# Systematic review of priority setting studies in health research in the Islamic Republic of Iran

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## Abstract

**Background:** Several research priority-setting studies have been conducted in different countries, including the Islamic Republic of Iran.

**Aims:** We conducted a systematic review and evaluated the quality of the priority-setting reports about health research in the Islamic Republic of Iran.

**Methods:** English and Farsi databases were searched from January to July 2016 to extract reports (up to December 2015) about priority setting in health research in the Islamic Republic of Iran. We constructed a checklist to extract data from the identified studies. Articles were studied in detail and content analysis was carried out. Relevant items were scored and analysed using Microsoft Excel.

**Results:** We identified 36 articles. Eight articles involved all the main stakeholders. About half the articles used valid criteria for ranking. Transparency was fulfilled in 13 articles. Upstream rules and regulations were ignored in 26 articles. An implementation plan was considered in 9 articles and context analysis was demonstrated in only 3.

**Conclusions:** Developing standard packages for priority setting, training of researchers and improving the capacity of organizations may improve the quality of priority-setting studies in the future.

Keywords: health research, priority setting, Islamic Republic of Iran, systematic review

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## Introduction

The World Health Report 2013 has identified priorities for research for universal health coverage that require national and international support. National research agendas are needed in order to increase funds, improve research capacity and to make appropriate and effective use of research findings (*1*,*2*). Health research has the potential to address constantly changing health status, especially in vulnerable populations (*2*). According to the Global Forum for Health Research, health researchers try to develop policies, plans, processes, activities and events in each healthcare subsector and enhance proper development of health interventions. Health research also has a role in achieving universal health coverage through making health services more accessible and affordable. It also has a significant role in achieving Target 3 of Sustainable Development Goals: "ensure healthy lives and promote wellbeing for all at all ages" (*3*).

In 1990, a mismatch between health-research expenditure and the most important diseases was reported by the Council on Health Research for Development; a global, nonprofit organization established to maximize the potential of research and innovation to deliver sustainable solutions for health and development problems of low- and middle-income countries. According to an estimate in 1992, total spending on medical research in the public and private sectors was ~56 billion US dollars but < 10% of the amount was allocated to problems that are responsible for 90% of the global disease burden (*4*). This imbalance is called the 10/90 gap by the Global Forum for Health Research, and is mainly due to researchers' individual preferences (*4*, *5*) and the role of the private sector and pharmaceutical industry (*6*,*7*). Health research priority setting can reduce this gap by making research more efficient in solving the health problems of countries (*8*).

Several definitions have been suggested for priority setting. It is defined as a method for resource allocation or the process of choosing between competing research institutes, programmes or projects (*9*,*10*). It is also defined as the application of appropriate principles and mechanisms for evaluation of investment in research (*11*). Priority setting is an important element in the research management cycle (*12*) and can be seen as the efficient allocation of scarce research resources using explicit decision criteria (*11*,*13*).

According to some studies, health research in developing countries is not in line with the priorities of the health system (*14*) nor is it easily available to all (*15*,*16*). Some experts believe that priority-setting activities in health research in the Islamic Republic of Iran have failed for a variety of reasons, including inefficient budget allocation, administrative bureaucracy and ignoring problem-solving techniques (*17*,*18*). In addition to input failures, the studied priority settings have some shortcomings in their process (*15*). The present study was designed to assess the strengths and weaknesses of health research priority setting in the Islamic Republic of Iran.

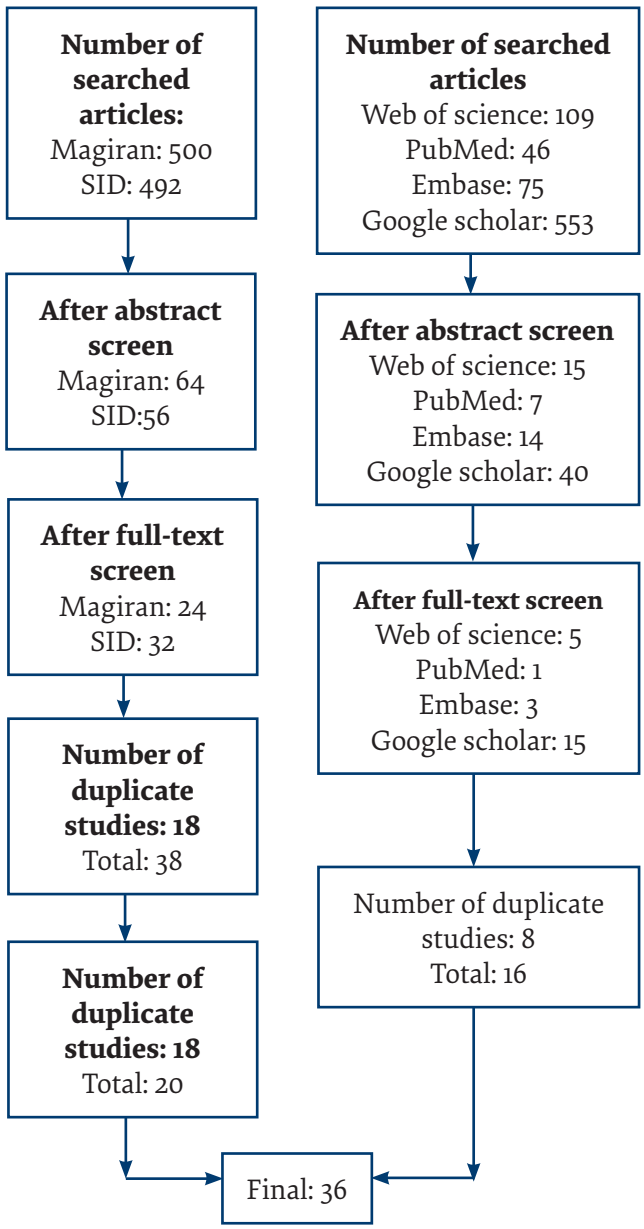
## Methods

We conducted this systematic review from January to July 2016. We searched Google Scholar, PubMed, Embase and Web of Science, with a cutoff date of December 2015. Keywords were: "research priority" or "priority" and "Iran" or "I.R.". In addition, Magiran and SID, the most popular Persian research databases, were searched for all expressions that contained the Persian equivalent of the word "priority". Each article was assessed by 2 reviewers for its relevance. The references of each article were examined for new articles. Finally, 36 articles were selected for analysis (Figure 1).

We included all articles that were related to health research priority setting in the Islamic Republic of Iran, in printed or electronic publications. Articles that were not related to health research, such as health technology assessment or healthcare prioritization or those that had not been formally published were excluded.

Data were collected using a checklist that was

**Figure 1 Search strategy of health research priority-setting articles conducted in the Islamic Republic of Iran until 2016.**



designed by the current authors (Table 1). It comprised the main principles of similar global studies (*10*,*20*). The checklist was validated by sending it to 10 researchers and then the checklist was revised based on their opinions. The checklist was piloted through data extraction from 10 articles. Data were entered into Microsoft Excel 2016.

