RESEARCH ARTICLE

Financing of physical rehabilitation services in Iran: a stakeholder and social network analysis

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Abstract

Background: Inadequate financing is one of the major barriers in securing equitable access to high-quality physical rehabilitation services, without imposing financial hardship. Despite this, no sufficient attention has been paid to physical rehabilitation services and no specific financial resources have been allocated to such services in many countries including Iran. Owing to the fact that effective decision- and policy-making requires identifying possible stakeholders and actors and their characteristics, in the current study a stakeholder analysis and also a social network analysis (SNA) was conducted to identify the potential stakeholders and also their characteristics involved in physical rehabilitation financing (PRF)-related policies in Iran.

Methods: The present study was performed in two phases. Firstly, semi-structured interviews and relevant document review were conducted to identify the stakeholders. Then, the position, power, interest, and influence of each stakeholder were determined using a web-based questionnaire. Secondly, SNA approach was utilized to map and visualize the interactions among stakeholders.

Results: The findings showed that there are different stakeholders in PRF-related decision- and policy-making processes in Iran. In addition, the position, power, interest, and influence level of the identified stakeholders were varied. Moreover, although some stakeholders, like the Ministry of Health and the parliament have the highest level of power and position, they lack sufficient interest to participate in PRF-policies. Furthermore, SNA demonstrated that social network density was low, which indicates the lack of proper collaboration and interaction among the stakeholders.

Conclusion: As many powerful and influential stakeholders had low interest levels to warrant participate in the FPR-related decision- and policy-making processes in Iran, employing careful and effective strategies, that is ongoing negotiations, receiving advocacy, and making senior managers and policy-makers aware can be helpful.

Keywords: Physical rehabilitation, Financing, Stakeholder analysis, Social network analysis

Background

Globally, people with disability account for approximately 15% of the population [1], and with the increasing preva- lence of chronic conditions, musculoskeletal disorders, aging, and traffic injuries as well as the increase in the sur- vival rates following trauma and other severe diseases, the need for more rehabilitation services has become ever more crucial [2–4]. Furthermore, Sustainable Develop- ment Goal 3.8 is encouraging countries worldwide to se- cure equitable access to high-quality health care services, including rehabilitation without imposing financial

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hardship. Indeed, universal rehabilitation coverage is a crucial part of universal health coverage [5].

Rehabilitation services including physical rehabilitation services (e.g. physiotherapy, occupational therapy, prosthetics, and orthotics services) are considered as a group of interventions to reduce the functional and physical limitations in order to obtain a maximum level of independence [6]. As a result, these services may have significant advantages for individuals, society, and also national economies [7–9]. Additionally, physical rehabilitation services also have preventive effects [10, 11] and facilitate the hospital discharge process [12, 13]. Therefore, not only does the provision of affordable physical rehabilitation services not impose any significant financial pressure on the health sector, but also it can be a rational investment [14–16].

Despite the above-mentioned points, no sufficient attention has been paid to physical rehabilitation services, especially in developing counties like Iran, in such a way that a large proportion of service users face financial hardship [14, 17]. In response to this situation, the World Health Organization (WHO) and other international organizations have been involved in many activities in this respect, in the past few decades [16]. Recently, the 'WHO Global Disability Action Plan 2014-2021', 'Rehabilitation 2030; a call for action' and 'Rehabilitation in Health Systems' were released by the WHO aiming to promote and strengthen rehabilitation services in the health sector [18–20]. Although enhancing the financing for rehabilitation by adopting appropriate mechanisms has been emphasized, the evidence shows catastrophic health expenditure (CHE) and high rate of out-of-pocket (OOP) payments when receiving physical rehabilitation services [21]. In fact, no specific financial resources were allocated to physical rehabilitation services in many countries like Iran [14]. Traffic injuries, 8-year of imposed war, climate changes, aging, natural disasters, and chronic diseases are the main causes of disability, leading to the increased need for utilizing these services in Iran. Since Iran is one of the top-ten traffic-accident prone countries in the world, head trauma, fractures, and spinal cord injuries are the most important causes of disability incidence in this country. Furthermore, improved health status in Iran resulted in a considerable move towards aging population. Therefore, well-planned, coordinated, and careful financing policies are needed to ensure that physical rehabilitation services are covered and provided for by the best financial risk protection strategies [22].

Effective decision- and policy-making requires identifying potential stakeholders and actors and their characteristics [23]. Stakeholders are actors (organizations or individuals) that may affect a policy [24], and stakeholder analysis is a process of identifying and understanding the characteristics of such actors by evaluating their position, power, interest, and influence on policy-making [25]. Based on the current literature, there are a variety of stakeholders in the health

care physical rehabilitation sectors in Iran, who can affect physical rehabilitation financing (PRF)-related policies [15, 21]. Therefore, recognizing the relevant stakeholders and their relationships is one of the main steps in developing and implementing PRF-policies.

The aim of this study was to identify the potential stakeholders and also their characteristics involved in PRF-related policies in Iran in order to pave the way for developing appropriate policies and practical strategies to improve the financing of physical rehabilitation in Iran.

Methods
This study was conducted in two phases. Firstly, a qualitative content analysis was performed to identify the relevant stakeholders and, secondly, Social Network Analysis (SNA) was used to understand the relationships and interactions between different stakeholders. An overview of the study methods has shown in Fig. 1.

Phase I: stakeholder analysis
First step

Sampling strategy To identify the relevant stakeholders involved in the financing of physical rehabilitation services in Iran, individual semi-structured interviews were conducted. The participants were recruited using purposive and snowball sampling. During sampling, maximum variation in terms of gender, scientific background,
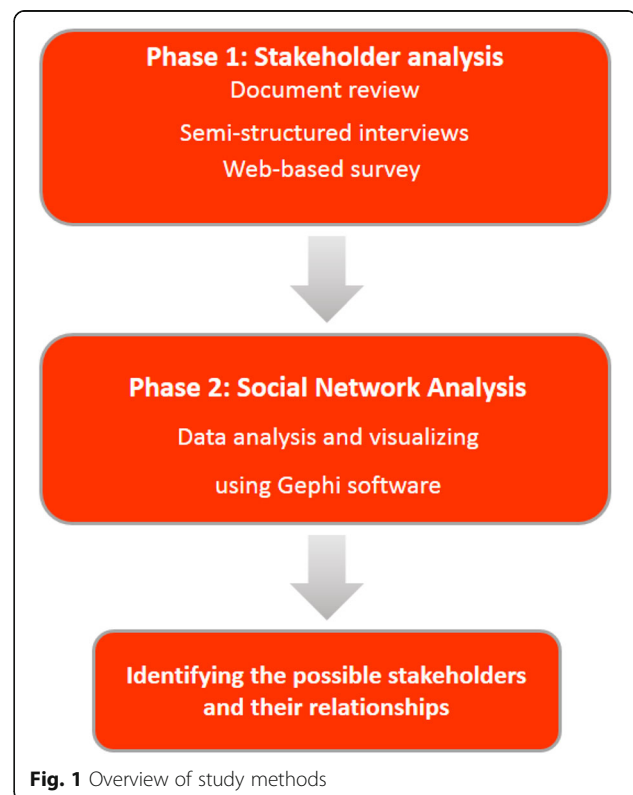

Fig. 1 Overview of study methods

employment status, and executive experience was considered. The selection process continued until data saturation was achieved. In total, we conducted 36 semi-structured interviews to find the relevant stakeholders in financing of physical rehabilitation services in Iran. The duration of each interview varied from 15 to 20 min.

