
ABSTRACT

Objectives Work-related stress is a common risk factor among healthcare workers (HCWs). In Iran, the healthcare system has undergone extensive changes to develop services. Organisational change has led to the creation of new working conditions for HCWs. The purpose of this study is to identify job demands that health workers perceive as stressors.

Design As a qualitative study, semistructured interviews, a focus group, and related data were analysed both inductively and deductively with reference to the job demand component based on the job demands–resources model and MAXQDA.

Setting This investigation was conducted in 18 primary healthcare centres in Gavzin, Iran.

Participant Twenty-one female HCWs with at least 6 months of work experience and an average age of 34.4 years.

Results The participants identified six key elements as the stressful job demands including organisation's supervisory function, role characteristics, workload, job insecurity, client service challenges and perceived job content.

Conclusions After organisational changes and development, HCWs were faced with role changes and increased workload. In addition, organisational supervision in terms of quantity and quality and lack of job security intensified the pressures. These factors led to the high level of stress among employees who dealt with people and those who perceived their job content as unfavourable. Perhaps teaching stress control skills and organisational support interventions can be useful to reduce and control stress among HCWs.

INTRODUCTION

Mental pressure in the workplace is an inevitable and common phenomenon. When that pressure becomes excessive or uncontrollable, it leads to stress in employees. Indeed, work-related stress is an adverse reaction that employees may experience when faced with job demands and pressures which challenge their knowledge and skills as well as their ability to cope. Evidence suggests that work-related stress among employees is high. For instance, a document reports that work-related stress in 80% of European Union organisations is worrying. Meanwhile, stress increases physical diseases including cardiovascular diseases and musculoskeletal disorders. It has been found that work-related stress leads to anxiety, depression and burnout, while it decreased job satisfaction and increased absenteeism. Along with the above-mentioned mental and physical diseases, the highest financial costs of employee mental illness are related to reduced productivity.

Healthcare workers (HCWs) experience high levels of workplace stress due to job sensitivity and may even be higher than other occupational groups. Primary healthcare (PHC) systems are responsible for providing services such as disease management, health education and family healthcare. Therefore, HCWs play a vital role in promoting community health since job satisfaction makes employees feel more supportive of the organisation, and patients experience better care.

Evidence suggests that there is a positive relationship between perceived stress and job demand. Although several investigations exist on work-related stress, due to changes in the nature of organisations in recent decades, the need for more research on the topic is evident. In addition, structural changes are inevitable for the growth and development of healthcare systems today. These changes put employees in new job positions. In order to provide, maintain and promote the health of the society, Iran's healthcare workers (HCWs) experience high levels of workplace stress due to job sensitivity and may even be higher than other occupational groups. Primary healthcare (PHC) systems are responsible for providing services such as disease management, health education and family healthcare. Therefore, HCWs play a vital role in promoting community health since job satisfaction makes employees feel more supportive of the organisation, and patients experience better care. Evidence suggests that there is a positive relationship between perceived stress and job demand. Although several investigations exist on work-related stress, due to changes in the nature of organisations in recent decades, the need for more research on the topic is evident. In addition, structural changes are inevitable for the growth and development of healthcare systems today. These changes put employees in new job positions. In order to provide, maintain and promote the health of the society, Iran’s
health system provides PHC (identification and control of communicable and non-communicable diseases, vaccination, family health, students’ health education, oral and dental healthcare, recruitment and training, volunteers for the development of public participation, etc) in urban and rural health centres. HCWs working in these centres are often public health experts, midwives and nurses. One of the members of this team is also a foreman. If a disease is diagnosed and treatment is needed, they refer the client to a higher level in the same centre for more accurate diagnosis and treatment. In 2014, improvement in the health system with the approach of increasing justice in health and improving the quality of health and medical services has been made in the entire health system of Iran. Following these changes in the health centres, in addition to the development of the previous services, new services have been added including mental health and checking healthy lifestyles in different age groups. It has to be added that HCWs should educate the covered population on healthy behaviours and receiving free and new health services. Therefore, the variety of services has increased and finally, it has led to the increase and combination of specialised work for HCWs. Because these changes have occurred recently in Iran, we could not find any in-depth investigations on the topic.\(^{17–19}\) The purpose of this study is to conduct a qualitative research on job demands affecting workplace stress based on perceptions and experiences of primary HCWs in Iran.