The following steps were conducted to gather data on priorities in health research. (*1*) All included articles

**Table 1 Researcher-made checklist to assess priority setting activities**

| Criteria | Options | | Definition |
|---|---|---|---|
| | Rank | Score | |
| ***Date*** | High | 3 | After 2010 |
| | Moderate | 2 | 2000–2010 |
| | Low | 1 | Before 2000 |
| ***Composition of stakeholders*** | Excellent | 3 | Stakeholders analysis and all stakeholders engagement such as researchers, managers, policy-makers, private sector, nongovernmental organizations and community |
| | Appropriate | 2 | All stakeholders engagement but no analysis |
| | Moderate | 1 | Just researchers, managers and policy-makers |
| | Inappropriate | 0 | Only researchers |
| ***Transparency*** | Excellent | 3 | Using or providing guidelines, justification of stakeholders by workshops, meetings |
| | Appropriate | 2 | Using guidelines |
| | Moderate | 1 | Just workshops |
| | Inappropriate | 0 | Nothing |
| ***Considering high-level documents*** | Excellent | 3 | National development plans, organizational plans, especially strategic plans, completely considered and priorities conformity is checked |
| | Good | 2 | Above-mentioned plans are considered without monitoring plan |
| | Moderate | 1 | Considering upstream plans just mentioned |
| | Weak | 0 | No reference to any plan |
| ***Appeal/publicizing*** | Excellent | 3 | Using mechanisms such as public meetings amd newsletters, with a mechanism for getting feedback |
| | Good | 2 | Using ordinary mechanisms such as listing priorities in websites, and a mechanism for getting feedback |
| | Moderate | 1 | Just mechanisms for presenting results to community and stakeholders – no feedback |
| | Weak | 0 | No mechanism or evidence |
| ***Vulnerable groups*** | Excellent | 3 | Full consideration of vulnerable groups as one of the stakeholders and criteria |
| | Good | 2 | Consideration at criteria definition or as one of stakeholders |
| | Moderate | 1 | Implicitly referred |
| | Weak | 0 | Not mentioned |
| ***System analysis & implementation plan*** | Excellent | 3 | Target population health status, health research system and health system analysis and implementation plan |
| | Good | 2 | Target population health status, health research system and health system analysis or implementation plan |
| | Moderate | 1 | Just health research system analysis |
| | Weak | 0 | No analysis |
| ***Literature review and political, socioeconomic context analysis*** | Excellent | 3 | Literature review, scope of priority setting, users, values and principles, political and health context evaluation |
| | Good | 2 | Literature review and context analysis |
| | Moderate | 1 | Just literature review |
| | Weak | 0 | Nothing |
| ***Using criteria*** | Excellent | 3 | Valid criteria are used with complete explanation about score points and scoring systems identification |
| | Good | 2 | Valid criteria are used without any explanation about score points and scoring systems identification |
| | Moderate | 1 | Criteria are used but without referring to their validity |
| | Weak | 0 | Prioritization is done based on participants scores without any criteria |

were read in depth. (2) Content was analysed, which means that at the same time that each article was read, every part that was consistent with the definition of each criterion was highlighted and coded with the name of the criterion. (3) Extracted parts of all articles were entered in an Excel spreadsheet and scored based on the range of scales of each criterion. (4) The fulfilment of each criterion was calculated and presented as a score. Tables 2 and 3 show the scores and all statements included in the checklist criteria, respectively. Table 2 summarizes the results of each article.

## Results

The questionnaire was the most important tool used in 7 of the studied articles. Our results showed that the focus group discussion (FGD) and Delphi techniques were used in 6 and 5 articles, respectively. Brainstorming and interviews were used in 7 articles each. A workshop was utilized in 3 articles.

In terms of methodology, the Essential National Health

**Table 2 Strengths and weaknesses of published health research priority setting studies in Islamic Republic of Iran up to 2016**

| 1st author (Ref) | Year | Stakeholders | Transparency | High-level documents | Appeal/ publicizing | Vulnerable groups | System analysis & implementation plan | Context analysis | Criteria |
|---|---|---|---|---|---|---|---|---|---|
| Abachizadeh (30) | 2011 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 |
| Emami (31) | 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Karimi (4) | 2005 | 2 | 1 | 2 | 1 | 0 | 0 | 2 | 3 |
| Aminoroaia (32) | 2010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kolahi (33) | 2008 | 3 | 1 | 0 | 0 | 0 | 2 | 1 | 3 |
| Majidpour (34) | 2003 | 3 | 3 | 0 | 1 | 0 | 0 | 1 | 3 |
| Yazdanpanah (14) | 2004 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 3 |
| Owlia (35) | 2011 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 |
| Kolahi (36) | 2011 | 3 | 0 | 2 | 0 | 2 | 0 | 2 | 3 |
| Sohrabi (37) | 2014 | 3 | 1 | 2 | 0 | 0 | 0 | 3 | 3 |
| Hakimzadeh (38) | 2014 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Bahadori (39) | 2012 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Khadivi (40) | 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Pourhosseini (13) | 2015 | 1 | 0 | 2 | 0 | 0 | 2 | 0 | 3 |
| Ravaghi (41) | 2014 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| Sohrabi (18) | 2011 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 3 |
| Nemati (42) | 2013 | 1 | 3 | 0 | 0 | 0 | 2 | 0 | 0 |
| Azizi (8) | 2002 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 2 |
| Damari (43) | 2006 | 2 | 0 | 2 | 1 | 2 | 2 | 2 | 3 |
| Zargham (44) | 2002 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 2 |
| Yazdankhah Fard (45) | 2008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Farsar (46) | 2013 | 2 | 1 | 2 | 0 | 0 | 2 | 1 | 3 |
| Hatmi (47) | 2006 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Bahadori (5) | 2009 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Tootoonchi (48) | 2012 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kolahi (49) | 2010 | 3 | 1 | 2 | 0 | 1 | 2 | 3 | 3 |
| Raeisi (50) | 2006 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| Yasini (51) | 2006 | 2 | 3 | 0 | 0 | 2 | 0 | 0 | 0 |
| Majidi (52) | 2016 | 2 | 2 | 1 | 0 | 0 | 2 | 0 | 2 |
| Bahadori (53) | 2014 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Haghdoost (54) | 2012 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Khambeh-Bini (55) | 2000 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| Kolahi (56) | 2008 | 3 | 3 | 0 | 0 | 0 | 0 | 1 | 3 |
| Tavana (57) | 2015 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ghanbari (58) | 2009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Owlia (59) | 2011 | 2 | 3 | 0 | 1 | 0 | 0 | 1 | 2 |

Table 3 **Assessment of research priority setting activities according to checklist items designed by researchers**

| Author (Ref) | Study design, tools & techniques | Stakeholders | Transparency | Upstream documents | Appeal & publicizing | Vulnerable group | Criteria |
|---|---|---|---|---|---|---|---|
| Kolahi (56) | COHRED | Scientists managers, politicians, private sector, students, organization, community, industry | Guidelines | NA | NA | NA | Appropriateness, relevance, chance of success, impact of research result |
| Emami (31) | Participatory research, FGD | Community | NA | NA | NA | NA | NA |
| Karimi (4) | ENHR, workshops, interviews, literature review | Scientists, policy-makers, Health-care providers, community | Training programme | IBTO duties, IBTO core process, institutional strategic planning | Newsletter | NA | ENHR criteria |
| Aminoroaia (32) | Cross-sectional, descriptive study questionnaire, delphi method | Scientists, healthcare providers | NA | NA | NA | NA | Relevance innovation, feasibility, magnitude etc. |
| Kolahi (33) | COHRED, workshop, brain storming, FGDs, Delphi | Scientists, students, healthcare providers, community | Workshop | NA | NA | NA | Relevance, appropriateness, chance of success, impact of research result. |
| Owlia (35) | ENHR strategy workshop | Scientists, managers, healthcare providers | Training | NA | NA | NA | Appropriateness, magnitude, prevalence, urgency, feasibility, acceptability |
| Kolahi (36) | COHRED Brain storming, FGD, Delphi, voting | Scientists, managers, politicians, private sector, students, community, underprivileged people, industry, | NA | Deputy of research & technology strategic plan | NA | Nursing home | Relevance, appropriateness chance of success, economic justification, impact of research result |
| Farsar (46) | HSR, COHRED, Brain storming, FGD, Delphi, NGT, Voting | Politicians, scientists, private sector, students, organizations, underprivileged people, industry, community | Workshop | Strategic plan | NA | NA | Relevance, appropriateness, chance of success, time justification and impact of research result |
| Kolahi (49) | COHRED, Delphi, brainstorming, FGD, NGT, voting, weighting | Scientists, mangers, community, healthcare providers | Meeting | Strategic plan | NA | NA | COHRED criteria |
| Pourhosseini (13) | Documentary study and content analysis method, checklist and questionnaire | Managers, scientists, representation of board of trustees | NA | Development plan, scientific plan, strategic plan | NA | NA | Relevance, applicability, appropriateness, impact of research result, ethical acceptance, political acceptance, economic justification |