Data collection techniques Semi-structured interviews were conducted with key informants in health financing and physical rehabilitation sectors (Table 1) by the first author (a male PhD Health Policy-maker) from January 2019 to September 2019. The main question raised was; "Who are the main physical rehabilitation financing-related actors (including institutions and organizations) involved in the decision- and policy-making processes in Iran?" Prior to interviews, a written informed consent form including ethical principles and study aims was sent by the first author (via official and personal email) to the participants. Additionally, if the participant had not signed the form electronically, the interviewer re-read the contents of the consent form verbally at the beginning of face-to-face sessions and received the signed form.

Data analysis All interviews were transcribed verbatim by the first author. The anonymized transcripts were examined using thematic content analysis in accordance with the Braun and Clarke approach by three authors (SSH, AA, and MK).

Rigor and trustworthiness Based on the Guba and Lincoln approach, credibility, confirmability, dependability, transferability, and authenticity criteria were considered to improve the rigor and trustworthiness of findings [26]. Hence, peer debriefing (credibility), member-checking by contributors (confirmability), participation of several authors in analysis process (dependability), applying maximal variation sampling (transferability), and using citations from almost all individuals (authenticity), were adopted through the study.

Then, relevant policy documents, including documents and reports developed and implemented by the government, the parliament (in Persian *Majles*), the High

Table 1 List of participants

Participants	No.
Health policy-maker	6
Rehabilitation policy-maker	4
Physiotherapist	6
Orthotist	5
Prosthetist	3
Occupational therapist	4
Faculty member	8

Council of Health Insurance (HCHI), the Social Security Organization, the Iran Health Insurance Organization (IHIO), the Armed Forces Social Security Organization (AFSSO), the State Welfare Organization of Iran, scientific associations (Iranian Physiotherapy Association, The Iranian Scientific Association for Orthotics & Prosthetics, and Iranian Occupational Therapy Association), the Foundation of Martyrs and Veterans Affairs (FMVA), the Red Crescent (in Persian *Hilal Ahmar*), the WHO and Eastern Mediterranean Region Organization (EMRO) reports, and Scholarly literature, were considered to discover other potential actors. In total, the research team prepared a list of relevant actors and stakeholders based on the interviews and document analysis.

Second step
According to the theoretical framework adopted in previous studies [25], four items (namely position, power, interest, and influence) were chosen to analysis the identified stakeholders. Subsequently, an online web-based questionnaire was designed in which stakeholders were ranked with respect to position, power, interest, and influence in PRF-related policies and plans. Position was defined as relationship and interaction of one stakeholder with other stakeholders involved in the decision- and policy-making process; power was defined as the ability to and extent to which decision- and policy-making processes may be affected by them; influence was defined as the amount of available and potential resources (including knowledge, money, and facilities); and interest was defined as the level and extent of participation in the decision- and policy-making process. The link of the online questionnaire was posted via E-mail or WhatsApp to the interviewees. Participants were asked to express their viewpoints for each item using a five-point rating scale (low, medium-low, medium, medium-high, and high). All participants completed and submitted their responses. However, only one participant's response was incomplete and the research team decided to remove it. The final value of participants for each stakeholder was calculated based on the geometric mean.

Phase II: social network analysis (SNA)
SNA represents various special methodologies to measure, analyze, and map the social interactions and relationships among different actors, organizations, and teams [27]. It facilitates the investigation of types and patterns of collaboration among stakeholders, where these stakeholders are visually presented in a map by nodes, and interactions between these nodes [28]. Indeed, this network analysis can be a distinctive approach to recognize the structure of decision- and policy-making processes and also interaction between potential actors [29]. Therefore, using SNA can

facilitate the identification of the relevant parts that need to be negotiated and addressed, with the aim of improving the health related policy-making processes and obtaining appropriate interactions among the involved stakeholders [25, 30]. SNA uses several metrics to describe the network, which can be categorized into two groups including overall structure (e.g. density and diameter) and individual actor metrics (degree, betweenness, closeness, and eigenvector centralities) [31].

Concisely, the network density defines a measure of network cohesion, and diameter gives an idea of the length of the extended geodesics of the network [31]. Centrality measures try to determine the stakeholders and discover those who have central roles in the network [32]. Degree centrality is the number of edges (direct relationships) that a stakeholder has. Stakeholders with higher degree centrality are introduced as very visible and have more influence on their neighborhood. Closeness centrality is achieved with the average length of the paths linking the stakeholder to others. This centrality reveals the reachability of a stakeholder to others in the social network. Betweenness centrality calculates the capacity of a stakeholder to be an intermediator between any two nodes. Stakeholders with high betweenness centrality, have a strategic role. Finally, eigenvector centrality demonstrates the importance and influence of a stakeholder in accordance with its connections with central actors [25, 31, 33]. To conduct the SNA, collected data were organized in Excel Template and then analyzed and visualized using the Gephi version 0.9.2 software [34].