**METHODS**

**Study design**

The current study was a qualitative study using both inductive and deductive approaches. Inductive content analysis is useful in cases where there is no previous study of the phenomenon.\(^{20}\) Deductive content analysis is useful when the structure of the analysis is operational based on prior knowledge or prior theory about a phenomenon.\(^{20,21}\) The structure of deductive analysis in this study is based on the the job demands–resources (JD-R) model. The JD-R model is a popular theoretical framework that investigates the reciprocal relationships between job characteristics and employee well-being.\(^{22}\) This model is based on the balance between demands and resources.\(^{23–24}\) According to the JD-R model, job demands are associated with unfavourable and highly stressful conditions, and resources are related to conditions that are motivating if sufficient.\(^{25}\) In other words, excessive job demands with insufficient resources leads to stress.\(^2\) Job demands refer to the physical, social or organisational aspects of a job that can cause stress or health problems.\(^{25}\) This study followed the Consolidated criteria for Reporting Qualitative research\(^ {26}\) (see online supplemental appendix 1).

**Participant selection**

In order to identify people for interview, basic information of HCWs and primary care centres of that area was obtained from the public health network in Qazvin and Alborz cities. Then, to obtain comprehensive information about HCWs’ views and experiences, combined sampling methods including purposive and snowball sampling were used. Combining sampling methods at different stages of the research helps to ensure a reduction in study bias and involvement of different participants.\(^ {27}\) The inclusion criterion for participants was having a minimum of 6 months’ work experience in a healthcare setting. Participants were invited by telephone. The interviewer (MZ) introduced himself for each call and explained the goals and reasons for the study. After inviting qualified HCWs, appointments were made for employees interested in participating at a date and place of their choice. Participants signed a written informed consent form before collecting the data. Two participating candidates were excluded from the study due to their unwillingness to sign the informed consent form. Once again, informed consent was recorded orally at the beginning of the interview. Due to HCWs’ concerns about the disclosure of identifiable information, they were assured that the information would remain confidential and that only anonymous quotes would be included in any resultant reports. In total, 21 participants working in 18 PHC centres in two different geographical locations were interviewed.

**Setting**

The interviews were conducted between November 2019 and July 2020. The focus group and two interviews were conducted during the outbreak of the COVID-19. All interviews were conducted at the workplace. The focus group was held in the meeting hall of an organisation. Only the researcher and participants were present at the data collection sessions. The mean age of the participants was 34.4 years and they were all women. The characteristics of the participants are shown in table 1.

### Table 1 Participants’ characteristics (n=21)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>13</td>
</tr>
<tr>
<td>Single</td>
<td>8</td>
</tr>
<tr>
<td>Employment contract</td>
<td></td>
</tr>
<tr>
<td>Permanent</td>
<td>7</td>
</tr>
<tr>
<td>Fixed-term</td>
<td>14</td>
</tr>
<tr>
<td>Job titles</td>
<td></td>
</tr>
<tr>
<td>Foreman and healthcare worker</td>
<td>16</td>
</tr>
<tr>
<td>Healthcare worker</td>
<td>5</td>
</tr>
<tr>
<td>College education</td>
<td></td>
</tr>
<tr>
<td>Public health</td>
<td>13</td>
</tr>
<tr>
<td>Midwife</td>
<td>8</td>
</tr>
</tbody>
</table>

Data collection
Data were collected through 11 semistructured interviews and a focus group interview. Based on the literature review on job demand-induced workplace stress, a semistructured interview guide was developed (see online supplemental appendix 2). The first author (PhD candidate and Master of Science in Health Education and Health Promotion) conducted all the interviews. Before the beginning of the study, in order to evaluate the questions, guide and increase the interviewer’s experience, interviews with two volunteers and a focus group were conducted on a trial basis. Interviews were conducted in Persian and one interview was repeated. The interviews lasted 30–90 min while the focus group interviews lasted 60 min. Once new information was obtained from the interviews, it was included in subsequent interviews to gain a deeper understanding of the data.28 Finally, the interviews were conducted until the theoretical saturation was achieved. According to this criterion, data collection stops when the final interviews do not show any new information and are merely a repetition of previous information.29–31 All interviews were audio-taped and transcribed verbatim on the same day. Transcripts were returned to participants for comment and correction.