Table 3 **Assessment of research priority setting activities according to checklist items designed by researchers (*continued*)**

| Author (Ref) | Study design, tools & techniques | Stakeholders | Transparency | Upstream documents | Appeal & publicizing | Vulnerable group | Criteria |
|---|---|---|---|---|---|---|---|
| Damari (43) | COHRED (small module) questionnaire | Scientists, authorities, managers, community, healthcare providers | NA | Strategic plan, 4th development plan, the statute of organization, main social security laws | Just mentioned | Representative of workers union | Relevance, appropriateness, chance of success, impact of research result |
| Tootoonchi (48) | Descriptive study, Delphi, brainstorming, workshop, questionnaires, expert panel, numerical scale | Scientists, managers, Authorities, students, | NA | NA | NA | NA | NA |
| Khadivi (40) | Participatory research, rapid appraisal, Interview, FGD, observation | Community, authorities, trustees | NA | NA | NA | NA | NA |
| Yasini (51) | COHRED questionnaire, FGD, workshop, | Community, trustees, scientists, NGOs, managers, providers | Priority setting guidelines, training | NA | NA | Contribution of elderly people, women and youth | Just mentioned that used some criteria |
| Majidi (52) | Action research, Likert scale, go zone, expert panel | Scientists, policy makers, health care providers | Training workshop | Globocan 2012, guidelines on management of cervical precancerous lesions | NA | NA | Importance, feasibility |
| Bahadori (53) | Mixed and cross-sectional study, interview and questionnaire | Managers | NA | NA | NA | NA | Time justification, align with organizational goals, feasibility, applicability |
| Haghdoost (54) | Brainstorm session, questionnaire | Scientists | NA | NA | NA | NA | NA |
| Sohrabi (37) | COHRED, brain storming, FGD, Delphi, NGT, voting | Scientists, healthcare providers, funders, students, community | Training workshop | Strategic plan | NA | NA | Relevance, appropriateness, chance of success, impact of research result |
| Bahadori (39) | AHP interview, FGD | Managers | NA | NA | NA | NA | Cost–benefit, time justification, acceptability |
| Raeisi (50) | Participatory research & rapid appraisal interview & FGD | Community | NA | NA | NA | Women, elderly and youth people contribution | NA |
| Ravaghi (41) | Delphi questionnaire, FGD | Managers, authorities, scientists | NA | World Health Organization research results | NA | NA | NA |

Table 3 **Assessment of research priority setting activities according to checklist items designed by researchers (*continued*)**

| Author (Ref) | Study design, tools & techniques | Stakeholders | Transparency | Upstream documents | Appeal & publicizing | Vulnerable group | Criteria |
|---|---|---|---|---|---|---|---|
| Sohrabi (*18*) | Health system research brain storming, Delphi, Questionnaire, FGD, workshop, | Authorities, nongovernmental organization | Workshop | NA | NA | NA | Appropriateness, relevance, chance of success, impact of research result |
| Nemati (*42*) | Descriptive & cross-sectional Delphi, questionnaire, weighting with Likert scale | Scientists, managers | Guidelines | NA | NA | NA | NA |
| Bahadori (*5*) | Qualitative, descriptive, cross-sectional, AHP needs assessment, in-depth interviews, FGD | Managers, scientists | NA | NA | NA | NA | Acceptability, time justification, and cost–benefit |
| Hatmi (*47*) | ENHR (small module), FGD | Scientists, managers | NA | NA | NA | NA | ENHR (small module) |
| Khambeh-bini (*55*) | Descriptive study | Scientists, managers, experts | Guidelines, workshop | NA | NA | NA | NA |
| Hakimzadeh (*38*) | Mixed method study interviews, FGD and Delphi | Experts and researchers | NA | NA | NA | NA | Maintaining and improving health of employees, alignment with policies and objectives, applicability |
| Zargham (*44*) | Classic weighting questionnaire, expert committees | Scientists | NA | NA | Journal, interviews every 1 or 2 years | NA | To be strategic, inclusiveness, market potential, quick impact of research result, help to self-sufficiency, moving along national security |
| Yazdankhah Fard (*45*) | Descriptive-analytic, cross-sectional study Delphi, questionnaire, weighting with Likert scale | Healthcare providers | NA | NA | NA | NA | Importance, changes in public health, accessibility, availability, change to nursing practice, potential for collaboration, community orientation, supporting laws, economic justification, applicability |

**Table 3 Assessment of research priority setting activities according to checklist items designed by researchers (*concluded*)**

| Author (Ref) | Study design, tools & techniques | Stakeholders | Transparency | Upstream documents | Appeal & publicizing | Vulnerable group | Criteria |
|---|---|---|---|---|---|---|---|
| Majidpour (34) | Qualitative study, interviews, surveys, questionnaire, workshop | Community | Guidelines, training | NA | TV & local media | NA | Prevalence, severity urgency, consensus of stakeholders, sustainability, political acceptance, acceptability,. related costs, to be modifiable, magnitude, appropriateness, relevancy, chance of success, impact of research result |
| Yazdanpanah (14) | Need assessment questionnaire, FGD | Community, experts, scientists, organizations | NA | NA | National TV | NA | Intensity magnitude, ability and cost of solving problem, prevalence, urgency, political acceptance, acceptability, commitment |
| Azizi (8) | Expert opinion, eclectic option, morphological option, weighting method | Authorities | NA | 3rd national development plan | NA | NA | To be strategic, regarding national plan, maintaining and improving community health, capability, independence, innovation, relying on domestic organizations |
| Abachizadeh (30) | Qualitative, questionnaire, Likert scale | Scientists | NA | The National Road Map of Sciences and Technology, The International Cancer Research Portfolio (ICRP) | NA | NA | Feasibility, practicality, achievability, appropriateness |
| Tavana (57) | Descriptive, cross-sectional study | 15 academic experts and staff | NA | NA | NA | NA | NA |
| Ghanbari (58) | Qualitative study | Nurses | NA | NA | NA | NA | NA |
| Owlia 2011 (59) | ENHR | Researchers, managers, community, policy-makers, private sector, | Guidelines & workshop | NA | Results of completed research have been presented to all stakeholders | NA | Political acceptability, executive ability, cost-effectiveness |

*AHP = Analytic Hierarchic Process; COHRED = Council on Health Research for Development; ENHR = Essential National Health Research; FDG = focus group discussion; HSR = health service research; IBTO = Iranian Blood Transfusion Organization; NA = not available; NGT = nominal group technique; WHO World Health Organization.*

Research approach was the most frequently applied method for setting priorities in 11 articles. Descriptive studies and qualitative methods were ranked as second (6 articles) and third (4 articles), respectively. Three of the included studies used the participatory research method. The Analytic Hierarchical Process, Health System Research, mixed methods, and need assessments were each used in 2 of the studies. The documentary or econometrics method was used in 1 of the articles. Four articles used other types of methods.

Table 2 shows that across 36 reviewed articles, 17 performed priority setting at the national level and 19 at the local level. Also, half the articles that prioritized subjects were related to disease, risk factors, health status or specific parts of a health system, and the other half prioritized all health sectors. Seventeen of the reviewed articles determined their priorities at both levels of area and subject, 8 worked only on domain and 11 were limited to the subject of priority setting.

Of the 36 articles, 8 included 4 recommended groups including researchers, managers, providers and the community among their stakeholders (Table 3). Investigating the frequency of involvement for each group separately showed that researchers, managers, providers and community members participated in 25, 22, 17 and 15 studies, respectively. Only 4 articles considered vulnerable individuals (e.g., elderly or homeless people or female-headed households) as stakeholders (Table 3). In terms of transparency, in 14 articles that provided different forms of explanation, only 6 presented guidelines and others merely justified their stakeholders using workshops or other methods. The rest (22) did not follow a method and only listed priorities (shown by "NA" in Table 3).

