>
<th>Separation from the negative-ideal solution $d_j^-$</th>
<th>TOPSIS Index $C^*_j$</th>
<th>Rank the preference order</th>
</tr>
</thead>
<tbody>
<tr>
<td>A7</td>
<td>Inflation and economic instability</td>
<td>0.258</td>
<td>0.631</td>
<td>0.710</td>
<td>1</td>
</tr>
<tr>
<td>A1</td>
<td>Public and private sectors policies</td>
<td>0.346</td>
<td>0.573</td>
<td>0.623</td>
<td>2</td>
</tr>
<tr>
<td>A6</td>
<td>Economic factors</td>
<td>0.411</td>
<td>0.572</td>
<td>0.582</td>
<td>3</td>
</tr>
<tr>
<td>A2</td>
<td>Health policy</td>
<td>0.469</td>
<td>0.556</td>
<td>0.543</td>
<td>4</td>
</tr>
<tr>
<td>A4</td>
<td>Out-of-pocket</td>
<td>0.567</td>
<td>0.393</td>
<td>0.409</td>
<td>5</td>
</tr>
<tr>
<td>A3</td>
<td>Policies context</td>
<td>0.578</td>
<td>0.355</td>
<td>0.380</td>
<td>6</td>
</tr>
<tr>
<td>A5</td>
<td>The subsidies</td>
<td>0.625</td>
<td>0.257</td>
<td>0.291</td>
<td>7</td>
</tr>
</tbody>
</table>

such as income, education, housing, food security, and area conditions, can create positive and sustainable health effects (36–38). Significant improvements in population health are likely when the SDH are addressed (39).

There are few studies have been conducted in the health disparities. One of the most important studies is the Urban HEART survey in Tehran city. The results of this study showed that socio-economic inequalities exist in health status in Tehran. Since the root of this avoidable inequality is in outside the health system, a holistic health policy approach which includes social and economic determinants should be adopted to redress the inequitable distribution of health (40).

Results of previous studies suggested that health in all policies is an approach to health promotion. Public health, it was concluded, should be more concerned with social policies and social determinants than with health services and disease control (41). Health Impact Assessment (HIA) serves as a tool for policy-makers and planners when considering a new policy (42–46). Based on our finding, in Iran the most priorities on macroeconomics which affect health inequalities was economic instability. Results Studies of Lofters et al., Muntaner and Chung, O’Dea et al., and Parthasarathy et al. founded similar results and confirmed results of our study (47–50). Another theme which was founded in this study was private sectors policies. The private sector is making a growing contribution to healthcare in much of developing countries. There has been considerable interest in the growth of the private sectors in delivering of health services instead focusing on determinants of health (51–54).

The study suggested that the impact of macroeconomic policies on the health of people in the country must be constantly measured and before the implementation of new policies, positive or negative impacts of them must be investigated. Our results based on the experts’ opinions showed that weak financial protection plans and inadequate coverage of insurances, a high level of out of pocket in health financing have negative impact on community health (55–58). Macroeconomic policies such as the subsidies have great impact on the community health in the country and the effects should be measured. The commitment to addressing underlying in often named in the phrase "tackling health inequalities". Focusing of macroeconomic policies on equal distribution of determinants such as diets, housing, workplace condition is important for thinking about policies. Action on the SDH is needed across the life course, and in wider social and economic spheres to achieve greater health equity and protect future generations (11,59,60).

Socio-economic inequalities and their effects on health are one of the challenges that have recently attracted attention because improving health in affected societies is more difficult than helping patients in a healthy society. The majority of factors causing health inequality are distributed all over different social sectors. Therefore, it is necessary to take a multi-disciplinary approach in policy-making and to evaluate the probable effects of policies on health, particularly on the health of the most vulnerable groups of the society.

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Ethical issues
The study was approved by the ethic committee of Iran University of Medical Sciences.

Competing interests
The authors declare that they have no competing interests.
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Authors' contributions
Authors contributed to the publication of this article as follows: study concept and design (ZZ); analysis and interpretation of qualitative data (ZZ, SMS, and ZM); statistical analysis and interpretation of quantitative data (ZZ); critical revision of the manuscript (SHS).

Authors' affiliations
1Health Management Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran. 2Health Management and Economics Research center, Iran University of Medical Sciences, Tehran, Iran.

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Key Messages

Implications for policy makers

- Despite the improvement in health status, health inequalities have caused various problems in different countries. Hence, focus on tackling health inequalities should be the priority of policy-makers.
- Addressing Social Determinants of Health (SDH) requires an understanding of the impact of macroeconomic policies and social policies on the health. The main causes of health disparities root in economic and social inequalities.
- Social infrastructures and socio-economic policies are the major determinants of health. Policy-makers should improve the socio-economic status of the people. Public health, it was concluded, should be more concerned with social policies and social determinants than with health services and disease control.
- From the application of the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) methodology to a real case, the approach proposed proved to an appropriate tool, which makes it possible to easily and effectively rank determinants of health.

Implications for public

Macroeconomic policies exert great impact on the community’s health; hence, its effects should be measured. Focusing of macroeconomic policies on equal distribution of determinants is important for thinking about policies. An improvement of macroeconomic and social indicators in the community will lead to improvements in health indicators.