

# Factors affecting the overcrowding in outpatient healthcare

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## ABSTRACT

**Background:** The expansion of outpatient services and the desire to provide more outpatient care than inpatient care create some problems such as the overcrowding in the outpatient clinics. Given the importance of overcrowding in the outpatient clinics, this qualitative study aimed to determine the factors influencing the overcrowding in the specialty and subspecialty clinic of a teaching hospital. **Materials and Methods:** This was a qualitative study conducted in the specialty and subspecialty clinic of a hospital using content analysis method in the period of January to March 2014. The study population was all managers and heads of the outpatient wards. The studied sample consisted of 22 managers of the clinic wards who were selected using the purposive sampling method. The required data was collected using semi-structured interviews. The collected data was analyzed using conventional content analysis and the MAXQDA 10.0 software. **Results:** Three themes were identified as the main factors affecting the overcrowding including the internal positive factors, internal negative factors, and external factors. **Conclusions:** Despite the efforts made to eliminate overcrowding, and reduce waiting times and increase access to the services for patients, the problem of overcrowding still has remained unresolved. In addition, the use of some strategies such as clarifying the working processes of the clinic for staff and patients and the relationships between the clinic and other wards especially emergency department, as well as using a simple triage system on the patients' arrival at the clinic are recommended.

**Key words:** Clinic, healthcare, hospital, overcrowding, qualitative content analysis

## INTRODUCTION

Hospitals, due to the economic reasons, are seeking to expand outpatient services and decrease their patients' length of stay;<sup>[1]</sup> therefore, outpatient visits are increasing and this has led to overcrowding in the outpatient wards which, subsequently, causes poor access to services, difficulties in making an appointment, long waiting times, and patients and employees' dissatisfaction.<sup>[2]</sup> Because of

the desire to provide more outpatient care than inpatient care, some problems such as the lack of manpower relative to the number of patients and overcrowding in different wards can be created.<sup>[3]</sup> Overcrowding in clinics, as the primary point of contact with the patient, has some effects both on the patients' health and on the overcrowding in other hospital wards and the increases in their number of patients.<sup>[4]</sup>

Negative effects of overcrowding in the clinics have been reported in several studies, which can be studied from different aspects. For example, these effects can be studied in two categories of patients and employees. Employees' burnout and

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10.4103/2277-9531.204742

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**This article may be cited as:** Bahadori M, Teymourzadeh E, Ravangard R, Raadabadi M. Factors affecting the overcrowding in outpatient healthcare. J Edu Health Promot 2017;6:21.

dissatisfaction,<sup>[5]</sup> nosocomial infections, mortality, patients' negative outcomes,<sup>[5]</sup> discomfort and dissatisfaction,<sup>[6]</sup> increased medical errors,<sup>[7]</sup> and reduction in patient safety<sup>[8]</sup> are some of the negative effects of overcrowding on the patients which have been reported in the studies. For instance, Clements *et al.* in their research have studied the nosocomial infections resulted from methicillin-resistant *Staphylococcus aureus* (MRSA) and have concluded that overcrowding in the various wards, combined with other factors such as manpower shortages have effects on the patients' health through influencing the MRSA.<sup>[3]</sup> Greenhalgh *et al.* in their study have concluded that overcrowding in the specialized diabetes clinics is a negative factor in providing the necessary training to the public about diabetes interventions.<sup>[9]</sup>

In another study, the physicians participating in the study have related the physicians' failure to follow guideline in treating high blood pressure to the factors such as overcrowding in clinics and the lack of time for physicians to complete medical practices.<sup>[10]</sup> In a study conducted in Iran, the results showed that one of the reasons for insignificant association between the lack of physicians' attention to the gender issues referred to as gender awareness and the patients' satisfaction in the clinics of teaching hospitals was overcrowding.<sup>[11]</sup> Furthermore, according to the results of Asplin *et al.* study, the factors leading to overcrowding of patients were as follows: Insufficient or inflexible ratio of staff to patient, delays in cleaning the patients' room after their discharge, excessive reliance on intensive care beds, ineffective diagnostic and ancillary services provided in the inpatient wards, and the delays in sending patients to acute care hospitals.<sup>[12]</sup>

In addition, overcrowding in different wards of hospitals in China has been introduced as a major challenge to the hospital system in this country.<sup>[13]</sup> In the United States, the inefficiency of outpatient services and barriers to access to the services were two main problems of the outpatient wards.<sup>[14]</sup> In Iran, in addition, the long waiting time resulted from overcrowding has been mentioned as a problem which hospitals and clinics are faced with. Overcrowding in the outpatient clinics is often because of the following reasons: Incomplete system of patients' turn-taking, the limited number of patients visited by the specialists, and, consequently, forming long queues in the early hours of patients' admission, delays in and lack of timely the presence of medical specialists. While these specialists often devote little time to the patients' examination and several patients simultaneously present for examination at the specialists' rooms.<sup>[15]</sup>

