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# Facilitators and barriers to return to work in patients after heart surgery

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## Abstract:

**BACKGROUND:** Recognition of the factors influencing returning to work by people after heart surgery is very significant in performing supportive interventions. Factors affecting return to work of Iranian patients after surgery are unknown. Therefore, a qualitative study is in demand in order to close this knowledge gap. This study was aimed to explore the facilitators and barriers of return to work after heart surgery.

**MATERIALS AND METHODS:** This qualitative study was conducted during 2020–2021. People after heart surgery were studied in this research. Nineteen interviews were performed with 17 participants. The main participants were selected from the cardiac surgery ward of Golestan Province Hospital. The sampling method was purposeful. Data were collected through semi-structured interviews. Questions were asked in an unguided and open-ended manner. Data analysis was performed by qualitative content analysis.

**RESULTS:** According to the results, “perceived psychosocial support,” “individual characteristics,” and “occupational factors” were considered as facilitators and “effects of heart surgery” and “limited support of public and private institutions” were introduced as barriers to return to work in patients after heart surgery.

**CONCLUSIONS:** The effects caused by heart surgery and limited support of public and private institutions were identified as barriers to return to work. Cardiac rehabilitation after surgery can reduce the impact of heart surgery and can help people to return to work. It is recommended that the planners of the Ministry of Labor and Social Welfare and Health, with the support of insurance organizations, help solve the work problems of people after heart surgery.

## Keywords:

Barriers, cardiac surgery, content analysis, facilitators, return to work

## Introduction

The high prevalence of cardiovascular disease worldwide is considered to be a health problem of the century.<sup>[1]</sup> According to the World Health Organization (WHO), coronary heart disease (CAD) is the main cause of death in the world.<sup>[2]</sup> Heart disease is also a major cause of disability and death in Iran. Approximately 50% of deaths in Iran occur due to heart diseases.<sup>[3]</sup> Today, due to the development of treatment methods such as angioplasty and heart surgery, the

death rate due to coronary artery disease has decreased<sup>[4]</sup> and the life expectancy of patients has increased.<sup>[5]</sup> Coronary artery bypass grafting (CABG) is the most common treatment in 60% of advanced heart diseases.<sup>[6]</sup> In Iran, about 30,000–50,000 heart surgeries are performed annually.<sup>[3]</sup> Cardiac surgery, as an important treatment method, has caused significant changes in patients' lives.<sup>[7]</sup> But after surgery, patients face challenges in managing symptoms, returning to normal life, and fulfilling their plans.<sup>[8]</sup> One of the important aspects of role-playing that is strongly influenced by heart surgery is the career and professional

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life of patients.<sup>[9]</sup> According to the results of some studies, after heart surgery, many people have the desire and ability to return to work.<sup>[10]</sup> Returning to work can give meaning to the lives of people with disabilities and illnesses by increasing confidence and improving mental health, leading to increased quality of life, financial security, feeling of health, and meeting the social needs of people.<sup>[11]</sup> While returning to work has an effect on improving the health of people after surgery, the results of a study showed that factors such as job type, job facilities, flexibility, and support from colleagues and employers affect patients' motivation to return to work.<sup>[9]</sup> The results of another study in Poland showed that meeting economic needs, emotional factors, anxiety, and low self-esteem affect the return to work after CABG.<sup>[12]</sup> The rate of heart surgery in working age people is increasing in Iran.<sup>[13]</sup> The absence of individuals from returning to work inflicts irreparable damage on individuals, families, and communities. Identifying the facilitators and barriers to return to work helps plan for effective interventions and improve patients' quality of life after heart surgery. Factors affecting return to work were evaluated after cancer treatment qualitatively in Iran.<sup>[14]</sup> Also, in a qualitative study, barriers to return to work after CABG were identified in Poland,<sup>[12]</sup> because the factors affecting return to work are different in terms of socio-cultural context. Therefore, the aim of this study was to identify the facilitators and barriers to return to work in Iranian patients after heart surgery.