Eight articles considered international, national and institutional plans; however, none of them provided a mechanism to ensure conformity of results according to those plans (Table 2). Three articles implicitly referred to the importance of national or institutional plans. The rest of the articles (25) did not mention any point about important rules or plans in their priority-setting process (Table 2). Out of 36 studied articles, only 6 implicitly pointed to the dissemination of priority-setting results, but none of them mentioned an effective mechanism to comment upon and critique priority-setting results (Tables 3 and 4). Two articles conducted a complete analysis of political, social and economic contexts of activities, 19 conducted a brief analysis, and 15 did not have a context analysis of activities (Table 2). Among 36 articles, only 9 comprised an analysis of the population health status, health system, and health research system and provided recommendations about implementation (Table 2). Sixteen of the investigated articles did not lay out strict criteria for priority-setting processes. Among them, there were 11 articles that completely ignored ranking criteria (Table 2).

## Discussion

In this study, we reviewed a large number of published articles on priority setting in the Islamic Republic of Iran. The majority of them had methodological limitations, including inappropriate range and composition of stakeholders, lack of strict criteria for ranking, little attention to transparency, failure to disseminate results, failure to provide a mechanism for appeals, failure to consider high-level national and international documents, absence of context analysis and lack of planning for implementing priorities.

Although a sufficient number of published articles on priority setting in the Islamic Republic of Iran were reviewed, there are many priority settings that are not published (known as grey literature). Those lists of priorities that were found through searching Google did not have methodology, and therefore did not meet the inclusion criteria, and were excluded from the analysis. Another limitation was the different levels of proceedings used. Some of them were conducted at the national level and others were at lower levels. To understand the extent of this limitation, national documents were fully analysed. There was no significant difference between the results of the analysis of national documents and findings that resulted from analysis of all the studies.

To the best of our knowledge, this is the first comprehensive systematic review of priority setting in health research in the Islamic Republic of Iran. Internationally, there were 9 systematic reviews that dealt with priority setting of health research among different countries (*2*, *19*–*25*). The current systematic review differs from previous reviews because of being country specific and the large number of included studies.

According to our results, 1 of the observed problems was lack of appropriate attention to the level of determined priorities, as well as lack of correct definition of terms such as axis, domain, topic, subfield, field, subarea and area. Although we tried to show all items in the form of area and subject in Table 4, investigating all articles showed that some mentioned a priority as "domain" while others, at a similar level, mentioned it as "topic". Although 17 articles categorized their priority in the form of domain (or other names), only 7 performed prioritization of domains, and others only categorized priorities in terms of subjects or proposed group. Since domains on their own can help with horizontal distribution of resources among groups and departments, it seems that their prioritization should be included in priority setting.

According to our findings, the involvement rate of the main groups of stakeholders (i.e., researchers, managers, providers and community members) was 22%. This is consistent with the study that showed that 7 of 9 countries experienced limited or moderate involvement of acceptable stakeholders and only 3 (33%) included public consultation (*19*). In line with the findings of the current study, 3 other studies found that only 37, 21 and 25% of articles were truly representative of different disciplines (*23*–*25*). A review of 165 articles showed that, while there was close involvement of the government and researchers, the participation of other key stakeholders was limited (*22*). This is consistent with our findings that

**Table 4 Results of research priority setting activities (*continued*)**

| Author (ref) | No. of priorities | Ranking of area | Ranking of subjects | Scope | Top 5 priorities |
|---|---|---|---|---|---|
| Karimi (4) | 16 areas, 99 subjects | × | ✓ | National–general | 1. Inviting, maintaining and training blood donors who are donating their blood continuously and are healthy. 2. Global standards of blood transfusion. 3. Collecting blood, storing and transporting blood and blood products. 4. Essential laboratory tests on donated blood with new screening approach. 5. Consuming blood and blood products. |
| Owlia (36) | 9 areas | × | ✓ | National–general | 1. Communicable diseases. 2. Noncommunicable diseases. 3. Health system research. 4.Drug and industry. 5. Basic science. |
| Damari (43) | 9 areas, 37 subjects | × | ✓ | National–general | 1. Human resources management. 2. Health technology (medical equipment, medicine and para-clinic). 3. Statistical system and electronic health information. 4. Direct and indirect provision of health. 5. Industrial and occupational health affairs. |
| Tootoonchi (48) | 129 subjects | × | ✓ | National–general | 1. Methods of faculty members' development. 2. Faculty members' motives. 3. Satisfaction and welfare. 4. Criteria and procedures of faculty members' promotion. 5. Teaching methods and learning techniques. |
| Bahadori (53) | 191 topics in 7 areas | × | ✓ | National–specific | 1. Assessing existing standards and criteria in the construction and running health centres (treatment area). 2. Determining the role and position of military healthcare centres in national family physician programme. 3. Investigating the satisfaction of patients who were visited in military health centres. 4. Investigating the basics of health survey programme. 5. Examining the performance of managers of health centres. |
| Haghdoost (54) | 4 areas, 11 subareas, 37 subjects | ✓ | ✓ | National–specific | 1. New vaccination. 2.New preventive methods (overall). 3. New treatments in pre-AIDS phase. 4. Incidence and prevalence in high-risk groups/general population. 5. Education. |
| Bahadori (39) | 8 subjects | × | ✓ | National–general | 1. Design strategic model of social insurer organization. 2. Investigating the organizational structure of social insurer organization. 3. Examining the referral system and family physician. 4. Design disaster management model in social insurer organization. 5. Conducting cost–benefit analysis for common and expensive diseases that are under the coverage of social insurer organization. |
| Ravaghi (41) | 4 areas , 45 subjects | ✓ | ✓ | National–specific | 1. Investigation and epidemiology of threats to patient safety. 2. Rooting the patient safety threats. 3. Promotion of patient safety. 4. Evaluation and feedbacks of actions. 5. Patient safety solutions. |
| Bahadori (5) | 12 subjects | × | ✓ | National–specific | 1. Designing standard treatment protocols. 2. Designing model of ranking health care centres that are under contract. 3. Investigating the roots of payment system. 4. Designing mechanisms for quality control in healthcare centres. 5. Establishing incentive mechanisms to develop the quantity and quality of contractual services. |
| Hakimzadeh (38) | 8 areas, 102 subjects | ✓ | ✓ | National–specific | 1. Labour market. 2. Finance and insurance. 3. Technology assessment. 4. Health economics, cost, income and producing healthcare centres. 5. Payment methods. |
| Azizi (8) | 4 areas, 21 subjects | × | ✓ | National–general | 1. Estimating burden of diseases. 2. Improving referral system management. 3. Improving data processing management and information. 4. Reproductive health and population growth. 5. Reducing malnutrition. |
| Abachizadeh (30) | 28 subjects | × | ✓ | National–specific | 1. Cancer surveillance and registration. 2. Exogenous factors in the origin and cause of cancer. 3. Surveillance-patient care and survivorship issues. 4. Issues of end-of-life care. 5. Cost analyses and healthcare delivery of cancer services. |
| Tavana (57) | 4 areas, 26 subjects | × | ✓ | National–specific | 1. Explore the role of private sector in health system. 2. Comparative study of payment systems in other countries and localize them. 3. Identify barriers to implementation of general practice and referral system and determine administrative guidelines. 4. Design health technology assessment system. 5. Conducted a comprehensive study on the use of the most appropriate method of payment for the healthcare system. |