Results

Stakeholder analysis

Several stakeholders were identified including the Elites, the FMVA (which finance and provide rehabilitation services to war veterans), the Governmental insurers (including a major part of the health insurance market), the Judicial system (as a public claimant it can assist in enforcing laws related to rehabilitation), the Mass media, the Medical universities, the Ministry of Health and Medical education (MOHME, involved in related decision- and policy-making processes), the Non-governmental organizations (NGOs, which play a significant role in financing and providing rehabilitation services especially for the poor and disabled groups), the Parliament (involved in enacting and overseeing law enforcement), the Physicians, the Planning and Budget Organization (PBO, as a budget regulator in various areas including health and welfare sectors), the Private insurers, the Providers (Physiotherapists, Occupational therapists, Prosthetists, and Orthotists), the Public,

Table 2 Rating the stakeholders according to position, power, interest, and influence

Stakeholders	Position	Power	Interest	Influence
Users	Low-medium	Low	Medium-high	Low
Elites	Low-medium	Medium	Medium-high	Low-medium
EMRO	Low-medium	Medium	Medium	Medium
Foundation of Martyrs and Veterans Affairs	Medium	Medium-high	Medium-high	Medium-high
Governmental insurers	Medium-high	Medium-high	Low	Medium-high
Juridical system	Medium-high	High	Low-medium	Medium-high
Mass media	Medium-high	Medium-high	Low-medium	Medium-high
Medical universities	Medium	Low-medium	Medium	Low-medium
Ministry of Health and Medical Education	Medium-high	High	Low	High
Non-governmental organizations (NGOs)	Low-medium	Low-medium	Medium-high	Low-medium
Parliament	High	High	Low-medium	High
Physicians	Medium	Medium-high	Low-medium	Medium
Planning and Budget Organization	Medium	Medium-high	Low-medium	Medium-high
Private insurers	Medium	Medium	Low	Medium
Providers	Low-medium	Medium	Medium	Medium
Public	Low-medium	Medium	Medium	Low-medium
Red Crescent	Low-medium	Medium	Medium-high	Medium
Research centers	Low-medium	Low-medium	Medium-high	Low-medium
Scientific associations	Low-medium	Low	Medium-high	Low
UN	Medium-high	Medium	Medium	Medium
Welfare Organization	Medium-high	Medium	High	Medium-high
WHO	Medium-high	Medium	High	Medium-high

the Red Crescent (involved in financing and providing of physical rehabilitation services), the Research centers, the Scientific associations (involved in regulatory and therapeutic guidelines), the United Nations (UN), the State Welfare Organization, the EMRO, and the WHO. The identified stakeholders participated in different steps of related decision- and policy-making process, from agenda-setting to policy implementation and evaluation.

After sending the web-based questionnaire, all participants responded. Finally, the data of the 35 questionnaires were analyzed. Table 2 demonstrates the estimated position, power, interest, and influence of the stakeholders involved in the financing of physical rehabilitation related decision- and policy-making processes.

Position analysis
Participants determined the parliament as the highest stakeholder in terms of position. Indeed, parliament can play a considerable role in financing physical rehabilitation in accordance with its facilities and also duties. Notably, governmental insurers (including SSO, IHIO, and AFSSO) were rated medium-high level. In fact, a major proportion of funding for the health sector comes from these insurers. Furthermore, the State Welfare Organization, judicial system, the MOHME, and mass media were recognized at medium-high level in terms of position. In regard to this item, international stakeholders (including the WHO and UN) were found to rank medium-high. FMVA, PBO, private insurers, physicians, as well as medical universities were rated medium. Summarily, various stakeholders e.g. users, providers, public, and Red Crescent had low-medium level in terms of position.

Power analysis
Among the identified stakeholders, the MOHME, the parliament, and the judicial system had the highest power level towards PRF-related policy-making processes in Iran. Additionally, PBO, physicians, mass media, governmental insurers, and FMVA were rated medium-high. Surprisingly, the State Welfare Organization and Red Crescent had medium power level, whereas these stakeholders play a significant role in the physical rehabilitation sector. In general, stakeholders like medical universities, NGOs, and research centers were rated low-medium in terms of power. However, users and scientific associations were rated as low.

Interest analysis
Based on the findings, the State Welfare Organization and also the WHO had the highest interest level towards PRF-related policies, providing numerous recommendations

Table 3 Social network metrics

Stakeholders	Degree centrality	Closeness centrality	Betweenness centrality	Eigenvector centrality	Hub	PageRank
Ministry of Health and Medical Education	21	0.87	46.74	1.00	0.38	0.074
Parliament	18	0.80	23.24	0.92	0.36	0.065
Welfare Organization	15	0.77	12.69	0.78	0.30	0.061
Public	11	0.67	3.97	0.61	0.24	0.046
Red Crescent	11	0.67	4.75	0.62	0.24	0.046
Juridical system	10	0.61	1.68	0.53	0.19	0.034
Elites	10	0.65	5.09	0.56	0.22	0.042
Planning and Budget Organization	10	0.63	6.75	0.57	0.22	0.039
Providers	10	0.65	7.20	0.50	0.19	0.044
Medical universities	10	0.61	4.99	0.36	0.12	0.039
Scientific associations	9	0.63	7.64	0.44	0.17	0.041
Applicants	9	0.61	1.53	0.49	0.19	0.040
WHO	9	0.61	0.99	0.57	0.22	0.034
UN	8	0.61	0.99	0.49	0.19	0.033
Non-governmental organizations	8	0.61	0.74	0.49	0.19	0.035
Mass media	7	0.58	1.32	0.39	0.15	0.032
Foundation of Martyrs and Veterans Affairs	7	0.58	2.01	0.37	0.14	0.031
Governmental insurers	6	0.58	1.87	0.35	0.13	0.028
EMRO	6	0.56	0.00	0.41	0.16	0.023
Private insurers	5	0.56	1.27	0.27	0.10	0.025
Research centers	4	0.55	0.20	0.22	0.08	0.020
Physicians	4	0.51	0.25	0.18	0.07	0.022

Table 4 Network and node-level metrics

Parameter	Value
Nodes	22
Edges	105
Density	0.45
Average clustering coefficient	0.64
Average degree	9.45
Number of triangles	516
Diameter	3
Average path length	1.58

and involved in a great many activities in this domain. In addition, users (clients), elites, FMVA, and NGOs as well as the Red Crescent, research centers, and scientific associations have been recognized at medium-high level in terms of the interest item. Participants also reported that a number of stakeholders have medium interest to participate in PRF-related policies, such as medical universities, providers, the public, EMRO, and UN. In addition, judicial system, mass media, parliament, PBO, and physicians were rated at low-medium level. However, the MOHME, governmental insurers, and Private insurers had the lowest rate. Indeed, these stakeholders were not interested in participating in PRF-related policy-making processes.