## Materials and Methods

### Design and Participants

This qualitative study was conducted using a qualitative content analysis approach during the years 2020–2021. The study focused on 19 interviews with 17 Iranian participants who had heart surgery. These participants included 11 main participants (patients who underwent heart surgery), two family members, one cardiac surgery nurse, one heart surgeon, one employer, and one insurance expert. The main participants were selected from the cardiac surgery ward of Amir Al-Mo'menin Kordkoy Hospital and the visitors to Golestan Province Cardiac Surgeons Office. The interviews were conducted in person at home or at work according to the participants' choice and in accordance with the health protocols. Furthermore, the researcher's observations of the work environment and interaction with colleagues, employer, and client were also reported. Two interviews were repeated to clarify the ambiguities and answer the researcher's mental questions. In the present study, semi-structured interviews were conducted with the main participants during purposive sampling. Individuals who were of working age after heart surgery, were employed before the disease, and who, according to the treating

physician, had passed the acute period of the disease were invited to participate in the study. In some cases, due to the emergence of classes for theoretical sampling and classification of other influential people in the process of returning to work, such as family members, employers, and health system employees, were interviewed.

### Data Collection

Face-to-face and in-depth interviews were conducted with the interviewees by the first author of the paper (PhD student in nursing). Each interview lasted between 40 and 90 min, depending on the participant's cooperation and environmental conditions. At first, the objectives of the research were explained to the participants. Interviews were recorded via Sony MP3 Player after getting permission of the participants. After re-reading the interviews for several times, the audio files were stored confidentially on the computer.

At the beginning of the interview, initial questions about personal information were used to warm up the interviewees. In the next step, appropriate questions were asked in an unguided and open-ended manner, so that the participants could share their experiences. They were asked to answer questions such as "How did heart surgery affect your work or occupation?" As the interview progressed, they were asked to talk about their experiences with their return-to-work process, barriers, and facilitators. By necessity, follow-up questions such as "please explain more" and "please give an example" were applied. During the interviews, the researcher considered the reactions, feelings, and emotions of the participants and took a note when necessary and wrote them on the margins of the reports after rewriting the interviews. All the interviews, after being listened to for several times and for a little while, were rewritten word by word by the researcher. In this study, after the 11<sup>th</sup> interview, no date or new code was obtained for coding or forming another category. However, in order to get more assurance, four other interviews were carried out.

After extraction of the initial codes, cases that had conceptual similarities or related meaning were classified in the same group. The concepts indicating the codes in each group and having more abstract were used for labeling each category. The process of evaluating and comparing the data was continued till the main and subcategories emerged. Then, with accurate and deep contemplation and by comparing groups with each other, the themes were discovered.

The MAXQDA software (v. 2020 R250412; Verbi®, Berlin, Germany) was used to manage the data.

## Data Analysis

The conventional content analysis approach proposed by Graneheim and Lundman was used for data analysis.<sup>[15]</sup> Interviews were transcribed verbatim and carefully read several times to achieve a general understanding of their content. The sentences related to the research topic were identified as meaning units, and the initial codes were extracted. The extracted codes were classified into conceptual categories based on similarities and differences. We then generated more abstracted concepts by systematically comparing the different primary conceptual categories [Table 1].

## Trustworthiness

Lincoln and Guba criteria were used to establish trustworthiness. These criteria are credibility, dependability, confirmability, and transferability.<sup>[16]</sup> To ensure credibility, we had prolonged engagement with the data and triangulated the data source through interviewing with participants. The first author also had the experience of working with the patients undergoing heart surgery for at least 13 years. Peer debriefing and member checking were also used to ensure credibility. In peer debriefing, the text of the interviews, the list of dimensions, and codes were reviewed by two supervisors familiar with the qualitative research. In member checking, some participants approved the congruence between the study findings and their experiences. For transferability, clear explanations were provided about the different aspects of the study, including sampling, data collection, and setting. To ensure dependability, all documents related to the study were kept, so that others can cross check the process of the study.

## Ethical Considerations

This study has the approval of the Ethics Committee of the University of Golestan Medical Sciences, Gorgan, Iran (code: IR. GOUMS.REC.1399.249). Participants were ensured that their participation in the study would be completely voluntary and their data would be managed confidentially. They were informed about the study aim, and written informed consent was obtained from them.