Table 4 **Results of research priority setting activities (*continued*)**

| Author (ref) | No. of priorities | Ranking of area | Ranking of subjects | Scope | Top 5 priorities |
|---|---|---|---|---|---|
| Ghanbari (58) | 20 subjects | × | ✓ | National–specific | 1. Psychosocial and economic effect of diagnosis on family. 2. Oral health in patients undergoing chemotherapy. 3. Nutritional needs in cancer patients. 4. Communication with cancer patients in all stages of disease. 5. Ways of continuing hospital and home care. |
| Owlia (59) | 9 areas, 45 subareas | × | ✓ | National–general | 1. Communicable diseases. 2. Noncommunicable diseases. 3. Health system research. 4. Pharmaceutical sciences and Industry. 5. Basic science. |
| Zargham (44) | 6 areas, 74 subjects | × | ✓ | National–general | 1. Biological products (biologics) for diseases diagnosis. 2. Biological products for diseases prevention. 3. Molecular medicine (molecular diagnosis and genetic treatment). 4. Biological products for diseases treatment. 5. Using transgenic creatures. |
| Majidi (52) | 26 subjects | × | ✓ | National–specific | 1. Developing national guidelines and defining appropriate screening tests. 2. Starting age and interval for regular screenings. 3. Developing quality control protocols for follow-up and management of patients with precancerous lesions and cervical cancer patients. 4. Conducting a cost-effectiveness study for human papilloma virus vaccination in Islamic Republic of Iran. 5. Coverage of the cervical screening by insurance companies. |
| Kolahi (56) | 25 area, 99 subjects | × | ✓ | Local–specific | 1. Hospital infections. 2. HIV/AIDS and sexually transmitted infections, seasonal. 3. H1N1 and avian influenza, 4. Infectious diseases registration and reporting system. 5. Immigrants' role in drug resistance and infectious disease dissemination in Islamic Republic of Iran. |
| Emami (31) | 4 areas, 15 subjects | ✓ | × | Local–general | 1. Road accidents. 2. Need to promote people's knowledge about addiction. 3. AIDS and mental issues and healthy ways of life. 4. Training about healthy heart and healthy nutrition by service providers. 5. Establishing population screening system in Bushehr |
| Aminoroaia (32) | 134 subjects | × | ✓ | Local–specific | 1. Addiction in physicians. 2. Addiction in health professionals. 3. Drug abuse eradication centres and rural areas. 4. Addiction in adolescence. 5. Investigating sexual needs of adolescents and ways to control it and balancing it based on religious culture. |
| Kolahi (33) | 25 areas | × | ✓ | local–specific | 1. HIV/AIDS. 2. Tuberculosis. 3.Drugs. 4. Infections in special hosts. 5. Avian influenza. |
| Kolahi (36) | 20 areas | ✓ | ✓ | local–specific | 1. Myocardial infarction. 2. Hypertension. 3.Unstable angina. 4. Atherosclerosis. 5. Dyslipidaemia. |
| Farsar (46) | 7 areas, 43 subjects | ✓ | ✓ | local–specific | 1. Paediatric trauma. 2.Paediatric cancer. 3. Paediatric urological diseases. 4. Undescended testes in boys. 5. Developmental genetics and congenital defects. |
| Kolahi (49) | 841 area, 1900 subjects | ✓ | ✓ | Local–general | Priorities are not mentioned but concluded that the Council on Health Research for Development model is suitable for setting research priority in educational departments. |
| Pourhosseini (13) | 2 areas, 92 subjects | × | ✓ | Local–general | 1. Health supporting environment. 2. Community empowerment. 3. Quality of services. 4. Human resources. 5. Budget management. |
| Khadivi (40) | 20 subjects | × | ✓ | Local–general | 1. Large scale of mourning ceremonies. 2. Misdirection of investments. 3. Unemployment. 4. Addiction and easy access to narcotics. 5. Investment insecurity. |
| Yasini (51) | 10 research subjects | × | ✓ | Local–general | 1. Investigating car accidents and determining the share of each motor vehicles in the incidence. 2. Identifying educational needs of community in terms of good behaviour with adolescents. 3. Determining educational needs of society in terms of healthy nutrition. 4.Determining educational needs of society in terms of marital relations. 5. Studying how to raise public awareness about routes of AIDS transmission. |
| Sohrabi (37) | 7 areas, 31 subareas | ✓ | ✓ | Local–general | 1. Health-threatening risk factors. 2. Health-affecting behavioural factors. 3. Family health. 4. Community health promotion. 5. Chronic diseases and cancer. |
| Raeisi (50) | 9 groups, 40 problems | × | ✓ | Local–general | 1. Mental health. 2. Limited knowledge of women about health and nutrition. 3. Addiction. 4. Inadequacy of health education. 5. Environmental health and unsafe disposal of waste. |

**Table 4 Results of research priority setting activities (*concluded*)**

| Author (ref) | No. of priorities | Ranking of area | Ranking of subjects | Scope | Top 5 priorities |
|---|---|---|---|---|---|
| Sohrabi (*18*) | 89 subjects, 15 fields | × | ✓ | Local–specific | 1. Design university research road map and priority setting. 2. Psychological problems in students. 3. Criteria for workforce planning. 4. Automation of services. 5. Hospital infections. |
| Nemati (*42*) | 89 topics in 6 areas | × | ✓ | Local–Specific | 1. Role of graduates and accordance of their specialty with community needs. 2. Assessing compliance of training programmes with objectives of departments. 3. Investigating ways to support outstanding professors in terms of education and research. 4. Reviewing the curricula at various levels of medical education and how to optimize them. 5. Assessing the efficacy of new educational methods in interns' and residents' education. |
| Hatmi (*47*) | 30 area | × | ✓ | Local–Specific | 1. Epidemiological investigations. 2. Burden of disease. 3. Research on treatment. |
| Khambeh-bini (*55*) | 7 area, 336 subjects | × | ✓ | Local–general | 1. Failure of treatment in addicted tuberculosis patients. 2. Patients and nutrition. 3. Medical emergencies. 4. Trauma. 5. Effect of medicinal plants on heart. |
| Yazdankhah Fard (*45*) | 10 subjects | × | ✓ | Local–specific | 1. Nursing and education. 2. Nursing and client education. 3. Nursing status in health system. 4. Nursing and medication. 5. Nursing management and quality promotion. |
| Majidpour (*34*) | 34 subjects | × | ✓ | Local–general | 1. Under-5 mortality rate. 2. Accidents. 3. Failure to thrive. 4. Ischemic heart disease. 5. Health education (individual and environmental health). |
| Yazdanpanah (*14*) | 95 subjects | × | ✓ | Local–general | 1. Increased prevalence of communicable and noncommunicable diseases with high priority (cardiovascular diseases. 2. Mental diseases. 3. Digestive diseases and cancer. 4. Increased prevalence of accidents. 5. High unemployment, poverty, illiteracy and welfare problems. |

showed that managers and researchers participated in 21 (58%) and 24 (67%) of articles, respectively. In another study, although 4 groups of recommended stakeholders did not participate, other players such as funders, the private sector and industry participated (*20*). These 3 effective groups were included in 5 of the articles of the current study. We believe that, in the Islamic Republic of Iran, the fact that the majority of research funds come from government departments is the main reason for ineffective participation of funders in priority setting. Moreover, 15 (41%) of studies included some forms of public participation. Consistent with our results, other studies reported that 29 and 25% of studies considered the opinions of patients or community members, respectively (*2*). One study demonstrated that 18% of documents directly considered public inputs and 36% involved vulnerable groups (*25*). Among the articles investigated in our study, such participants were found only in 4 (11%). It seems that academic members' awareness of common methods of priority setting, more communication between different stakeholders, and being aware of the needs and capabilities of other participants are important factors in conducting priority setting with a broad range of participation.