Furthermore, the lack of a proper referral system in the country creates the problems of overcrowding in the clinics of prestigious hospitals. Unscheduled and outside of referral system patients' referrals to the hospitals and clinics, as well as the reputation of the hospitals, have caused the overcrowding in the famous clinics and hospital operating rooms.<sup>[16]</sup> Unequal distribution of health facilities, specialists, and advanced medical equipment, as well as the lack of a proper referral and regionalization system, have resulted in the high volume of

referrals from neighboring and remote areas to urban medical centers which can be a reason for hospital overcrowding.<sup>[17]</sup> The high volume of work in the hospitals and the admissions of patients over the existing capacity create serious problems with the quality of hospital services. Patients' dissatisfaction with the hospital services, the lack of adequate attention to the patients and overcrowding in the various wards are some reasons for the patients' leaving against medical advice and threaten the quality of hospital services.<sup>[18]</sup> Therefore, given the importance of overcrowding in the outpatient clinics, this qualitative study aimed to determine the factors influencing the overcrowding in the specialty and subspecialty clinic of a teaching hospital.

## MATERIALS AND METHODS

This was a qualitative study conducted in the specialty and subspecialty clinic of a military teaching hospital using content analysis method. This study was conducted in the winter from January to March 2014. This clinic includes 15 clinic wards (including nutrition counseling, genetic counseling, obesity, headaches, and sleep disorders), pediatric, internal medicine, nephrology, cardiovascular, neurologic, eye, orthopedic, surgery, gynecology, ENT, skin, anesthesia, dental, and other (legal medicine, rehabilitation, intensive care unit, and radiotherapy) wards. In this clinic, 250 physicians are working in three shifts (morning, afternoon, and evening) in 6 days a week and provide required services to the patients.

The qualitative approach was used in this study because there was not any standard tool for studying and measuring the overcrowding. In other words, the qualitative studies are usually used to develop quantitative tools such as questionnaires. In addition, because the factors affecting hospital overcrowding are mainly organizational and infrastructural factors, studying these factors by quantitative studies and using closed questions before identifying them can be difficult. Moreover, some of factors influencing hospital overcrowding were related to the conditions and situations of other rival centers, geographical and traffic situations, and the quality of services provided by other centers, which their investigation was possible only by conducting interviews with the managers.

### Sampling method

The study population was all managers and heads of the outpatient wards. The purposive sampling method was used for sampling. Sampling continued until data saturation so that any new data was not found.

Finally, 22 managers and heads of the outpatient wards were interviewed among whom there 20 males and two females were aged between 30 and 55 years old. The samples were selected in a separation meeting, in consultation with the clinic director using his understanding of the managers of different clinic wards. The inclusion criteria were having at least 5 years job experience, having a key role in the studied wards, and having high interest in and motivation for

participating in the study and interviews. Those managers who were unwilling to participate in the study and interviews were excluded from the study.

### Data collection

Initially, the aim of the study was explained for each of the samples participating in the study, and if the person agreed to participate in the study, he or she would be interviewed. For the convenience of the interviewees, interviews were conducted in a quiet place away from their workplace. Each interview began with a general question such as “In your opinion, which factors have the important role in the clinic overcrowding?” “What are the factors affecting the overcrowding of patients in the clinic?” or “What are the role of the employees, environment, the system of patients’ turn-taking, etc., in the clinic overcrowding?” and they were asked to describe their experiences in this regard. The interviews were semi-structured and face to face interviews, which were led and directed according to the participants’ responses. For example, following a response to each question, they were also asked to describe their daily experiences in their workplace. In addition, during the interviews, the participants were asked to provide some examples in order to describe and explain the mentioned factors or give reasons for their responses. In order to increase the interview depth and avoid the ambiguities, some phrases such as “Please explain further” or “What do you mean?” were used. The interviews were recorded by an MP3 Player. Each interview lasted on average 35 min and took time according to the tolerance level and interest of participants. During the interviews, the main responses of participants were taken notes. Given that, one of the inclusion criteria was having high interest in and motivation for participating in the study and interviews, none of the 22 managers of the clinic wards interviewed had any objection to the interview recording. All interviews were conducted by one of the researchers and carried out by the hospital manager co-ordination. Questions asked during the interviews were in a clear format and framework and were determined by the clinic manager and three key people of the clinic in a focus groups discussion before conducting the interviews. All interviews were conducted in the morning shifts in which the managers of the clinic wards were present in the workplace.