Patient and public involvement
No patients were involved.

Data analysis
Each interview was read several times by the researcher and significant points were identified. First, transcribed interviews were analysed deductively. The researcher read the text of the interviews several times to get a general understanding of the content of each interview, and significant points were identified. Then several categories were created based on different dimensions of the key element of job demand, depending on the JD-R model, in MAXQDA V.10 software. The interviews were reviewed in terms of content to match the different dimensions of the key element and were coded within the initial structured framework. At this stage, only aspects of the data that fit the structured framework were selected.20 Undecided texts that were not in any of the categories were stored in a separate document. The next step was inductive analysis. At this stage, the focus was on latent content20 and undecided text. Therefore, in order to understand the concepts outside the structured framework, open-coding interviews were conducted for the text saved in the additional document and other parts of the text.20 The codes were placed in new subcategories and categories based on differences and similarities. Finally, the new subcategories and categories were named based on the general concept of the codes of each set.

Rigour
The first author was deeply involved with the data for more than a year. Meetings were also held during the coding process and the codes were repeatedly discussed and revised by the authors to reach an agreement. In addition, the data were reviewed by a qualitative studies specialist who was independent of the team. To ensure the researcher’s correct interpretation, after summarising each interview and presenting it to the participant, they were asked to verify those interpretations. Despite the critical beliefs and previous assumptions of researchers about the causes of work-related stress, efforts were made to avoid this critical situation throughout the study process.

RESULTS
Content analysis of interviews and group discussion identified 227 codes, 21 subcategories and 6 categories as stressful job demands (table 2).

Organisation’s supervisory function
Participants stated that the organisation’s supervisory function was an important source of anxiety and stress. Regulatory pressures including delegating tasks beyond job descriptions, forcing HCWs to perform the tasks of others and meeting the organisation’s expectations constantly harass participants. HCWs claimed that their superiors sometimes use threatening tactics to fire or relocate employees and deduct certain payments. Participants believed that threats lead to stress, and reduced concentration and quality of performance.

The letters we receive for extra works due to coronavirus all are stressful since our supervisors threaten us for cutting payments. (P18, focus group)

Participants mentioned that the organisation’s unfair policies such as discrimination in payments, discrimination in the assignment of duties and imbalanced effort–reward lead to stress.

Why they do not pay my additional responsibility payments? Why they are asking extra work but not paying the payments? (P11, interview)

HCWs considered inappropriate monitoring process as a source of stress in the workplace and included mentioning about unfair judgement of the supervisors and poor monitoring skills of the supervisor. A participant stated:

Some supervisors just want to catch us red-handed when monitoring, this creates a lot of stress. (P14, focus group)

Role features
In view of recent changes in the role of HCWs, all foremen stated that performing service and administrative tasks at the same time causes them stress and anxiety.

All the monitoring units expect you to perform as a supervisor … but when you provide services like the rest of your colleagues, it’s very, very difficult. (P8, interview)


On the other hand, being accountable for the poor performance of other colleagues was annoying for the foreman. A foreman stated:

One of my colleagues says: I will not do this, why do you insist. I should answer to my supervisors. They do not usually ask joiner colleagues and always they remind me that you are responsible for them. (P14, focus group)

The importance of transparency in job goals, familiarity with evaluation criteria and knowledge of job descriptions was mentioned frequently. Participants stated that they sometimes encounter conflicts in their jobs, such as the conflict between the demands of the organisation and clients, the conflict between the expectations of the organisation and the conflict of their own beliefs with the expectations of the organisation. The HCWs described the pressure of these conflicts as annoying.