**Table 1: An example of data analysis**

Subcategories	Codes	Condensed meaning units	Meaning units
Independence	Self-reliance	Tendency to have control over life affairs	<i>When you have work means that you have control on your life</i>
		Tendency to be active	<i>The desire for dynamism and the hatred of weakness made it easier for me to return to work</i>
	Tendency to be independent	Desire for independence	<i>Being able to make a living on my own made me more inclined to go back to work. "I wanted to be independent"</i>
		Freedom from confinement	<i>The four walls of the house are like a prison. Even if all your needs are met by the members of the house, going out and going to work gives a sense of liberation and freedom</i>
		Independence from others	<i>I was less dependent on others. I was on my own</i>

## Results

In the present study, data from 19 interviews (17 participants) were analyzed. There were 11 main participants (patients who had open heart surgery), two family members (one spouse and one sick child), one cardiac surgery nurse, one cardiac surgeon, one employer, and one insurance expert. Among the main participants, nine had fully returned to work, one had changed jobs, and one had retired [Table 2].

Participants' descriptions of returning to work created classes and subclasses. Based on the results, "perceived psychosocial support," "individual characteristics," and "occupational factors" were identified as facilitators and "effects of heart surgery" and "limited support from public and private institutions" as barriers to return to work in patients undergoing heart surgery [Table 3].

### Perceived Psychosocial Support

This category includes three subcategories, "comprehensive perceived family support," "treatment team training support," and "partial institutional support."

#### Comprehensive family support

This category includes the subcategories, "spiritual support of the spouse," "assistance in daily activities," and "family support in medical and care."

*Spiritual support of the spouse:* One of the motivating factors for recovery and returning to work was the spiritual support of the spouses. The following quotation from the participant is an example of this: "Most of the spiritual and physical support was provided by my wife after my discharge. She was very supportive and I was careful to get up early and return to work." (p. 2)

*Assistance in daily activities:* Another aspect of family support was the role of the family in daily activities. "Most of the time I bring my work files to home. I used to do all the computer work myself, but now my children help me. Despite the fact that they have their own studies and university, they do my work." (p. 4)

*Family support in health and care affairs:* Family support in health care was another factor that helped people return

**Table 2: Individual-social characteristics of the main participants**

Code	Age (years)	Education	Education	Job	Work experience (years)	Duration of being away from work (months)	Place of interview
1	53	Diploma	Diploma	Service	22	2	Office
2	58	Economist	Economist	Real estate advisor	24	1	Real estate agency
3	63	Illiterate	Illiterate	Farmer, gardener	28	6	Home
4	60	Civil engineer	Civil engineer	Employee	32	2	Home
5	63	Bachelor of Management	Bachelor of Management	Employee	27	2	Office
6	61	Bachelor of Literature	Bachelor of Literature	Salesman	29	1.5	Store
7	49	Bachelor of Literature	Bachelor of Literature	Employee	24	3	Home
8	60	Doctor of BioStatistical	Married	Assistant professor	35	2	Office
9	48	Diploma	Married	Military officer	15	2	Home
10	51	Under diploma	Married	Gas station employee	28	2	Home
11	55	Under diploma	Married	The owner of the fruit and vegetable market booth	26	1	Workplace

**Table 3: Facilitators of return to work in patients after cardiac surgery**

Main category	Subordinate category	Subcategory
Perceived psychosocial support	Perceived comprehensive family support	Spiritual support of the spouse
		Help with daily activities
		Observance of health issues by the family
	Educational support of the treatment team	Family support in health and care
		Receive partial self-care training from the treatment team
Relative support from the institution	Physician's readiness to respond	Terms and conditions related to disease
		Sensitivity and attention of managers/employers
		Collaborative assistance
Individual characteristics	Beliefs	Belief in the sanctity of work
		Positive attitude to work
	Consolidation of economic affairs	Meeting the needs of life
		Maintain family economic status
Occupational factors	Independence	Self-reliance
		Tendency to be independent
	Maintain years of service	Maintain years of work insurance
		Maintain service continuity
	Legal requirements	Employment status and work obligation
		Legal regulations related to work
	Influence of jobs	Earn credit by job
The desire to work arises from an inner need		

to work. Regarding family support in health and care, a participant said, "My wife wants me to go out after breakfast. She must pour me a thermos of water and insist that I eat. She prepares healthy food without frying." (p. 4)

**Treatment team training support**

The treatment team's recommendations were effective in getting people back to work. This category included

"relative information support from the treatment team" and "physician's readiness to answer questions about on-the-job preparation."