Influence analysis

Participants stated that the MOHME and the parliament were the highest stakeholders in terms of influence. In addition, FMVA, governmental insurers, judicial system, mass media, PBO, the State Welfare Organization, and the WHO had a medium-high influence on the PRF-related policies in Iran. In fact, these stakeholders play an important role in health and welfare financing processes including physical rehabilitation services. EMRO, UN, physicians, private insurers, providers, and the Red Crescent were rated medium, whereas scientific elites, medical universities, NGOs, the Public, and research centers were determined as stakeholders with low-medium influence in PRF-related policies. In total, users and scientific associations were rated at low level in influence item.
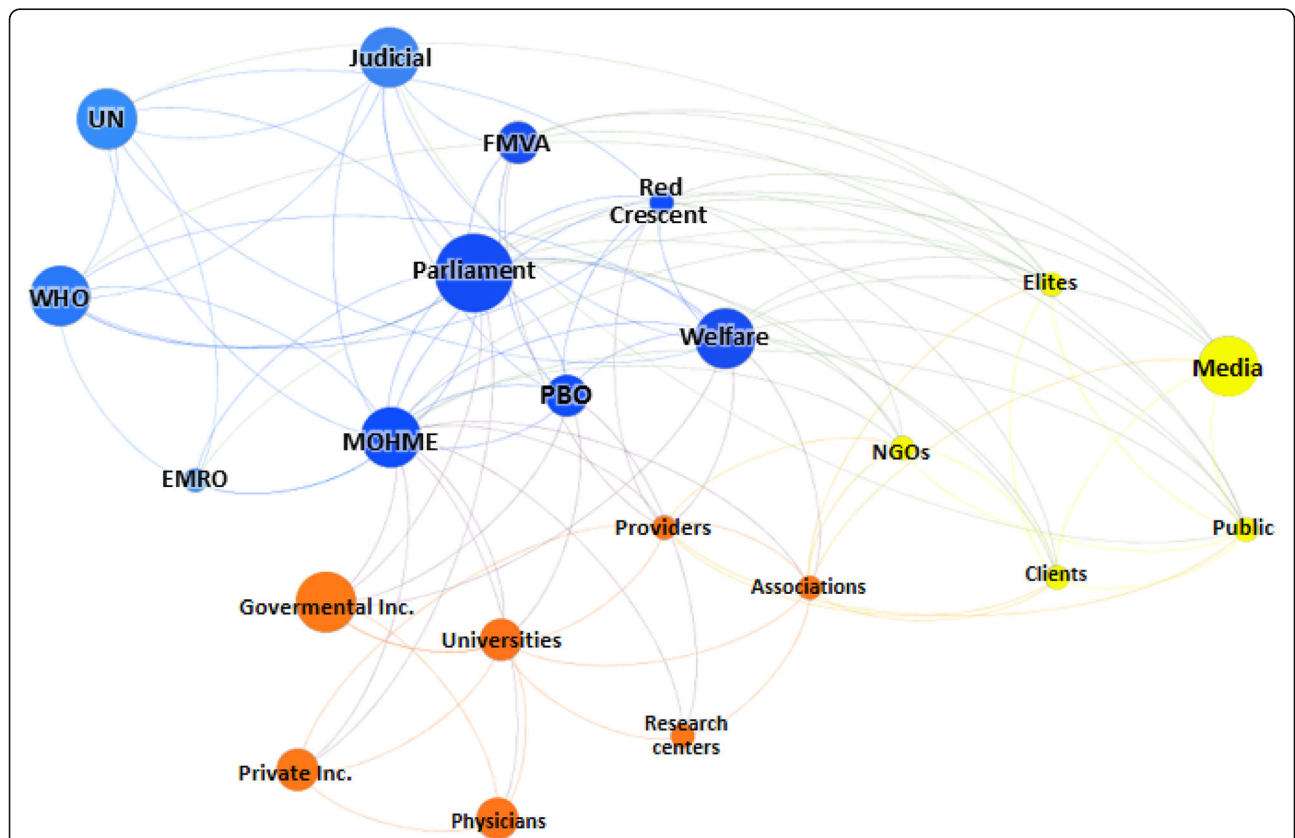

Fig. 2 Network map based on the position of stakeholders. Abbreviations: UN: the United Nations; WHO: World Health Organization; EMRO: Eastern Mediterranean Region Organization; FMVA: Foundation of Martyrs and Veterans Affairs; MOHME: Minstry of Health and Medical Education; Inc.: Insurances; PBO: Planning and Budget Organization; Welfare: the State Welfare Organization; NGOs: Non-Governmental Organizations

Social network analysis (SNA)

The calculated social network metrics including degree centrality, closeness centrality, betweenness centrality, eigenvector centrality, hub, and page rank are showed in Table 3. Furthermore, network and node-level metrics including nodes, edges, density, diameter, and so on are reported in Table 4. As shown, the MOHME, the parliament, and the State Welfare Organization had the highest rank for PRF-related decision- and policy-making processes in Iran. In accordance with the SNA findings, the public, the Red Crescent, judicial system, and elites were the next in rank. Figures 2, 3, 4, and 5 are showed the network maps based on position, power, interest, and influence of the involved stakeholders in PRF-related decision- and policy-making in Iran.

Discussion

The current study showed that there are different stakeholders in PRF-related decision- and policy-making processes in Iran. In addition, the position, power, interest, and influence level of the identified stakeholders were varied. Recognizing the important stakeholders and also

their roles can be considered a necessary step to develop, adopt, and implement effective policy solutions [24, 35]. Managers and policy-makers may also use the findings of the stakeholder analysis in open discussions to achieve consensus [24]. In regard to the PRF-related policies in Iran, although some stakeholders like MOHME and parliament have the highest level of power and position, they do not have adequate interest to participate.

Although the financing of physical rehabilitation services is identified as a challenge for the Iranian health care system [21], lack of interaction and corporation has always been a main barrier to policy formulation and implementation [15]. Our results in the present investigation also confirmed this phenomenon. Therefore, using negotiations can be an essential strategy to mitigate current dissents, and facilitate moving to optimal compromises [36]. Unfortunately, some participants believed that the MOHME did not hold itself responsible for financing and providing physical rehabilitation services in Iran, although these services are introduced as a part of the health system [16].