Almost all known priority-setting models use criteria for guiding participants (*20*), considering important values of different disciplines, matching proposals with the main subject, and that the important issues are not ignored. Eleven (30%) articles that were investigated in our study did not mention criteria. Our results were consistent with those that showed 69, 56 and 62% of investigated articles applied criteria to determine research priorities (*2*). However, 1 study reported that only 18% of studies were conducted using criteria. One possible reason for ignoring criteria is the simplicity of using other tools, such as questionnaires or subjective rankings, compared to challenging features of criteria-based ranking methods. Generally, it can be concluded that defining a criterion, particularly in scientific contexts that inherently suffer from high degrees of autonomy, has a constructive role in achieving consensus. Furthermore, in contexts where information is limited, having criteria could help us to conduct priority setting in a more deliberative and rationale way. It would also help in providing some justification to satisfy funders, policy-makers and managers so that they might finance, support and utilize the priorities.

In terms of transparency, an acceptable priority setting should not only create a list of priorities but it should also present a clear report about the used approach and how and by whom priorities were identified (*14*). The current study revealed that only 13 articles met the transparency criteria. This is consistent with 2 studies in which transparency was fulfilled in 22 (8%) articles (*19*,*23*). In contrast, another study noted that 69% of studies met transparency criteria (*24*). The latter study concluded that lack of coordination between patients and researchers, and the bias resulting from funders' influence, are the

main causes of ignoring transparency. It seems, because of the higher proportion of governmental health research funds, researchers do not feel the need to attract funders' attention. Besides that, policy-makers usually ignore the role of health research in policy-making and decision-making processes. This could lead to discouragement among researchers, thus decreasing their incentive to attract the attention of decision-makers.

Dissemination of information as an ethical aspect of priority setting (*9*,*10*) will be achieved if society has access to decisions and reasons of prioritization (*21*). In other words, the decision-making process should be clearly stated, and decisions and reasons about them should be broadly publicized (*26*). Publicizing the results of priority setting leads to promotion of accountability in the decision-making process (*27*). According to the findings of the current study, 8 (16%) of the articles met the publicizing criterion, which is consistent with a study that showed 11% of studied articles had met the criterion (*19*). In conclusion, it can be claimed that researchers do not believe in the necessity of informing the general population about the results of priority setting, and are concerned about their inability to respond to increased public expectations.

The process of revision based on appeals can be defined as "explicit mechanisms for revising decisions based on emerging issues or arguments" (*19*). Disregarding the appeal mechanism in all investigated articles in the current study can be compared with a study in which the mechanism for appeal was not considered in any of the investigated countries (*19*). In contrast to our results, a review of studies that were related to priority setting in Panama indicated that 2 of 3 studies had considered the appeal mechanism (*21*). All of the priority-setting studies that were investigated in the current study were one-time efforts, which is an indication of the lack of a revision mechanism. Based on the above-mentioned study (*19*), a precise mechanism for revising a decision should be included in the appeal process. It also provides a platform for hearing the voices of other stakeholders.

Based on our findings, 25 reviewed articles ignored high-level documents, which is another weakness of priority settings. Some studies have declared that high-level documents, including strategic plans, could be helpful in providing policies and legislative frameworks, guiding priorities, and creating mechanisms to encourage and support research (*28*). In their opinion, decisions about priority setting should be made on the basis of explicit values, and stakeholders should gain insight into the goals of priority setting and the logic behind it as well as about missions, visions, values and strategic plans of the organization (*9*). Other studies have mentioned that lack of compatibility with high-level goals and strategic guidance can lead to an imbalance in investment in health research (*19*,*29*). A study about priority setting in nursing was consistent with the current research and reported that 57% of articles considered high-level documents in identifying priorities (*23*). In fact, ignoring high-level documents is predominantly due to lack of confidence in the authenticity of these documents and the absence of an effective tool for monitoring their application. Therefore, making the process of high-level planning and monitoring more acceptable can address the problem.

Undoubtedly, setting an appropriate time horizon, defining the targeted population and characterizing the political, social and economic aspects of the context in which the prioritization is conducted is essential. Exploration of the targeted audience ensures that appropriate language and communication methods are used for a realistic priority-setting process and final implementation (*19*). In the present study, 2 of the documents conducted a complete context analysis and 19 conducted a partial one. In contrast with these results, a study reported that all investigated articles conducted a context analysis at the beginning of priority setting (*25*). Another study reported that 92% of studies conducted a context analysis (*23*). Since realistic context analysis has an important role in determining the scope and focus of the priority setting, time horizon, allocated budget and other resources that are required, we recommend that it should be considered as a mandatory task in the preparatory phase of health research priority setting.

A system analysis (of health status, health system and health research system) should be conducted to propose an implementation plan. In our study, 9 (25%) articles indirectly mentioned this analysis and presented an unlimited implementation plan. A systematic review of priority setting in research in nursing indicated that 8% of articles directly proposed an implementation plan (*25*). In another review about national health research priority setting in Latin America and the Caribbean, 12% of articles seriously proposed an implementation plan (*25*). We believe that system analysis, which comprises related data, health system infrastructure, health research system capability and some scientometrics, should be carried out by experts and should be reported as a statement paper at the beginning of the process. This information provides a proper view for stakeholders to make the best choices.

Many research-priority settings in the Islamic Republic of Iran have been shown merely as a list of priorities on the websites of organizations or published in nonacademic journals and newsletters. So, this study was limited due to lack of access to the methods of conducting these studies. We found that health-priority settings in the Islamic Republic of Iran suffer from weak stakeholder composition and participation, lack of ranking criteria, little attention to transparency, no results dissemination, no mechanism for appeal, ignoring high-level documents, and absence of context analysis and implementation plans. We recommend that stakeholders minimally should consist of 4 groups (researchers, decision-makers, managers and community members). Inviting funders, industry and private sector can make it better. It is necessary to provide acceptable guidelines to explain major components of setting each priority and to increase transparency and comparability. Ranking criteria ought to be identified because they make decisions sensible and help to achieve a consensus

easily. We recommend that a newsletter could publicize the results of the priority setting. By holding workshop sessions and discussion fora with a broader range of stakeholders, an effective revision mechanism would be provided. Most importantly, as a strategy that provides guidance toward an efficient resource allocation, priority setting should be in line with high-level documents. The extent of the study, time frame, budget constraints and target population should be analysed and identified from the outset. It must be noted that the health status, health system conditions, and health research system should be carefully analysed, through which we could find the most important health problems of the community, strengths and weaknesses of the health system, and capabilities and limitations of the health research system. Finally, it should be noted that priority assessment by designing well-established indicators to monitor and evaluate compliance of performed actions with standards should pave the way to achieving goals.

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## Analyse systématique des études concernant l'établissement des priorités en matière de recherche en santé en République islamique d'Iran

### Résumé

**Contexte :** Plusieurs études sur l'établissement des priorités ont été menées dans différents pays, notamment en République islamique d'Iran.

**Objectif :** Nous avons effectué une analyse systématique et avons évalué la qualité des rapports concernant l'établissement des priorités en matière de recherche en santé en République islamique d'Iran.

**Méthodes :** Des recherches ont été effectuées dans les bases de données en anglais et en farsi entre janvier et juillet 2016 afin de trouver des rapports (jusqu'à décembre 2015) concernant l'établissement des priorités en matière de recherche en santé en République islamique d'Iran. Nous avons établi une liste de contrôle pour les critères en vue de l'extraction des données des études identifiées. Les articles ont été examinés en détail et une analyse de contenu a été effectuée. Les points pertinents ont été notés et analysés à l'aide de Microsoft Excel.

**Résultats :** Nous avons identifié 36 articles. Huit articles impliquaient l'ensemble des principales parties prenantes. Près de la moitié des articles utilisaient des critères de classification valides. Treize (13) articles faisaient preuve de transparence ; 26 articles ignoraient les règles et réglementations en vigueur. Un plan d'application était suivi dans 9 articles et seuls 3 mettaient en avant une analyse du contexte.

**Conclusion :** L'élaboration d'ensembles de normes en matière d'établissement des priorités, la formation des chercheurs et l'amélioration de la capacité des organisations pourraient avoir des répercussions positives sur la qualité des prochaines études concernant l'établissement des priorités.