### Ethical considerations

To conduct the study, the researchers received an introducing letter from the Research Deputy of the related university and gave it to the clinic director and the required coordination was done.

All participants were aware of the aim of the study and were informed that their participation in the study was completely voluntary. Before conducting each interview, informed consent for recording the interview was obtained from each participant. All stages of the study and preparing reports were anonymous. Furthermore, the participants were informed that they could leave the study whenever they wanted, as well as they could be received the study results if desired.

### Data analysis

The collected data was analyzed using conventional content analysis. Conventional content analysis means extracting objective content, which is more than what has been written in the texts that this provides the implicit and explicit themes and patterns from the participants’ data content.<sup>[19]</sup>

To fully understand the data, the researchers listened to the interviews recorded several times and transcribed and typed them word by word. Then, the typed text was revised several times. In order to extract the codes, the data was read word wise and the important words were identified. The data were coded through writing notes in the margin. For initial coding, the participants’ own words and the researchers’ understandings and interpretations were used. The themes were extracted from the participants’ statements using coding data and next the codes were categorized based on the similarities and differences and, finally, the main themes were determined by comparing them with each other. The MAXQDA V 10.0 [VERBI Software – Consult: Sozialforschung GmbH, Berlin, Germany] was used for data analysis.

### Credibility and confirmability of the collected data

The credibility of collected data was confirmed through reviewing the accuracy of participants’ statements in the transcriptions, long-term presence in the wards and in the different shifts, and establishing good communication with the participants and gaining their trust by the researchers. The transcriptions of all interviews were given to the participants to be corrected if they were inconsistent with the participants’ statements. The participants and people interviewed were selected by the clinic manager and were coordinated with by the secretary of the clinic manager before the interviews. In addition, they were asked to have sincere cooperation with the researchers. Therefore, the researcher conducted the interviews referred to the managers of the clinic wards by appointments and all participants were fully willing to do the interviews. The confirmability of the collected data was approved through the observers’ reviews so that some parts of interview transcriptions and the related codes were given to three participants, who were involved in the data analysis, and their additional and corrective comments were used. The reliability of results was also increased through transcribing the interviews as soon as possible and giving the interview transcriptions and the related codes to some of the participants.

## RESULTS

Among all participants ( $n = 22$ ), 90% were male. All studied managers were aged between 30 and 55 years old. Their lowest and the highest job experiences in the managerial positions were, respectively, 2 and 26 years. Furthermore, their lowest and the highest education degrees were bachelor and master’s degrees, respectively.

Also, three themes and 31 sub-themes were identified as the factors affecting the overcrowding in the studied clinic [Table 1].

**Table 1: Factors affecting the overcrowding in the studied clinic**

Themes	Sub-themes
Internal factors	
Positive factors	<ul style="list-style-type: none"> <li>The appropriate clinic environment</li> <li>Having experienced and responsive employees</li> <li>Having a strategic location in Tehran</li> <li>Being a specialty and subspecialty clinic and having all medical fields</li> <li>The existence of modern and advanced equipment in this clinic</li> <li>Providing high quality services in this clinic</li> <li>The low cost of services for military forces families, veterans and families of the martyrs</li> <li>The cheaper free tariffs of the visits and para-clinical services provided in this clinic than those provided in the private clinics and offices</li> <li>Providing various services for a patient in 1 day</li> <li>Being responsive to the possible errors</li> <li>Being a boarding clinic</li> <li>Gaining top rankings among other clinics</li> <li>Direct and indirect advertising</li> <li>Being close to the hospital</li> <li>Setting up the queuing system software in all wards of the clinic</li> <li>Scientific management of the clinic in recent years</li> <li>Being attributed to the IRGC and Basij employees and being ethical, non for profit and noncommercial</li> <li>The population covered by the clinic</li> <li>Having good and skilled physicians</li> <li>Being a brand</li> </ul>
Negative factors	<ul style="list-style-type: none"> <li>Problems with the turn-taking system</li> <li>Physician shortages in some wards</li> <li>Physicians' delays</li> <li>Physicians' scheduling conflicts</li> <li>The shortages of physicians' hours of visiting patients</li> <li>The lack of clarity in some of guidelines and instructions</li> <li>The lack of suitable and sufficient space</li> <li>The lack of a triage system</li> <li>Referring patients to the clinic from the emergency department</li> </ul>
External factors	<ul style="list-style-type: none"> <li>The lack of facilities and the low quality of services provided in other healthcare centers of the armed forces</li> <li>The referrals to this clinic from other armed forces organizations</li> </ul>

IRGC=Iranian Revolutionary Guards Corps

### Theme 1: The internal positive factors affecting the overcrowding

In the present study, among 31 sub-themes affecting the overcrowding, 20 sub-themes were related to the internal positive factors including the strengths of clinic environment, the behavior of administrative and clinical employees, and the clinic equipment.