*Relative information support from the treatment team:* Giving training on how to live and work after surgery clarified doubts and reassured them of returning to work. A participant (a heart surgeon) said, "Most people seek disability and retirement after surgery. But I advise them that you can resume normal activities after recovery, unless my patient works hard." (p. 11)

*Physician's readiness to respond:* In addition to educational support, the possibility of physician's interaction with the patient after discharge provided the conditions for self-care, recovery, and return to work. "My doctor gave me his mobile number and told me to call him whenever I had any problems, and that in itself is a total encouragement." (p. 5)

**Relative Support from the Institution**

This category includes the subcategories "rules and regulations related to illness," "sensitivity/attention of managers/employer," and "assistance of colleagues."

*Terms and conditions related to sickness:* The possibility of taking sick leave allowed them to return to work after that period. To claim retirement benefits, they had to comply with sickness laws and regulations. "I could legally use my leave for up to 6 months after my illness. After that I had to go back to work." (p. 6)

*Manager's/employer's sensitivity and attention:* The managers agreed to early retirement, relocation of work, offered a loan, and did not apply double pressure; also, they paid attention to individuals after surgery. "The manager of our office was in touch with the family. If there was a problem or a case, he would follow up. He even offered to pay the loan." (p. 6)

*Assisting colleagues:* Among the supportive activities of colleagues, we can mention the work done by a colleague during hourly leave, offering financial assistance and paying attention to nutrition in the workplace. In this regard, a participant said, *“My co-workers were very affectionate; sometimes they even did my homework.”* (p. 4)

### Individual Characteristics

Another factor that facilitates returning to work after heart surgery is “individual characteristics.” This category includes the subcategories of “beliefs,” “stabilization of economic affairs,” and “independence.”

*Beliefs:* Sanctifying work and being positive about work were the driving force behind returning to work. In this regard, a participant said, *“Life without work was indigestible to me. Work is a sacred phenomenon. One dies without work.”* (p. 2)

*Consolidation of economic affairs:* Meeting the daily necessities of life, repaying bank obligations, reducing income during the medical period, financial worries, and investing for the future were among the factors that increased the need for people to return to work. *“... I had taken a loan to buy my daughter’s dowry. The installment was overdue and I was warned by the bank. I had to go back to work sooner so that I would not have financial problems.”* (p. 4)

*Seeking independence:* The desire to be busy was recognized as an effective factor in the process of returning to work. An example of the following quote is a proof of this: *“I do not like to be burdened by others. After all, everyone has their own problems.”* (p. 5)

### Occupational Factors

One of the facilitators of the return-to-work process for patients with heart surgery was occupational factors. This category includes the subcategories, “maintenance of years of service,” “legal requirements,” and “job influence.”

*Maintaining years of service:* Concerns about future economic problems had led people to strive to maintain their years of service. Increasing work experience, increasing insurance history, no interruption between insurance history were the dimensions of maintaining years of work of individuals. In this regard, a participant stated, *“I went back to work because of financial problems and living expenses. If my insurance is denied, my record will go up.”* (p. 1)

*Legal requirements:* Laws enacted by policymakers of the Ministry of Labor were another factor in the return of individuals to work. People had to follow these rules to stabilize their economic situation and to avoid future financial problems. In this regard, a participant said,

*“I was contacted by the office staff that I should return to work, otherwise my insurance and salary would be denied to me.”* (p. 1)

*Job influence:* Loving the job as a factor of gaining personal identity, psychological dependence on the job, and enjoying the job helped to create a positive job attitude and increased the desire of patients to return to work. One of the participants stated, *“... I loved working. I like working in the garden and the tree. It gives me strength and comfort.”* (p. 3)

In the present study, “effects of cardiac surgery” and “limited support from public and private institutions” were introduced as barriers to the return process [Table 4].

### Effects of Heart Surgery

Subcategories of the effects of cardiac surgery included concepts such as “stress” and “daily dysfunction.”

**Stress:** Most participants complained of mental pressure such as “sleep disorders,” “mood disorders,” and “fear of exacerbation of the disease” after surgery.