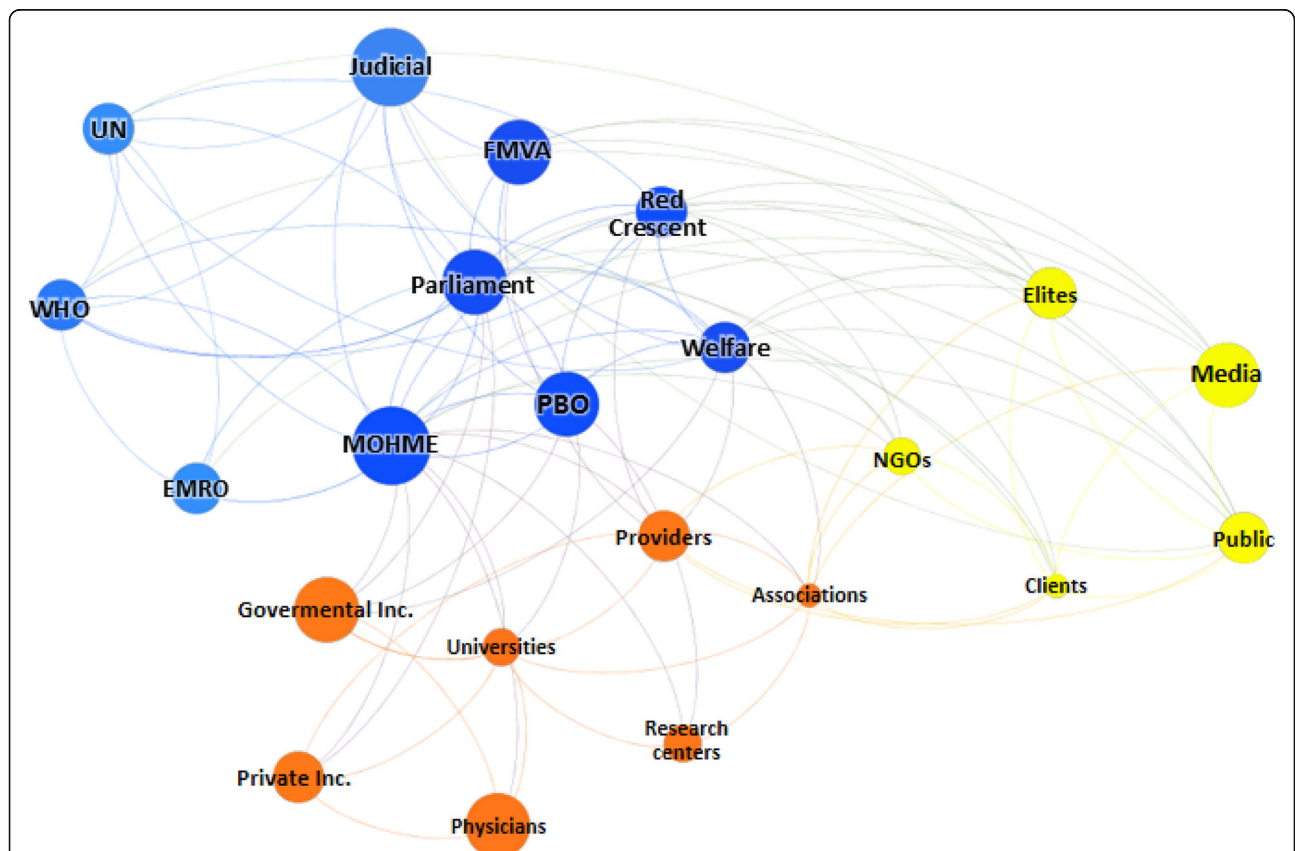One of the main factors affecting the decision- and policy-making is the power of stakeholders [37].

Fig. 3 Network map based on the power of stakeholders. Abbreviations: UN: the United Nations; WHO: World Health Organization; EMRO: Eastern Mediterranean Region Organization; FMVA: Foundation of Martyrs and Veterans Affairs; MOHME: Ministry of Health and Medical Education; Inc.: Insurances; PBO: Planning and Budget Organization; Welfare: the State Welfare Organization; NGOs: Non-Governmental Organizations