#### *The appropriate clinic environment*

One of the most important factors playing a role in attracting patients to a healthcare center is its charming, quiet and beautiful environment because a patient in a first step is faced with the clinic environment and touches it unconsciously. As the participants also acknowledged it: "When patients refer to the clinic, they feel relaxed because of the environment provided for them, maybe even they forget their illnesses for a moment and in the time they wait for a visit or treatment, they spend the time with a sense of greater security and comfort and satisfaction". (M1) and "the environment has a great effect on attracting patients. For example, our clinic ward

(eye ward) is very cool and patients feel great satisfaction. While in many clinics, these facilities are not available in this format. Therefore, our clinic in this regard is superior to other clinics" (M4).

#### *Having experienced and responsive employees*

In the studied clinic, all administrative and medical employees are trained and well-behaved with the patients and protect all rights of the patients on the arrival at this clinic. These have attracted the attention of many patients to the clinic.

"On the arrival at the clinic, security personnel, information personnel, and all the employees oblige themselves to be accountable and responsive to the patients. In addition, useful and helpful signs and signals have been installed at the clinic" (M1) and "All personnel have labels and are known for patients, and in case of bad behavior of an employee toward patients, the authorities will have serious behavior with them" (M21).

*Having a strategic location in Tehran*

The clinic is accessible for patients from all sides and directions. It is outside of the traffic plan and odd and even plan; therefore, it is very attractive to the patients.

“A series of hospitals are inside the traffic plan and a series also are in the city center, however, our clinic is near to a highway network which provides easier access for people. In addition, it is neither inside the odd and even plan nor inside the traffic plan” (M2) and “one of the main reasons for referring to this clinic is that most of the clinics are inside the traffic plan and the patients cannot refer to them; therefore, they prefer this clinic” (M18).

*Being a specialty and subspecialty clinic and having all medical fields*

Most of the clinics are specialty and subspecialty ones; however, the facilities of this clinic are perfect and flawless. This clinic in addition to having all medical specialties and subspecialties, it has all para-clinical facilities to provide all services for patients.

“Because here is a specialty and subspecialty clinic, patients have more confidence to be treated in this clinic” (M20). “The clinic of this hospital is a specialty and subspecialty one and has almost all medical specialties. This has led to referring more patients” (M21).

*The existence of modern and advanced equipment in this clinic*

One of the factors affecting the referral of many patients to this clinic, especially to the laser and skin ward, is the existence of advanced equipment which there is no similar equipment with such quality in other hospitals and clinics.

“One of the factors which influences the referral of many patients to our laser and skin ward is the existence of advanced equipment which there is no such equipment in other hospitals and clinics. When the patients realize that we have modern equipment, they come to the clinic and get their needed services” (M8). “One of the many reasons for high referrals to this clinic is that it has good facilities and patients can receive the services they need in a very short time” (M22).

*Providing high quality services in this clinic*

Although the concept of quality is more understandable than definable, the participants in the study believed that good quality of studied clinic services was a positive factor affecting high referrals of patients to the clinic.

“In the recent years, the quality of services provided at this clinic has been higher than previous years. In addition, the variety of clinic wards has led many patients to refer to this clinic” (M17). “When we ask patients that why they have referred to this clinic, one of the reasons they mention is the quality of its services” (M1).

*The low cost of services for military forces families, veterans, and families of the martyrs*

All services, including visits, para-clinical, and inpatient services, are free for the Iranian Revolutionary Guards Islamic Revolution staff and their families and their conscription and soldiers, as well as other conscription and soldiers. In addition, other personnel of the armed forces and their families can use the outpatient and inpatient services of this clinic by paying a small fee which is almost free. Therefore, low cost services provided in this clinic, when compared with those in other clinics and hospitals, have an important role in attracting patients to this clinic.

“One of the reasons for the referral of many patients to this clinic is the fact that in this clinic visits and outpatient services are almost free. When a patient sees that he/she can be visited by several physicians and specialists easily and with a low cost, he/she prefers to come to this clinic while such a variety of services and multiple visits are not possible in other clinics” (M14). “Because the economic costs are very important for dear veterans and the Iranian revolutionary guards Islamic revolution staff and their families and the problem of high cost services has been solved to a great extent in this clinic, they know that when they come here, they can receive the best treatment and services with the lowest cost” (M16).