## مراجعة منهجية لدراسات تحديد الأولويات في البحوث الصحية في جمهورية إيران الإسلامية

عباس بدخستان، محمد عرب، آرش رشيديان، مهين قلي بور، إلهام محبي، كاظم زنده دل

### الخلاصة

**الخلفية:** أجريت عدة دراسات حول تحديد الأولويات في البحوث في بلدان مختلفة، بما في ذلك جمهورية إيران الإسلامية.

**الهدف:** أجرينا مراجعة منهجية وقَيَّمنا جودة تقارير تحديد الأولويات في البحوث الصحية في جمهورية إيران الإسلامية.

**طرق البحث:** بحثنا في قواعد البيانات باللغتين الإنجليزية والفارسية من يناير/ كانون الثاني إلى يوليو/ تموز ٢٠١٦ لاستخراج التقارير (التي يعود تاريخها حتى ديسمبر/ كانون الأول ٢٠١٥) حول تحديد الأولويات في البحوث الصحية في جمهورية إيران الإسلامية. أنشأنا قائمة تساعد في استخراج البيانات من الدراسات المحددة. ودرسنا المقالات بالتفصيل وأجرينا تحليلاً للمحتوى. وسجَّلنا العناصر ذات الصلة وحلَّلناها باستخدام برنامج ميكروسوفت – إكسل.

**النتائج**: حددنا ٣٦ مقالة. وشملت ٨ مقالات جميع أصحاب المصلحة الرئيسيين. وقد استخدم ما يقرب من نصف المقالات معايير صالحة للترتيب. وتبين لنا أن الشفافية متحققة في ١٣ مقالة. وقد لاحظنا أنه تم تجاهل القواعد واللوائح المعمول بها في الأصل في ٢٦ مقالة. بينما روعيت خطة التنفيذ في ٩ مقالات، وتم توضيح تحليل السياق في ٣ مقالات فقط.

**الاستنتاج**: إن تطوير حزم معيارية لتحديد الأولويات وتدريب الباحثين وتحسين قدرة المنظمات قد يحسِّن من جودة دراسات تحديد الأولويات في المستقبل.

## References

1. Health in 2015: from MDGs, Millennium Development Goals to SDGs. Sustainable Development Goals. Geneva: World Health Organization; 2015 (http://apps.who.int/iris/bitstream/10665/200009/1/9789241565110_eng.pdf?ua=1, accessed 14 February 2018).
2. McGregor S, Henderson KJ, Kaldor JM. How are health research priorities set in low and middle income countries? A systematic review of published reports. PLoS One. 2014;9(10):e108787. https://doi.org/10.1371/journal.pone.0108787
3. The world health report 2013: research for universal health coverage. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/10665/85761/2/9789240690837_eng.pdf?ua=1, accessed 14 February 2018).
4. Karimi Gh GBA, Rahbari M, Vafaiyan V, Minab Salemi E, Damari B. Need assessment and research priorities setting in IBTO Research Center. Blood. 2005;2(4):123–34.
5. Bahadori M, Ravangard R, Farzaneh A, Hakimzadeh SM. Research needs assessment in the health insurance organization: Level of health care provider. Electron Physician. 2009;3(2):436–41.
6. Damari B, Hasanzadeh A, Poorreza A. Need assessment and priority setting for health research in social sequrity organization. Soc Secur. 2006;25:219–46.
7. Dresser R. Priority setting in biomedical research. Virtual Mentor. 2009;11(4):322–5. https://doi.org/10.1001/virtualmentor.2009.11.4.msoc1-0904
8. Azizi F. National priorities in medical sciences. Rahyaft J. 2002;12(27):14–26.
9. Sibbald SL, Singer PA, Upshur R, Martin DK. Priority setting: what constitutes success? A conceptual framework for successful priority setting. BMC Health Serv Res. 2009;9(1):43. https://doi.org/10.1186/1472-6963-9-43
10. Fleurence RL, Torgerson DJ. Setting priorities for research. Health Policy. 2004;69(1):1–10. https://doi.org/10.1016/j.healthpol.2003.11.002
11. Strengthening health systems: the role and promise of policy and systems research. Geneva: Alliance for Health Policy and Systems Research; 2004 (http://www.who.int/alliance-hpsr/resources/Strengthening_complet.pdf, accessed 14 February 2018).
12. Zendehdel K. The formation origin of comprehensive development plan of medical research networks. Newsletter of Comprehensive Development Plan of Medical Sciences Research Networks. 2013;1:4–6.
13. Pourhosseini SS, Dehnavieh R, Mehrolhassani MH. [Research priorities of Kerman Medical Sciences University: a documentary study]. J Health Dev. 2014;3(4):293-0 (in Persian) http://jhad.kmu.ac.ir/article-1-88-en.pdf.
14. Yazdanpanah B, Pourdanesh F, Safari M, Rezai M, Ostavar R. Health research priority setting by needs assessment in Kohgiloyeh and Boyerahmad province. Armaghan Danesh. 2003;8(21):1–20.
15. Malek-Afzali H BF, Alaaddini F, Forouzan AS. [Health system priorities based on needs assessment & stakeholders'participation in IR Iran]. Hakim Res J. 2007;10(1):13–9 (in Persian). http://hakim.hbi.ir/article-1-326-en.pdf
16. Davey S. The 10/90 report on health research 2003–2004: Global Forum for Health Research; 2004.
17. Mohammadi M, Mesgarpour B. Systemic approach to health research in Iran and the world. Bull World Health Organ. 2001;79(9):834–41.
18. Sohrabi MRRM, Souri H, Mortazavi MGS. NazarAli S, Baladast M, Bahadori ASS, et al. Research Priorities of Health System Research (HSR) in Vice-Chancellors of the Shahid Beheshti University of Medical Sciences. J Isfahan Med Sch. 2011 Feb;28(119):1324–36.
19. Tomlinson M, Chopra M, Hoosain N, Rudan I. A review of selected research priority setting processes at national level in low and middle income countries: towards fair and legitimate priority setting. Health Res Policy Syst. 2011;9:19. https://doi.org/10.1186/1478-4505-9-19
20. Bryant J, Sanson-Fisher R, Walsh J, Stewart J. Health research priority setting in selected high income countries: a narrative review of methods used and recommendations for future practice. Cost Eff Resour Alloc. 2014;12(1):23. https://doi.org/10.1186/1478-7547-12-23
21. Romero LI, Quental C. Research for better health: the Panamanian priority-setting experience and the need for a new process. Health Res Policy Syst. 2014;12(1):38. https://doi.org/10.1186/1478-4505-12-38
22. Yoshida S, Cousens S, Wazny K, Chan KY. Approaches, tools and methods used for setting priorities in health research in the 21st century. J Glob Health. 2016;6(1):1–8 https://doi.org/10.7189/jogh.06.010302
23. Garcia AB, Cassiani SHDB, Reveiz L. A systematic review of nursing research priorities on health system and services in the

Americas. Rev Panam Salud Publica. 2015;37(3):162–71.

24. Tong A, Chando S, Crowe S, Manns B, Winkelmayer WC, Hemmelgarn B, et al. Research priority setting in kidney disease: a systematic review. Am J Kidney Dis. 2015;65(5):674–83. https://doi.org/10.1053/j.ajkd.2014.11.011

25. Reveiz L, Elias V, Terry RF, Alger J, Becerra-Posada F. Comparison of national health research priority-setting methods and characteristics in Latin America and the Caribbean, 2002-2012. Rev Panam Salud Publica. 2013;34(1):1–13.

26. Viergever RF, Terry R, Matsoso M. Health research prioritization at WHO: an overview of methodology and high level analysis of WHO led health research priority setting exercises. Geneva: World Health Organization; 2010 (http://www.who.int/rpc/publications/Health_research_prioritization_at_WHO.pdf, accessed 2 March 2018).