Fig. 4 Network map based on the interest of stakeholders. Abbreviations: UN: the United Nations; WHO: World Health Organization; EMRO: Eastern Mediterranean Region Organization; FMVA: Foundation of Martyrs and Veterans Affairs; MOHME: Minstry of Health and Medical Education; Inc.: Insurances; PBO: Planning and Budget Organization; Welfare: the State Welfare Organization; NGOs: Non-Governmental Organizations
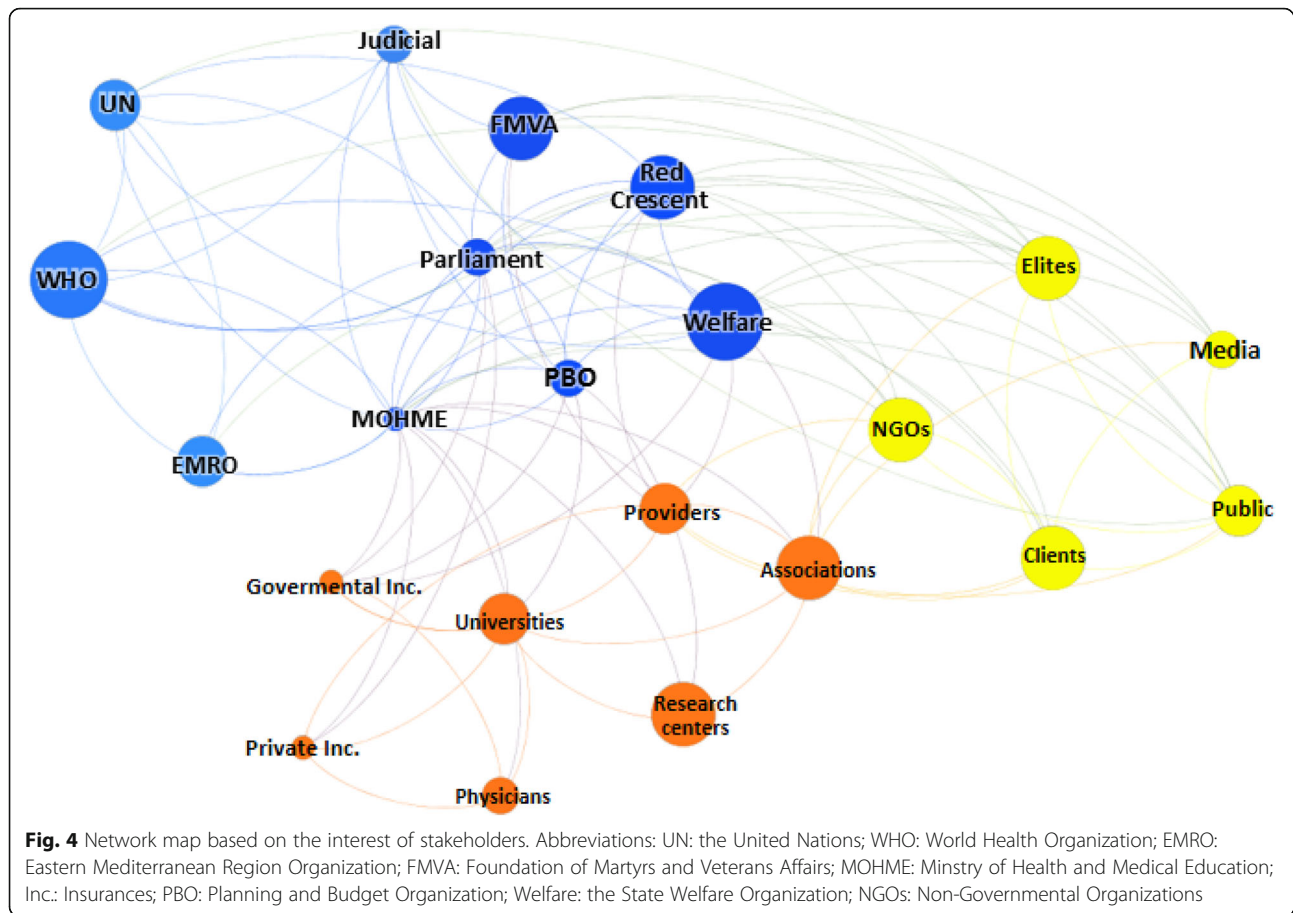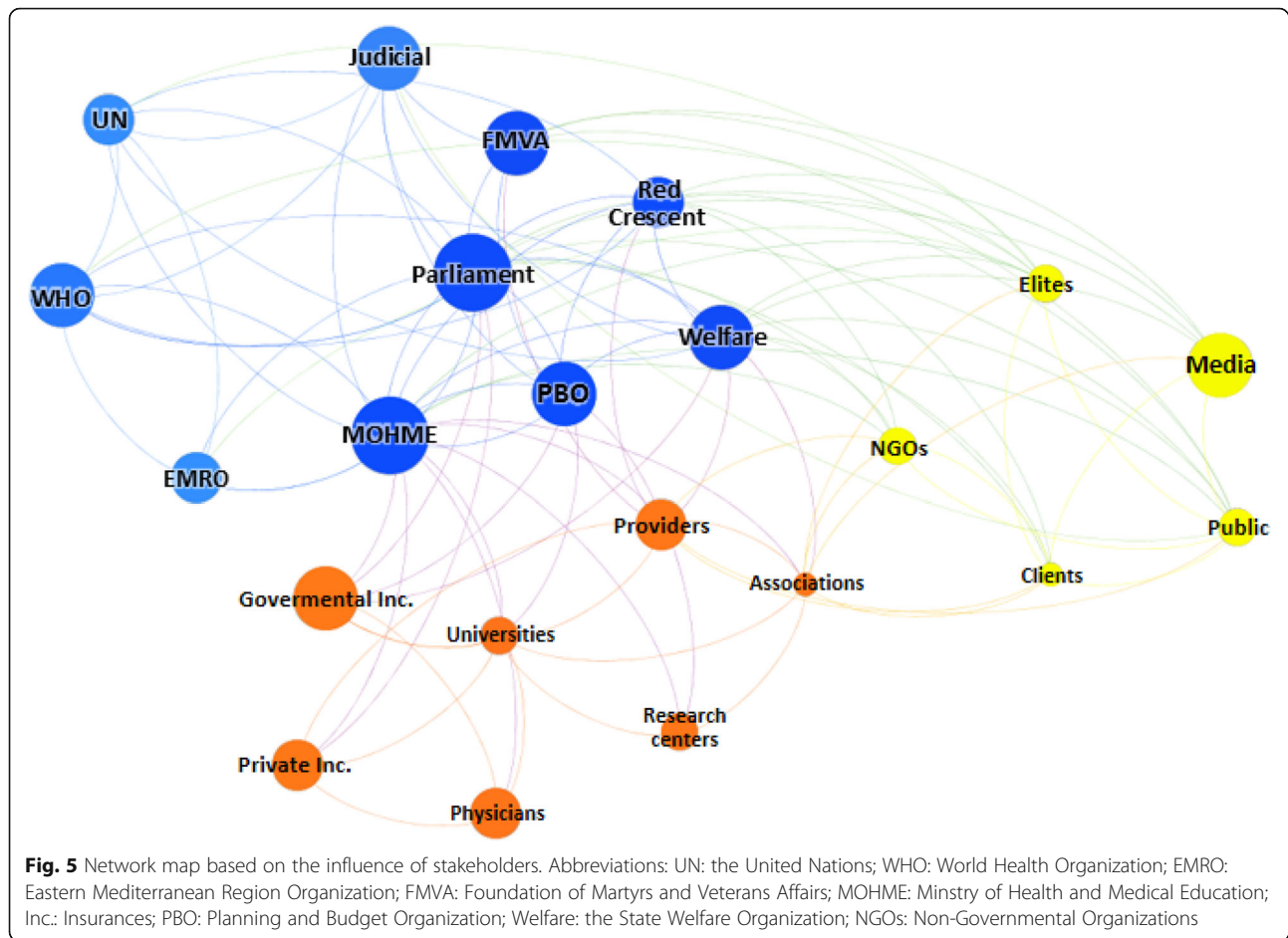
However, regarding PRF-related policies, powerful stakeholders have little interest in participation [14]. This is a considerable challenge that prevents relevant topics from being included in the agenda setting [38]. Consequently, various strategies such as informing the key stakeholders about physical rehabilitation services and the growing demand for them [15], must be applied to increase the chances of putting these issues on the agenda [39].

In regard to position, high ranking stakeholders like parliament, may have a significant effect on other actors [25]. In fact, contextual features of each actor represents its role in policy-making processes. Organizing a policy dialogue with senior legislators and policy-makers can be a rational way to deliberate on this issue, discover policy options to address it, and employ effective implementation strategies [40]. Indeed, as a study in Nigeria demonstrates [41], policy dialogues can improve evidence-to-policy relationship.

According to the available evidence, hybrid theories, including top-down and bottom-up approaches, must be considered to facilitate the policy implementation [42, 43]. However, top-down approach is more prevalent in Iran, especially in the health care system [14, 15], so that central stakeholders with high level of power, position, and influence, make decisions without the involvement of low-level

actors such as disabled persons, therapists, scientific associations and so on [15]. For instance, the focus of the Iranian health transformation plan on the financing of treatment interventions and lack of funding for physical rehabilitation services illustrates this situation [44, 45]. Therefore, strengthening related NGOs, increasing the involvement of rehabilitation professionals, and also participation of disabled persons in policy-making processes can be possible solutions [46, 47]. For instance, NGOs are use as advisors and technical supporters during policy-making in Senegal and Mozambique to promote the rehabilitation services [48].

Stakeholders have a varied spectrum of influence in accordance with their interests and attitudes [49]. Our findings showed that the MOHME and the parliament have highest influence on PRF-related polices. However, despite this high influence level, because of political, economic, and social issues, these stakeholders do not prioritize the financing of physical rehabilitation services, and mainly focus on services that have large, strong target groups [15]. Furthermore, in Iran like many developing countries, some political actors who have appropriate financial resources and facilities, seek to develop short-term and popular policies to pursue their

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Fig. 5 Network map based on the influence of stakeholders. Abbreviations: UN: the United Nations; WHO: World Health Organization; EMRO: Eastern Mediterranean Region Organization; FMVA: Foundation of Martyrs and Veterans Affairs; MOHME: Ministry of Health and Medical Education; Inc.: Insurances; PBO: Planning and Budget Organization; Welfare: the State Welfare Organization; NGOs: Non-Governmental Organizations

own agenda, e.g. immediate implementation of health transformation plan [44]. Therefore, FPR-related policies, which require long-term views, are challenged.