*The cheaper free tariffs of the visits and para-clinical services provided in this clinic than those provided in the private clinics and offices*

In the studied clinic, apart from the very low cost of services provided for the insured, the free tariffs of the visits are also lower than those in other private and public clinics and hospitals. As the participants also stated that: “Because the philosophy of setting up and running this clinic has not been profit and, in other words, it is not for profit, our free tariffs are also far less than those in the similar clinics” (M1).

*Providing various services for a patient in 1 day*

In most clinics and health centers, especially in the public centers, the patient only has the right to use the services of a physician and cannot use various services provided in that center in 1 day. However, in this clinic, patients can receive even more than six to seven medical visits and services in 1 day. This is an important factor affecting the patients' referrals to this clinic. “In this clinic, there are many services which are provided in 1 day and on the same day the patient can receive the answers and results of the requested services” (M12).

“When a patient finds that the facilities are available and can get a few services in a day, he/she says to himself/herself that now that I have come to the clinic, I should make appointments with the cardiovascular, ENT, etc., specialists, too” (M7).

*Being responsive to the possible errors*

The clinic administrator is responsive to the inadvertent and unintentional errors which may occur by the physicians and

employees, and deal with them quickly and transparently and, in some cases, even compensates them. The general policy of this clinic is being ethical and non for profit and noncommercial. “The patient ensures that the treatment he/she receives is neither much nor little and if any problem and error occurs, the Investigation Unit will be accountable quickly and if, for example, a physician does not come, he/she will be replaced immediately by another physician, and everything is done for gaining the patients’ satisfaction” (M2).

#### *Being a boarding clinic*

The vast majority of patients refer to the clinic in the evening and night shifts and because this clinic is a boarding one, patients can refer to receive their needed services at any time that they are free. “Because in our clinic many services, including injections and dressing, general physicians’ visits, pharmacy, and magnetic resonance imaging, are boarding, many patients prefer to refer to the clinic at the end of the day” (M1) and “given that many patients are at work in the morning shifts, they choose the night shifts to come to the clinic” (M12).

#### *Gaining top rankings among other clinics*

The studied clinic has been superior among other clinics for several years, has held the top rankings in six consecutive years, and has been the best clinic in the Clinical Governance festival held in 2012. These have played a great role in attracting patients to this clinic. “Getting the top rankings in the festivals such as the Clinical Governance festival has caused the patients’ attention to this clinic becomes multiplied.” (M17) and “many patients think that their disease is treated only in this clinic” (M10).

#### *Direct and indirect advertising*

One factor that affects the patients’ referral to this clinic is advertising. Part of these advertisements is made by patients when recommend their families and friends referring to this clinic. “Many patients are recommended to come to this clinic either by the physicians of other clinics or by patients who have previously referred to this clinic” (M5) and part of these advertisements are made by physicians and specialists of this clinic who participate in the media programs. “Many patients had also chosen this clinic through the Internet and the clinic website” (M17).

#### *Being close to the hospital*

Given that, the studied clinic is near to a hospital both of which are affiliated to a university, patients can refer to either the clinic or hospital, if necessary, and almost all services needed are available to them. “Since the clinic is near to a hospital, the communication and cooperation is developed between the clinic staff and hospital employees, if necessary, in order to solve the patients’ problems” (M1).

#### *Setting up the queuing system software in all wards of the clinic*

There is a queuing system in all wards of the clinic, and patients, according to their need, refer to the related ward

and will wait their turn and “since the queuing system has been established in all wards of the clinic, patients have less concern and when they get the number, they will wait confidently their turns and feel more comfort” (M1).

#### *Scientific management of the clinic in recent years*

The method of managing the clinic has changed in recent years and now is based on the scientific methods, not traditional methods, and the clinic administrator believes in the new methods of improving quality and patients’ satisfaction. The participants also consider the methods of managing the clinic as a factor affecting the patients’ choice of the clinic.

“Our clinic is one of the few clinics which are scientifically managed, and easy access to the services, complaints handling, and many other issues resulted from scientific management have affected the patients’ referral to this clinic” (M2).