Sometimes clients have different expectations from us. Since we could not respond positively to their request, it might end with verbal violence or similar. Such happening makes me nervous until the end of the day. (P7, interview)

**Table 2** Classification of theme, categories and subcategories according to the content analysis

<table>
<thead>
<tr>
<th>Theme</th>
<th>Categories</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived job demands</td>
<td>Organisation’s supervisory function</td>
<td>Weakness of the monitoring process Unfair policies Exertion regulatory pressure</td>
</tr>
<tr>
<td>Role features</td>
<td></td>
<td>Role load Role conflict Role ambiguity</td>
</tr>
<tr>
<td>Workload</td>
<td></td>
<td>High workload Not having time Multiple tasks</td>
</tr>
<tr>
<td>Job insecurity</td>
<td></td>
<td>Lack of job security due to employment status Concerns about payments Lack of physical security Uncertain job future</td>
</tr>
<tr>
<td>Client service challenges</td>
<td></td>
<td>Different characteristics of clients Harassment of clients to meet their expectations Tensions in client relationships Lack of knowledge of clients of healthcare guidelines</td>
</tr>
<tr>
<td>Perceived job content</td>
<td></td>
<td>Multitasking Monotonous and repetitive tasks Meaningless tasks No attraction and excitement</td>
</tr>
</tbody>
</table>

**Workload**

Increasing the workload was mentioned as an important problem for HCWs. All participants believed that their workload was high. They claimed that after the changes in the organisation, the variety of tasks has increased and they have to provide more services to a larger population. On the other hand, HCWs considered numerous follow-ups and reports as other reasons for the increase in their workload. They stated that different tasks are associated with increasing the number of responses to multiple supervisors, and ultimately it has become difficult for them to manage tasks.

When I first started, we only did fertility counselling, vaccinations and child care, but now everything has changed; expectations have increased, communicable and non-communicable diseases program has become more active, nutrition and mental health program has been added, referrals have increased …. in fact, the volume of work and its diversity has changed a lot. (P11, interview)

HCWs said that sometimes the workload is so large that they face the challenge of lack of time. They were sometimes had to work longer hours at their workplace or at home to perform tasks such as preparing work reports and recording some information in the electronic healthcare system. This problem was exacerbated during the COVID-19 outbreak and patient follow-up.

**Client service challenges**

One source of workplace stress for HCWs was client service challenges. Due to the wide range of services, clients from different social groups and classes had different demands and expectations, and this had created challenges and difficulties for HCWs. ‘Sometimes we deal with clients who do not understand anything, have a very low level of literacy, do not understand everything we explain’ (P1, interview).

Despite the development of health services, clients sometimes had irrational or excessive expectations that put pressure on HCWs. However, some participants
believed that sometimes clients’ irrational expectations were due to a lack of awareness of new instructions.

The explanation we give them is not acceptable because they want their request to be granted and they do not care what the consequences will be for the employee. (P3, interview)

Another annoying experience for HCWs was dealing with inappropriate reactions and even obscenity and violence from some clients.

I was measuring the baby’s height and weight, nothing special happened, then the baby’s father said a bad sentence that I was very upset, it was totally irrelevant, I had a lump in my throat and wanted to cry, I was very upset. (P7, interview)

Job insecurity

Fixed-term HCWs reported that they were constantly concerned about retaining their jobs and contract termination due to job performance or changes in the organisation’s human resources policies. A participant said:

Because I have a fixed-term employment contract, I am always worried and stressed that I will be told unexpectedly that we do not need you. (P7, interview)

A number of other HCWs with fixed-term contracts expressed concern about unemployment after the end of the commitment period, citing this as their most important stressor.

After these two years, I really do not know what to do, is it really good to continue my education? Is there a job to do at all? Or not? It’s very worrying. (P8, interview)

One of the occupational concerns of HCWs with fixed-term contracts was the non-timely payment of monthly salaries. On the other hand, due to differences in employment status, there was a difference in payments such as overtime and bonuses that were not paid to fixed-term employees. In addition, they were concerned about income and financial problems.