The results of this study also represented that social network density was low. Thus, increasing the interaction and collaboration among stakeholders must be considered to improve the FPR-related decision- and policy-making processes. This recommendation was supported by other studies [47, 50] in the literature which indicated that if the relevant actors use coherent and coordinated strategies throughout their policy processes, it has the potential to improve the present situation.

Limitations

This study has confronted with a number of limitations that should be taken into account alongside the results. Despite the efforts of the research team, some samples, especially health policymakers, were reluctant to participate. Further, the findings of this study are context-specific and so it is impossible to apply them directly in other societies. However, considering and identifying the stakeholders can be useful to facilitate

the identification of essential stakeholders in various settings.

Conclusions

The findings of this study showed that there are several stakeholders in FPR-related decision- and policy-making processes in Iran. As many powerful and influential stakeholders had a low interest level to participate in policy processes, using careful and effective strategies, that is, ongoing negotiations, receiving advocacy, and promoting awareness all round among senior managers and policy-makers can be helpful. In addition, street-level actors such as providers, rehabilitation experts, and disabled groups should be taken into consideration in policy-making processes. The results of SNA also represented that social network density was low. Thus, increasing the interaction and collaboration among stakeholders must be considered to improve the FPR-related decision- and policy-making processes. This recommendation was supported by other studies [45, 47] in the literature which indicated that if the relevant actors use coherent and coordinated strategies throughout their policy processes, it has the potential to improve the present situation. Our findings provide lessons for other countries,

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especially in the EMRO and Middle East and North Africa (MENA) regions, which confront similar issues in the physical rehabilitation sector.

Abbreviations
CHE: Catastrophic health expenditure; OOP: Out-of-pocket; PRF: Physical rehabilitation financing; SNA: Social Network Analysis; HCHI: High Council of Health Insurance; SSO: Social Security Organization; IHIO: Iran Health Insurance Organization; AFSSO: Armed Forces Social Security Organization; FMVA: Foundation of Martyrs and Veterans Affairs; MOHME: Ministry of Health and Medical education; PBO: Planning and Budget Organization

Authors' contributions
SSH and HSH conceptualized the study. SSH and AAT conducted the document review and interviews. SSH, AAT, and MK analyzed the data. SSH, AAT, KBL involved in writing the initial draft, and its revision. In final, all authors read and confirmed the final manuscript.

Availability of data and materials
The datasets generated and/or analyzed during the current study are not publicly available due to the ethical principles of our qualitative study but are available from the corresponding author on reasonable request.

Ethics approval and consent to participate
The Ethics committee of the Iran University of Medical Sciences was approved the study protocol (IR-IUMS-REC-1397-889). Written informed consent approval was gained prior to interviews.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interest to share.

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References
1. World Health Organization. WHO global disability action plan 2014–2021: better health for all people with disability. Geneva: World Health Organization; 2015.
2. Blyth FM, Briggs AM, Schneider CH, Hoy DG, March LM. The global burden of musculoskeletal pain—where to from here? Am J Public Health. 2019; 109(1):35–40.
3. Chang AY, Skirbekk VF, Tyrovolas S, Kassebaum NJ, Dieleman JL. Measuring population ageing: an analysis of the global burden of disease study 2017. Lancet Public Health. 2019;4(3):e159–67.
4. Khan MA, Grivna M, Nauman J, Soteriades ES, Cevik AA, Hashim MJ, et al. Global incidence and mortality patterns and forecast of pedestrian road traffic injuries by socio-demographic index findings from the global burden of diseases, injuries, and risk factors 2017 study. 2020.
5. Buse K, Hawkes S. Health in the sustainable development goals: ready for a paradigm shift? Glob Health. 2015;11(1):13.
6. Kamenov K, Mills J-A, Chatterji S, Cieza A. Needs and unmet needs for rehabilitation services: a scoping review. Disabil Rehabil. 2019;41(10):1227–37.
7. Healy A, Farmer S, Eddison N, Allcock J, Perry T, Pandyan A, et al. A scoping literature review of studies assessing effectiveness and cost-effectiveness of prosthetic and orthotic interventions. Disabil Rehabil Assist Technol. 2020; 15(1):60–6.
8. Turner-Stokes L, Dzingina M, Shavelle R, Bill A, Williams H, Sephton K. Estimated life-time savings in the cost of ongoing care following specialist rehabilitation for severe traumatic brain injury in the United Kingdom. J Head Trauma Rehabil. 2019;34(4):205.
9. Shahabi S, Rezapour A, Arabloo J. Economic evaluations of physical rehabilitation interventions in older adults with hip and/or knee osteoarthritis: a systematic review. Eur J Phys. 2019. p. 1–11. https://doi.org/10.1080/21679169.2019.1672785.
10. Twiss M, Hilfiker R, Hinrichs T, De Bruin ED, Rogan S. Effectiveness of non-pharmaceutical interventions to prevent falls and fall-related fractures in older people living in residential aged care facilities–a systematic review and network meta-analysis protocol. Phys Ther Rev. 2019;24(6):291–7.
11. Shahabi S, Shabaninejad H, Kamali M, Jalali M, Ahmadi Teymourlouy A. The effects of ankle-foot orthoses on walking speed in patients with stroke: a systematic review and meta-analysis of randomized controlled trials. Clin Rehabil. 2019;0269215519887784.
12. Aswegen H, Reeve J, Beach L, Parker R, Olsèn MF. Physiotherapy management of patients with major chest trauma: Results from a global survey. Trauma. 2019;1460408619850918.
13. Moreno NA, de Aquino BG, Garcia IF, Tavares LS, Costa LF, Giacomassi IWS, et al. Physiotherapist advice to older inpatients about the importance of staying physically active during hospitalisation reduces sedentary time, increases daily steps and preserves mobility: a randomised trial. J Physiother. 2019;65(4):208–14.
14. Abdi K, Arab M, Rashidian A, Kamali M, Khankeh HR, Farahani FK. Exploring barriers of the health system to rehabilitation services for people with disabilities in Iran: a qualitative study. Electron Physician. 2015;7(7):1476.
15. Soltani S, Takian A, Sari AA, Majdzadeh R, Kamali M. Cultural barriers in access to healthcare services for people with disability in Iran: a qualitative study. Med J Islam Repub Iran. 2017;31:51.
16. Gutenbrunner C, Nugraha B. 2.1 Rehabilitation: rehabilitation as a health strategy. J Int Soc Phys Rehabil Med. 2019;2(5):15.
17. Magnusson D, Sweeney F, Landry M. Provision of rehabilitation services for children with disabilities living in low-and middle-income countries: a scoping review. Disabil Rehabil. 2019;41(7):861–8.
18. Krug E, Cieza A. Strengthening health systems to provide rehabilitation services. Neuropsychol Rehabil. 2019;29(5):672–4.
19. Khan F, Amatya B, Elmalik A, Galea M. Global disability action plan 2014–2021 (GDAP): the way forward. Ann Phys Rehabil Med. 2018;61:e518–9.
20. World Health Organization. Rehabilitation in health systems. Geneva: World Health Organization; 2017.
21. Zarei E, Nikkhah A, Pouragha B. Utilization and out of pocket (OOP) payment for physiotherapy services in public hospitals of Shahid Beheshti University of Medical Sciences. Med J Islam Repub Iran. 2018;32:19.
22. Evans DB, Etienne C. Health systems financing and the path to universal coverage. Bull World Health Organ. 2010;88:402.
23. Schiller C, Winters M, Hanson HM, Ashe MC. A framework for stakeholder identification in concept mapping and health research: a novel process and its application to older adult mobility and the built environment. BMC Public Health. 2013;13(1):428.
24. Schmeer K. Stakeholder analysis guidelines. Policy toolkit for strengthening health sector reform; 1999. p. 1.
25. Behzadifar M, Gorji HA, Rezapour A, Rezvanian A, Bragazzi NL, Vatankhah S. Hepatitis C virus-related policy-making in Iran: a stakeholder and social network analysis. Health Res Policy Syst. 2019;17(1):42.
26. Kyngäs H, Kääriäinen M, Elo S. The trustworthiness of content analysis. In: The application of content analysis in nursing science research. Berlin: Springer; 2020. p. 41–8.
27. Blanchet K, James P. How to do (or not to do) … a social network analysis in health systems research. Health Policy Plan. 2012;27(5):438–46.
28. De Brún A, McAuliffe E. Social network analysis as a methodological approach to explore health systems: a case study exploring support among senior managers/executives in a hospital network. Int J Environ Res Public Health. 2018;15(3):511.