#### *Being attributed to the Iranian Revolutionary Guards Corps and Basij employees and being ethical, non-for-profit, and noncommercial*

Because this clinic is attributed to the Iranian Revolutionary Guards Corps and the patients covered by this corps consider it as a safe and secure place for receiving the required treatment, the majority of these patients usually choose this clinic among different Revolutionary Guards health centers. “Because this clinic is owned by the Iranian Revolutionary Guards, all of its personnel referring to this clinic consider it as a place belongs to them” (M15) and “the employees and patients, who are covered by the Iranian Revolutionary Guards Corps, are quite sure about respecting their rights” (M19).

#### *The population covered by the clinic*

Given that, the studied clinic initially has been established to serve the needs of all patients covered by the armed forces and military organizations, all these patients usually refer to this clinic from different parts of the country in order to receive services. The participants in this study also believed that one of the reasons for overcrowding was the referrals of the population covered.

#### *Having good and skilled physicians*

From the participants’ viewpoint, one of the most important factors affecting positively the overcrowding of this clinic is its physicians. Each ward of the clinic has a lot of physicians and specialists who meet the needs of patients in the different shifts and with the utmost respect for the patients and by spending the time required.

“Traditionally and from the past to the present, the hospital has been well-known because of its physicians. Since, the war that many of victims and the wounded brought to this hospital, its physicians have been known.” (M3) and “in most wards of the clinic, we have very good and skilled physicians. We have physicians who are more famous and efficient than those are in other clinics and hospitals” (M16).

### *Being a brand*

The hospital and clinic are as a brand among hospitals in Tehran and given that in recent years, it has received superior rankings from the Ministry of Health, it has become a basis for comparison for others. “The hospital and clinic are a well-known brand among other hospitals and clinics” (M17) and “one of the reasons for high patients’ referrals to the hospital and clinic and their overcrowding is, in general, their name, and that they are a brand among others and have received the best rankings in the country. All of these are the best advertisements for attracting patients” (M21).

### **Theme 2: Internal negative factors affecting overcrowding in the clinic**

The second theme is related to the internal negative factors affecting the overcrowding in the clinic. These factors include nine sub-themes which are more related to the problems with the turn-taking system, and the physicians’ delays and scheduling conflicts.

#### *Problems with the turn-taking system*

In the studied clinic, turn-taking is done in two ways: In person and by telephone. However, turn-taking by telephone has faced with some problems. Because the physicians’ turns for the next few weeks are full and complete, patients refer to the clinic to take turns in person and receive their required services faster. This has led to an increase in the patients’ volume. Sometimes the wrong turn causes the duplication of work and overcrowding. “Most patients do not want to linger and usually do not wait their turns. In addition, they do not want to call the clinic and take turns, for example for 2 weeks later, but want to be visited without an appointment which can cause the overcrowding” (M3) and “the patient knows that if he/she comes to the clinic, he/she will be visited anyway. We have many of such patients daily (M4).

#### *Physician shortages in some wards*

Although the popularity of physicians is a reason for much of the overcrowding, the shortage of physicians also is another reason for overcrowding in the wards. In other words, the number of physicians in wards does not meet the needs of patients referring to the clinic.

“One of the causes of overcrowding is the shortage of physicians in most wards which keeps patients in the long queues” (M4).

#### *Physicians’ delays*

One of the reasons for overcrowding is the delays of some physicians which affect overcrowding both directly through keeping patients waiting and also indirectly through disturbing the shifts of other wards. “One of the negative causes of overcrowding is the delays of physicians especially in this ward to which orthopedic patients refer. These patients are in pain and may have to stand on their feet. Therefore, they are frustrated when the physicians are too late” (M9).

#### *Physicians’ scheduling conflicts*

Other negative factor affecting overcrowding is the physicians’ scheduling conflicts which arise in two ways: Conflicting with the other clinics schedules and conflicting with the operation room schedules both of which increase the patients’ waiting time. “In the days when the physicians’ surgery and their clinic have the consecutive time, it is possible that the surgery takes long hours and the physicians fail to come to the clinic on time” (M5).

#### *The shortages of physicians’ hours of visiting patients*

In addition to the shortage of physicians in the wards which cause a part of the overcrowding, many physicians decrease the number of their daily visits. Therefore, many patients who have referred to the clinic in person cannot be visited and examined. “We have some physicians that don’t visit patients to the extent required and we can’t force them to visit more patients. This problem is much more in some wards such as the endocrinology and eye wards to which many patients refer” (M10).

#### *The lack of clarity in some of guidelines and instructions*

Given that, the studied clinic is attributed to the Iranian Revolutionary Guards Corps, it has some rules and regulations which are not in many other clinics. These rules and regulations prolong the treatment processes in some cases.

“This clinic has a set of unwritten rules and exceptions, which sometimes even the secretaries himself/herself also don’t know what to do in those situations. This makes them themselves take a decision, and, therefore, patients become upset, which this causes the overcrowding” (M9).