27. Varkevisser CM, Pathmanathan I, Brownlee AT. Designing and conducting health systems research projects. Ottawa: International Development Research Centre; 1993.

28. Essential national health research in South Africa. Towards national consensus building in health research. The Council on Health Research for Development (http://www.cohred.org/downloads/669.pdf, accessed 14 February 2018).

29. Rudan I, Gibson J, Kapiriri L, Lansang MA, Hyder AA, Lawn J, et al. Setting priorities in global child health research investments: assessment of principles and practice. Croat Med J. 2007;48(5):595.

30. Abachizadeh K, Mohagheghi M-A, Mosavi-Jarrahi A. Setting research priorities to reduce burden of cancer in Iran: an institutional experience. Asian Pac J Cancer Prev. 2011;12:2365–70.

31. Emami R TF, Nabipour I, Azizi F, Zafarmand MH, Nakhaei K. Community health needs assessment to develop higher priorities for research using focus group discussion in Bushehr. Iran South Med J. 2003;2:176–80.

32. Aminoroala M, Attari A., Hasanzadeh A. [Research priorities in behavioral sciences from the viewpoint of mental health professionals in Isfahan]. Iran J Psychiatry Clin Psychol. 2010;16(2):127–34 (in Persian). http://ijpcp.iums.ac.ir/article-1-1044-en.pdf

33. Kolahi AA, Tahmooreszadeh S, Gachkar L, Mardani M. Research priority setting of Shaheed Beheshti Medical University Infectious Diseases and Tropical Medicine Research Center in 2007. Iran J Clin Infect Dis. 2008;3(2):79–87. http://journals.sbmu.ac.ir/infectiousinvisible/article/view/195/140

34. Majidpour A, Adalatkhah H, Sezavar S, Aminisani N, Shabani M, Nemati A. Research priorities in health field in Ardabil Province: an experience. J Ardabil Univ Med Sci. 2003;3(3):7–22.

35. Owlia P, Bahreini FS, Baradaran Eftekhar M, Ghanei M, Farahani M. Health research priority setting in Iran. J Sch Public Health Inst Public Health Res. 2011;9(2):9–20.

36. Kolahi AA, Moatamedi MR, Beyranvand MR, Farsar AR, Gachkar L. [Research priority of cardiovascular research center of Shahid Beheshti University of Medical Sciences in 2009]. Pajoohandeh J. 2011;16(4):178–86 (in Persian). https://pajoohande.sbmu.ac.ir/article-1-1184-en.pdf

37. Sohrabi M-R, Tahmoreszadeh S, Mohammadi F, Kolahi A-A. Research priority setting for Social Determinants of Health Research Center of Shahid Beheshti University of Medical Sciences in 2013. Community Health (Bristol). 2015;1(1):32–44.

38. Hakimzadeh SM, Shokouh H, Morteza S, Bahadori M, Tahernezhad K. Research needs assessment and priority setting for health economics: a mixed method study in Iran. Journal Mil Med. 2014;16(1):23–8.

39. Bahadori MK. Determining the research needs of social insurer: using analytical hierarchy process (AHP). Holistic Nurs Midwifery. 2012;22(2):11–7.

40. Khadivi R, Raeesi R, Habibi S, Ghaderi S, Shirvani H, Yousefi H, et al. [Capacity building for priority setting in Farrokhshahr population]. J Shahrekord Univ Med Sci. 2006;8(1):27–45 (in Persian). http://journal.skums.ac.ir/article-1-693-en.pdf

41. Ravaghi H SH. Research priorities for patient safety in Iran. Hakim Res J. 2014;16(4):358-66.

42. Nemati SAF, Heidarzadeh A, Saberi A, Bahadouri M, Haddadi S. Priorities of medical education research based on Delphi method in medical school of Guilan University of Medical Sciences.. Hakim Res J. 2013;16(4):358–66.

43. Damari B, A H, Pourreza A. Need assessment and research priority setting of social security organization deputy of health affair. Tamin (Soc Sec Q). 2006;1(8):219–46.

44. Zargham N. [Research priorities of biotechnology commission]. Rahyaft J. 1381(27):46–56 (in Persian).

45. Yazdankhah Fard MR, Kamalli F, Sharifi S, Motamed N, Hajinejad f. Determining nursing research priorities according to viewpoints of nurses in Bushehr City using Delphi technique. Iran South Med J. 2008;10(2):182–9.

46. Farsar A-R, Khaleghnejad-Tabari A, Sadeghian N, Roozroukh M, Sohrabi M-R, Monfared AB, et al. Research priority setting for Pediatric Surgery Research Center of Shahid Beheshti University of Medical Sciences in 2010. Pajoohandeh J. 2013;18(3):139–47.

47. Hatmi Z, Mohammadi N, Sedaghat M. Determination research priorities in the medical faculty departments. Tehran Univ Med J. 2006;63(11):913–9.

48. Tootoonchi M, Yamani N, Changiz T, Yousefy A. Research priorities in medical education: a national study. J Res Med Sci. 2012 Jan;17(1):83–91. PMID:23248661

49. Kolahi A-A, Sohrabi M-R, Abdollahi M, Soori H. Setting research priority in Shahid Beheshti University of Medical Sciences: methods, challenges, limitations. Pajoohandeh J. 2010;15(4):143–51.

50. Raeisi R, Yosofi, Habibi S, Shirvani H, Ghaderi S, Shams F, et al. [Need assessment in Research Development and Health Promotion Center of Farrokhshahr in 2004]. J Shahrekord Univ Med Sci. 2006;8(1):1–6 (in Persian). http://journal.skums.ac.ir/article-1-

690-en.pdf

51. Yasini M, Mozaffari-Khosravi H. Health problems and research priorities based on the needs assessment in Yazd. J Toloo-e-behdasht. 2006;3/4(2):10–9.

52. Majidi A, Ghiasvand R, Hadji M, Nahvijou A, Mousavi A-S, Pakgohar M, et al. Priority setting for improvement of cervical cancer prevention in Iran. Int J Health Policy Manag. 2015;5(4):225–32. https://doi.org/10.15171/ijhpm.2015.201

53. Bahadori M, Izadi M, Karamali M, Teymourzadeh E, Yaghoubi M. Research priorities in a military health organization using multi criteria decision making techniques. Journal Mil Med. 2014;16(1):37–44.

54. Haghdoost A, Sadeghi M, Nasirian M, Mirzazadeh A, Navadeh S. Research priorities in the field of HIV and AIDS in Iran. J Res Med Sci. 2012;17(5):481.

55. Khambeh-bini Z, Kazemi S, Keshtkar A, Khoddam H. Identification of health research areas in Golestan province. Faraz Res Q Stud Res Committee. 2000;11:17–21.

56. Kolahi AA, Zahraei M, Abdi P, Gachkar L. Research priorities of network of infectious and tropical disease of Iran in 2009. Iran J Infect Dis Trop Med. 2010 Fall;15(50):9–18.

57. Tavana AM, Hatamlo H, Teymourzadeh E, Ebrahimnia M, Tofighi S, Bahadori M, et al. Determining research priorities based on four main areas: stewardship, creating resources, financing and delivering services in health care system in Iran. J Health Policy Sustainable Health. 2015 Winter;2(1):179–81. http://journals.bmsu.ac.ir/jhpsh/index.php/jhpsh/article/view/45/pdf_10

58. Ghanbari KA, Baghalee M. [Nurses' perspectives of nursing research priorities about cancer patients]. Iran J Nurs. 2009 Apr;22(57):87–97 (in Persian). http://ijn.iums.ac.ir/article-1-614-en.pdf

59. Owlia P, Eftekhari MB, Forouzan AS, Bahreini F, Ghanei M, Farahani M. Health research priority setting in Iran: introduction to a bottom up approach. J Res Med Sci. 2011 May;16(5):691–8. PMID:22091294