We have a health care worker with a fixed-term contract, we also have a permanent employment, but we have different rights for the same duties. I am a fixed-term employee, even if I have served a thousand people, I get the same basic salary, but if my colleague who is a permanent employee has less services, in addition to salary, he receives overtime, bonuses and even money for clothes. This is inequality. (P9, interview)

Perceived job content

Although one HCW considered job diversity exciting, most participants believed that an HCW was multitasking and had to work with different units of the organisation that increased workload and high responsiveness. These two mental pressures they need to cope with were quite annoying for HCWs.

The main problem of our job is that it is very diverse and we are in contact with many superiors. (P13, focus group)

Two participants believed that some of their work is useless and meaningless since they are ineffective. A number of HCWs believed that their job was not exciting and HCWs with more work experience found their job to be monotonous and repetitive.

DISCUSSION

This study was conducted after extensive changes in the PHC service system in Iran with the aim of discovering stress-related job demands in employees working in PHC centres. The findings of the study are summarised in six categories: (1) organisation’s supervisory function; (2) role features; (3) workload; (4) job insecurity; (5) client service challenges and (6) perceived job content.

The results of this study indicate that after organisational changes with the aim of service development, the role of HCWs has been revised and specialised and diverse tasks have been entrusted to them. Therefore, HCWs experience a high workload. Several studies have pointed out the effect of workload on occupational stress. According to the results of a cross-sectional study, nurses who had a high level of workload perceived high levels of occupational stress.32 On the other hand, there is evidence of increased stress and burnout among HCWs during infectious disease epidemics,33 including COVID-19.17 34–36 Since part of this study was conducted at the time of COVID-19 outbreak, the study participants reported increased workload and stress due to screening and follow-up treatment of quarantined patients at home that causes the interception of high-risk contacts. These duties were often combined with their routine duties.

The role characteristics that have been identified as an important source of workplace stress in this study have also been accentuated in other studies.37–39 The participants of this study were under the pressure caused by the conflict between the supervisors’ demands and the conflict between the client’s demands and job expectations. Indeed, the HCWs as health experts had beliefs and views regarding the process of providing services and instructions, which were in conflict with the instructions communicated by the organisation. It seems that because of the changes in the role and the addition of specialised tasks, the ambiguity in understanding different instructions and role conflicts increases. However, quantitative research is needed to prove this relationship. In addition, managers can use expert views and experiences of HCWs in designing some changes.

According to the current investigation, studies on HCWs have rarely addressed the issue of delegating two different responsibilities, administrative supervisory and service provision. In Iran, an HCW has been hired as a
foreman for each health centre. A foreman, in addition to providing services to clients, is responsible for other HCWs and administrative issues. In this condition, an HCW who must acquire the skills of both roles has increased workload and responsibilities and gets a great deal of stress. The outcome indicates that division of tasks based on expertise can be an influencing solution to reduce the workload and increase the quality of performance.

One of the most significant results of this study was the marked influence of the organisation’s supervisory performance on the stress of HCWs. This work-related stress factor was not observed in the results of most job demand studies based on the JD-R model; in a few studies, regulatory pressures were poorly mentioned. Workplace pressures can be related to the inspections, appraisal and revalidation processes and stress sources. According to the results of this study, poor training skills of supervisors, injustice in the performance appraisal of HCWs and inappropriate methods of monitoring process by supervisors intensify the potential job pressures for HCWs.

Another key finding of the current study was the challenges of providing services to clients. Similar to the results of this study, the findings from other studies showed that employees who are exposed to clients are prone to mental and emotional injuries. This is especially true for HCWs because they provide an important and sensitive service to clients’ health. The importance of this issue has been expressed in recent findings, which have identified the fear of committing error and being unable to manage patients’ complaints that become constant sources of physician stress. According to the participants’ statements, some clients do not implement health training and recommendations, so in addition to hindering their health improvement, it also increases the workload and accountability of HCWs to regulatory levels. Also, clients may behave tensely and aggressively when they do not receive services outside of the organisation’s rules and were unreasonable, and may even complain to regulatory organisations. Service development as a persuasive aspect has increased the number of clients. On the other hand, patients referred to health centres have different personal characteristics in terms of age, gender and economic, social and cultural status. Therefore, the variety of customers increases in terms of the said factors and as a result, they have different and sometimes even conflicting requests.