#### *The lack of suitable and sufficient space*

In many wards, the space provided for patients is much smaller than the number of patients referring to those wards, therefore, patients have to wait their turns in a compressed form. “One of the causes of overcrowding is that there is an insufficient and small space” (M20) and “this causes the number of patients exceeds the capacity of wards” (M11).

#### *The lack of a triage system*

In the studied clinic, there is not a system for referring patients to the wards according to their needs, and patients receive the clinic services based on their perceptions and impressions and it is possible that they receive a service which is not related to their disease and it is necessary for them to get another service again. “In this clinic, we have a patient who comes here from morning until noon and is visited 10 times while many of these visits are spurious. If we have a simple triage system, these unnecessary visits will greatly be reduces” (M10).

#### *Referring patients to the clinic from the emergency department*

Because the emergency department is located near the clinic, its employees, in some cases, refer the patients to the clinic

without prior notice whom should be admitted and receive services without any appointment. Instead, other patients even those with an appointment should wait. “One of the causes of overcrowding is inappropriate patients’ referral to the clinic from the emergency department” (M17).

### Theme 3: External factors affecting the overcrowding in the clinic

Among the 31 studied sub-themes, only two sub-themes were related to the external factors which cause the overcrowding in the clinic. One of them was the lack of suitable facilities in other armed forces organizations whose patients only accepted the quality of services provided in this clinic and referred to it. Moreover, the second sub-theme was the referrals from other organizations to this clinic in which the medical staff had to visit and treat them. Both of these sub-themes had increased the overcrowding, which have been discussed below.

#### *The lack of facilities and the low quality of services provided in other healthcare centers of the armed forces*

One of the reasons for high patients’ referrals to this clinic is the patients’ trust in this clinic and because the other healthcare centers of the armed forces have many shortcomings and weaknesses in their clinics, therefore, their patients are not satisfied with their facilities and come to this clinic.

“One reason for overcrowding in this clinic is the failure to pay full attention to the patients and their needs in other hospitals and clinics of the armed forces” (M21) and “failure to provide appropriate services in other healthcare centers of the armed forces indirectly leads to the high patients’ referrals to this clinic” (M17).

#### *The referrals to this clinic from other armed forces organizations*

According to the military nature of this clinic, there are many daily referrals to this clinic from the security forces and police, family courts, legal medicine office, judiciary, etc., which should be received services by the employees of the different wards out of the turn, and this keeps patients waiting longer than usual.

“Most military commissions and the chemical patients are referred to this clinic. Also, the expectations most of the patients referring to this clinic have of this clinic, do not have of other clinics and they are comfortable in this clinic because it is a patient-centered clinic” (M14) and “this clinic is trusted by military commissions, the supreme commission, the Magistrates Commission and especially the Iran’s Army to which refer their soldiers and patients” (M20).

## DISCUSSION

The importance of providing ambulatory and outpatient care services in the health care system is not hidden from anyone. The high patients’ referrals to the outpatient departments in hospitals has created challenges such as the lack of adequate manpower and equipment, the existence of various specialties

in the outpatient departments, and the careful planning for the patients’ admissions and their waiting times.<sup>[20]</sup>

According to the results of the present study, the specialty wards of the studied clinic were experiencing the high referrals of the patients for various reasons. Being a boarding clinic, the low cost of services for military forces families, veterans and families of the martyrs, the cheaper free tariffs of the visits and para-clinical services in this clinic than those in the private clinics and offices, being a specialty and subspecialty clinic and having 15 specialty and sub-specialty wards were some of the positive factors affecting the high patients’ referrals to this clinic.

In today’s competitive world, having a good image and providing high quality services by a hospital or clinic in comparison with other hospitals or clinics, and, subsequently, delivering services to more patients provide economically the stability and continuation of the hospital and clinic activities.<sup>[21]</sup> The viewpoints of participants in the present study indicated that the studied clinic had a good situation in terms of factors such as being a brand and having a good reputation, direct and indirect advertising, and the use of online turn-taking systems. These factors provide opportunities for continuing the delivery of more outpatient services through the development of specialty clinics.