29. Uddin S, Mahmood H, Senarath U, Zahiruddin Q, Karn S, Rasheed S, et al. Analysis of stakeholders networks of infant and young child nutrition programmes in Sri Lanka, India, Nepal, Bangladesh and Pakistan. BMC Public Health. 2017;17(2):405.

30. Chambers D, Wilson P, Thompson C, Harden M. Social network analysis in healthcare settings: a systematic scoping review. PLoS One. 2012;7(8): e41911.

31. Benítez-Andrades JA, García I, Benavides C, Alaiz-Moretón H, Rodríguez-González A. Social network analysis for personalized characterization and risk assessment of alcohol use disorders in adolescents using semantic technologies. Future Gener Comput Syst. 2020;106:154–70.

32. Kim J, Hastak M. Social network analysis: characteristics of online social networks after a disaster. Int J Inf Manag. 2018;38(1):86–96.

33. Stanley W, Faust K. Social network analysis: methods and applications. Cambridge: Cambridge University; 1994.

34. Bastian M, Heymann S, Jacomy M. Gephi: an open source software for exploring and manipulating networks. In: Third international AAAI conference on weblogs and social media, vol. 2009; 2009.

35. Namazzi G, Peter W, John B, Olico O, Elizabeth EK. Stakeholder analysis for a maternal and newborn health project in eastern Uganda. BMC Pregnancy Childbirth. 2013;13(1):58.

36. Fretheim A, Oxman AD, Lavis JN, Lewin S. SUPPORT tools for evidence-informed policymaking in health 18: planning monitoring and evaluation of policies. Health Res Policy Syst. 2009;7(1):S18.

37. Dalglish SL, Sriram V, Scott K, Rodríguez DC. A framework for medical power in two case studies of health policymaking in India and Niger. Glob Public Health. 2019;14(4):542–54.

38. Smith SL, Hunsmann M. Agenda setting for maternal survival in Ghana and Tanzania against the backdrop of the MDGs. Soc Sci Med. 2019;226:135–42.

39. Shiffman J. Agenda setting in public health policy. In: International encyclopedia of public health. Amsterdam: Elsevier; 2016. p. 16–21.

40. Lavis JN, Boyko JA, Oxman AD, Lewin S, Fretheim A. SUPPORT tools for evidence-informed health policymaking (STP) 14: Organising and using policy dialogues to support evidence-informed policymaking. Health Res Policy Syst. 2009;7(1):S14.

41. Uneke CJ, Ezeoha AE, Uro-Chukwu H, Ezeonu CT, Ogbu O, Onwe F, Edoga C. Promoting evidence to policy link on the control of infectious diseases of poverty in Nigeria: outcome of a multi-stakeholders policy dialogue. Health Promot Perspect. 2015;5(2):104.

42. Pülzl H, Treib O. Implementing public policy. In: Handbook of public policy analysis. Abingdon: Routledge; 2017. p. 115–34.

43. Sabatier PA. Top-down and bottom-up approaches to implementation research: a critical analysis and suggested synthesis. J Public Pol. 1986;6(1): 21–48.

44. Doshmangir L, Bazyar M, Najafi B, Haghparast-Bidgoli H. Health financing consequences of implementing health transformation plan in Iran: achievements and challenges. Int J Health Policy Manag. 2019;8(6):384.

45. Mosadeghrad AM. Health transformation plan in Iran. Health systems improvement across the globe: success stories from, vol. 70; 2017. p. 309–16.

46. McCarron TL, Moffat K, Wilkinson G, Zelinsky S, Boyd JM, White D, et al. Understanding patient engagement in health system decision-making: a co-designed scoping review. Syst Rev. 2019;8(1):97.

47. McVeigh J, MacLachlan M, Gilmore B, McClean C, Eide AH, Mannan H, et al. Promoting good policy for leadership and governance of health related rehabilitation: a realist synthesis. Glob Health. 2016;12(1):49.

48. Khan F, Amatya B, Mannan H, Burkle FM Jr, Galea MP. Rehabilitation in Madagascar: challenges in implementing the World Health Organization disability action plan. J Rehabil Med. 2015;47(8):688–96.

49. Phoya S, Pietrzyk K. Holistic view on multi-stakeholders' influence on health and safety risk management in construction projects in Tanzania. In: Risk management in construction projects. Rijeka: IntechOpen; 2019.

50. Mji G, MacLachlan M, Melling-Williams N, Gcaza S. Realising the rights of disabled people in Africa: an introduction to the special issue. Disabil Rehabil. 2009;31(1):1–6.

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