While most literature has defined work diversity as a positive job factor, HCWs in this study, despite working with different units and having a variety of tasks, find their jobs monotonous and dull. It is likely that after a few years of work experience, a feeling of monotony will develop. On the other hand, when diversity is associated with increased responsiveness and increased tasks, it is likely to lead to stress.

Usually during development and organisational changes, the need to increase human resources is revealed. For this purpose, Iran’s health system had employed employees who were mostly under a full-time contract scheme. Fixed-term contracts have resulted in differences in the salaries and future guarantees of HCWs, while having the same duties. Therefore, employees with a fixed-term contract compare themselves with their colleagues with permanent contract and perceive injustice and inconvenience. Evidence shows that a fixed-term employment contract is a risk factor for employees’ mental health. Employee recruitment patterns with different contracts, as well as salaries, benefits and career prospects based on an employment scheme, can be an important stressor for some HCWs. In other words, HCWs with lower pay, lower benefits, and an uncertain job future feel unfair in the workplace and some even worry about losing their jobs. Therefore, according to the results of this study, it is clear that paying attention to the type of new contracts and providing job security are the crucial issues during the development of the organisation.

**Limitations and strengths**

This study had several limitations. Since in Iran, most women are employed as HCWs in PHC centres, there were no male HCWs in the urban centres of the region under this study, so all the participants were women and the results probably cannot be generalised to male employees.

On the basis of the findings presented herein, investigation on the remaining issues, such as the role of an individual in work-related stress, should be continued. Also, more research is needed on the role of an organisation’s supervisory function as a direct stressor or as a predisposing factor. According to the purpose of this study, researchers focused on stressful job demands, but during the study, we found that although job and organisational demands can be direct stressors, individual demands can increase or decrease stressors. It is suggested that individual demands be considered in future studies.

This was the first qualitative study in Iran to deeply understand the experiences of HCWs in PHC centres, after extensive organisational changes, regarding stressful job demands. The heterogeneity of the samples is prominent so the participants were selected from several health centres in different towns covered by two cities that had different managers and supervisors. In addition, HCWs varied in age, work experience, job status and responsibilities, so we were able to obtain different perspectives.

**CONCLUSION**

The present study clearly indicates that when the development of health-oriented organisations generally leads to role changes, there may be a substantial increase in the number of tasks and services, and inclusion of multiple responsibilities in a role. Therefore, organisational and client demands increase HCWs’ conflict, emotional distress and emotional stress. If the support policies and performance of the supervisors are relatively weak, the stress level increases considerably.
It is suggested that staff support policies be developed and implemented in line with change and growth policies in organisations. According to the results of this investigation, the importance of redesigning roles becomes apparent. Besides, the outcome of this study indicates the importance of redesigning roles. For this purpose, specialised division of work is a suitable method. In addition, organisations can reduce the strain on HCWs by reviewing regulatory techniques and segregating roles. Also, informing clients about the duties of HCWs and the rules of the organisation can prevent some major problems. Therefore, employees can perform their duties effectively in providing new high-quality services without having job concerns and stress that lead to the prevention of the wastage of human and financial costs and the development of communication skills training and time management, which meaningfully reduces HCW stress.

Acknowledgements We would like to sincerely thank all healthcare workers for their cooperation and participation in this study. The authors would also like to thank Dr Seyed-Javad Habibi as an English language editor.

Contributors MZ collected and analysed the data, and wrote the first draft. AH supervised the study and contributed to the writing process. MEM contributed to the design of the study and the writing process. MEM and GS were involved in revising the manuscript for intellectual content. MZ, AH, MEM, and GS contributed to analysing qualitative data. Findings were repeatedly discussed and revised by MZ, AH and GS. AH finalised the manuscript and acting as guarantor.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval This study involves human participants and was approved by the Ethics Committee of Tarbiat Modares University (IR.MODARES.REC.1397.032). Written informed consent was obtained from all study participants.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Contact the corresponding author with queries. Please note there are ethical restrictions on sharing of data.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, any changes made indicated, and the use and license are non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iD
Allireza Heidarnia http://orcid.org/0000-0003-1534-4757

REFERENCES