However, although hospitals are competing with each other in attracting more patients, high patients’ referrals may create problems for the clinic. Overcrowding is one of the problems which provide a great challenge for every system. Healthcare services, especially in areas with high patients’ referrals, present major challenges such as high workload, overcrowding in the clinics, and insufficient manpower.<sup>[21]</sup> To compensate for the inability to meet the patients’ needs resulted from overcrowding in the clinics; healthcare centers are forced to increase their medical staff. In fact, overcrowding in the clinics and emergency departments makes deficiencies in the access to healthcare services for patients. Therefore, in order to improve the coverage, eliminating or reducing overcrowding should be considered.<sup>[22]</sup>

As the results of the present study showed, the low number of hours of patients’ visits and physical examinations by specialists, physicians’ delays, and physician shortages in some clinic wards caused overcrowding in that ward which could prolong the time of dealing with patients’ status from the first moment of arriving at the clinic until making the first contact with the medical staff, and ultimately dissatisfy the patients. Dodd and Newton in their study concluded that clinics were faced with some problems, including inefficient management, insufficient protection of patients, poor facilities, and overcrowding. They considered having enough human resources in the clinics as a solution for overcrowding.<sup>[23]</sup> In another study, the increase in human resources in order to provide pregnancy services for pregnant women has been suggested because of overcrowding in the studied clinics.<sup>[24]</sup>



In order to eliminate overcrowding, health systems often seek to increase the physical space and their human resources, while according to the difficulties in providing adequate and appropriate human resources<sup>[25]</sup> and the financial constraints to the expansion of the physical space, they should seek ways to decrease inefficiencies through optimal use of information technologies, redesigning work processes, careful planning for staff and patients, the use of appropriate communication strategies, and the use of some techniques such as discrete-event simulation.<sup>[2]</sup> Despite the fact that establishing an online turn-taking system and the use of information technologies in the wards of the studied clinic had significant effects, some factors such as the lack of patients' awareness of the proper use of the online turn-taking system and providing insufficient training to them had resulted in the lack of patients' trust in this method of taking turns and the difficulties in taking turns by telephone, referring in person, and unplanned referring to the clinic, which were one of the major reasons for overcrowding in the clinic.

Modifying and redesigning the work processes is a strategy whose effects on overcrowding have been shown in other studies. In the present study, the lack of a triage system on arrival at the clinic had resulted in the increases in the number of patients' referrals to the clinic and sometimes several alternative visits had to be made to identify a patient's problems. Therefore, designing a simple triage system has been recommended to identify the real needs of the patients and reduce the workload and overcrowding. Indeed, the need for appropriate control systems to determine the severity of the patients' problems in order to provide services tailored to their conditions can reduce the overcrowding.<sup>[26]</sup>

The relationship between the emergency department and the clinic was another reason for the overcrowding in the studied clinic. According to the results of the present study, one of the negative factors affecting overcrowding was unplanned patients' referrals to the clinic which often were without any appointment and caused overcrowding. Overcrowding has been known as a major problem of the emergency departments' processes.<sup>[27-28]</sup> The results of different studies have shown that expanding the clinics can be considered as a solution for the crowding in the emergency departments.<sup>[29-31]</sup>

### Study limitations

Because the studied sample consisted of the managers and key people of the clinic wards, the need for previous coordination and arranging an appointment to conduct interviews with them was one of the study limitations. To overcome this limitation, the researchers tried to make appointments with them a few days before the day of interviews. However, in some cases, it may be difficult to gain access to them and interview them again.

Because the participants in this study were the managers of the clinic wards, in some cases it was possible that they provided unreal positive feedback and responses and did not tell the truth. Furthermore, because the co-ordination and

interviews with other groups such as patients and other staff were not possible, one of the study limitations was the lack of considering and attention to these people.

## CONCLUSION

In general, overcrowding is one of the main problems in the hospitals and clinics.<sup>[32]</sup> However, despite the efforts made to eliminate overcrowding and reduce waiting times and increase access to the services for patients, the problem of overcrowding still has remained unresolved. In this case, measuring some parameters such as waiting times in the wards of the clinic and the rate of nonattendance by patients who have previously taken a turn can be useful in identifying the level of overcrowding in the clinic. In addition, the use of some strategies such as clarifying the working processes of the clinic for staff and patients and the relationships between the clinic and other wards especially emergency department, as well as using a simple triage system on the patients' arrival at the clinic, are recommended.

Conducting similar studies with participation of the patients and other staff, studying the preferences of patients referring to the clinic, and investigating the effects of factors identified as the effective ones in the quantitative studies can be recommended for future studies. In order to reduce the factors affecting the overcrowding, the following suggestions can be made: Establishing an integrated patients' turn-taking system in the clinic, determining physicians' schedules so that the interference in their schedules is prevented and their shortages and delays are reduced, and using a triage system at the time of patients' admission to determine the correct and real needs of patients and avoid patients' unnecessary and inappropriate referrals to the clinic.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

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