*Sleep disorders:* Decreased sleep quality and reduced sleep hours, by weakening physical strength, prevented participants from returning to work. In this regard, a participant said, *“I could not sleep well at night for a while.”* (p. 6)

*Mood disorders:* Most people after surgery were not able to be in the community and communicate with others due to reduced physical capacity. In addition, the fear of developing Covid-19 by isolating the patient at home led to mood disorders such as feelings of depression, clumsiness, impatience, excuses, an influx of negative and disturbing thoughts, and low mood. *“I was such that I reacted to the slightest word and quickly lost my temper.”* (p. 1)

**Table 4: Barriers to return to work in patients undergoing heart surgery**

Main category	Subordinate category	Subcategory
Effects of heart surgery	Mental pressure	Sleep disorders
		Mood disorders
		Fear of exacerbation of the disease
Limited support for public and private institutions	Dysfunction in daily performances	Social dysfunction
		Decreased physical capacity
Limited support for public and private institutions	Insufficient support of insurance organizations	Adverse insurance support in the payment of medical expenses
		Strict and limited insurance laws
		Lack of association to support patients undergoing heart surgery
Limited support for public and private institutions	Lack of support from government agencies	Insufficient facilities of government institutions

*Fear of exacerbation of disease:* One of the reasons for which the patients who underwent surgery were isolated from participants during the corona epidemic was personal protection to prevent Covid-19. Awareness that the virus was more dangerous and deadly to people undergoing heart surgery increased their fear and anxiety. “I have not seen anything for almost three months. Both because of the corona and because of the physical condition I had.” (p. 3)

**Daily dysfunction:** This category includes the subtypes “physical impairment” and “social dysfunction.”

*Loss of physical capacity:* Decreased physical strength, decreased vigor for physical activity, and premature fatigue in the workplace were among the physical problems that prevented patients from returning to work after heart surgery.

*Social dysfunction:* In addition to decreased physical capacity, concomitant cardiac surgery with the outbreak of the Covid-19 virus and fear of contracting the virus and its consequences had reduced social activity. “Meeting restrictions and the fear of contracting an infectious disease made me very observant and outgoing, even for shopping.” (p. 3)

### Limited Support for Public and Private Institutions

This category includes the subcategories “lack of support from insurance companies” and “lack of support for government agencies.”

*Lack of support from insurance companies:* The strict rules of insurance companies regarding the payment of salaries and benefits, non-compliance with disability, and payment of pensions had forced people to continue working to complete their years of work, despite their inner desire. “They did not even look at my documents. They said that disability did not apply to me. But because of the cost of living, I went back to work so that my insurance would be revoked and my record would go up.” (p. 2)

*Lack of government support for government agencies:* Lack of government support for insurance companies had caused insurers to not give enough support for employees in disability. The following quotation is an example of this evidence: “Insurance companies have not received many of their arrears from the government. On the other hand, agreeing to disability or early retirement will cause losses to insurance companies. Lack of government support leads to lack of support from insurance companies.” (p. 12, an employer)

## Discussion

The results showed that “perceived psychosocial support,” “individual characteristics,” and “occupational

factors” are facilitators of return to work in patients undergoing heart surgery. These findings are comparable to the results of other studies.

### Perceived Psychosocial Support

*Perceived comprehensive family support:* The role of the family in supporting individuals to return to work was providing spiritual support, assistance with day-to-day activities, and family support in treatment and care. This finding is consistent with the results of other studies.<sup>[14,17]</sup> Since returning to work is a factor in improving the morale and reducing economic problems, family members tried to return the patient to normal life as soon as possible by supporting them.

*Training support for the treatment team:* In the present study, the recommendations of the treatment team, especially the cardiac surgeon, facilitated the return-to-work process. In other studies, however, the treatment team was introduced as a barrier to patients returning to work.<sup>[11,12]</sup> The reason for this discrepancy is that most of the participants in the present study were selected from working age groups or young seniors who were not prohibited from working. In addition, from a medical point of view, CABG does not necessarily impede the work and activity of individuals. In the study by Blokzijl et al.,<sup>[12]</sup> patients did not receive clear recommendations from the treatment team.

*Support from the institution:* The support of the institution and the treatment team were introduced as two separate factors affecting the return to work. However, in the study of Bramberg et al. (2019)<sup>[17]</sup>, coordination between the health system and the work environment was introduced as a facilitator of returning to work for sick employees. These discrepancies are due to differences in the research environment. While in many societies there is coordination between the health system and labor institutions, this cooperation is weak in Iran. The results of another study showed that support from colleagues and employers had an effect on motivation to return to work after heart surgery.<sup>[11,12]</sup> However, it is a necessity or cardiovascular patients, awareness of their status and self-management methods for accelerating return to work by face-to-face learning.<sup>[18,19]</sup>

### Individual Characteristics

“Beliefs,” “stabilization of economic affairs,” and “independence” were among the individual characteristics influencing the return to work in this study. The effect of flexibility on patients’ motivation to return to work after heart surgery was confirmed in Mohammadzadeh’s study.<sup>[20]</sup> In other studies, a person’s physical strength and adaptation to the type of job were found to be effective in returning to work.<sup>[11,14,21]</sup> Given the fact that economic needs stem from the dimensions

of social health and quality of life, the concept of “stabilization of economic affairs” has been introduced as an individual characteristic of returning to work. In other studies, meeting the economic needs was introduced as an effective factor in returning to work.<sup>[12,21]</sup> Shakibazadeh’s study showed that perceived health competence affects on attitude to work and improve adherence to treatment.<sup>[22]</sup>

### Occupational Factors

In the present study, preservation of years of service, legal compulsion, and job influence were introduced as facilitators of returning to work. This finding is comparable to the results of other studies. In Mohammadi’s study, occupational factors (type of job and job fit with the individual’s clinical condition) were introduced as factors effective on returning to work in patients with myocardial infarction.<sup>[21]</sup> In the present study, other job dimensions such as job influence and benefiting from job advantages (preservation of working years and legal aspects of the job) were identified as factors effective on returning to work.

### Effects of Heart Surgery

Many participants cited stress and daily dysfunction as barriers to returning to work. This finding is consistent with the results of a study by Blokzijl *et al.*<sup>[12]</sup> In their study, anxiety, low self-esteem, and fatigue interfered with patients returning to work after CABG. In other studies, emotional factors were introduced as barriers to patients returning to work after a heart attack.<sup>[12,23]</sup> But disruption of daily activities was not mentioned as a major problem in other studies.<sup>[11,14,21]</sup> For justifying this difference, we can say that these studies were performed on patients with coronary artery problems or patients undergoing less-invasive procedures such as angiography. Obviously, the effect of invasive methods such as CABG on the physical and mental dimensions of patients is greater due to the long recovery period. In addition, in the above studies, patients participated in a cardiac rehabilitation program after surgery. But the participants of the present study, due to the lack of cardiac rehabilitation centers, did not enjoy the benefits of rehabilitation, which plays a major role in improving physical strength and facilitating return to a normal life. In addition, many participants underwent surgery during the Covid-19 epidemic. Fear of infecting with Covid-19 caused them to be less involved in social activities and rehabilitation programs. For reducing the effects of heart surgery, it is necessary to implement interventions using appropriate strategies to promote the quality of management approach after surgery.<sup>[24]</sup> The present study is the first study to investigate the facilitators and barriers of return to work in patients after heart surgery. Recognition of these factors has helped those involved in the health system, insurance,

the Ministry of Labor and Social Welfare to remove the barriers and strengthen the facilitating factors to return to work for people undergoing heart surgery. In this way, by promoting the physical and mental health of the individual, it reduces the problems of the family and society.

### Limited Support of Public and Private Institutions

Lack of support from insurance companies and government departments caused people, most of whom were men and breadwinners, to struggle with life expenses. This finding is consistent with the results of other studies. In Blokzijl’s study, lack of social support was introduced as a deterrent to return to work.<sup>[12]</sup>

## Conclusions

According to the results, the effects of heart surgery and the limited support of public and private institutions are barriers to return to work in patients undergoing heart surgery. Interventions such as postoperative cardiac rehabilitation can help reduce the impact of heart surgery and facilitate return to work. Individual interventions such as lifestyle changes, exercise, job adjustment, and organizational interventions (such as periodic checkups and training classes) have a significant impact on reducing the effects of heart surgery and the likelihood of people returning to work. In addition, it is recommended that planners from the Ministry of Labor and Social Welfare and Health, with supporting insurance companies, can help to remove the barrier caused due to limited support from public and private institutions.

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### Conflicts of interest

There are no conflicts of interest.

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