Analysis of the factors affecting the increase in organ transplant waiting lists for patients with organ failure in the Kingdom of Saudi Arabia

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Abstract:

This study aims to analyze the factors affecting the increase in the number of patients on the waiting list for organ transplantation for patients with organ failure in the Kingdom of Saudi Arabia, including administrative, technical, psychological, social and medical factors. This study also aims to analyze, identify and understand the reasons for patients' refusal to donate from their relatives and how to reduce its impact on the waiting list.

The research used a survey questionnaire on a sample of 1876 health practitioners, doctors, patients, their relatives and administrative practitioners in Saudi hospitals during the year 2024/2025. The study concluded that administrative factors, followed by medical factors and then technology, are among the factors affecting the management and increase of waiting lists. The study also reached important and useful results. In light of the findings of the study, the researchers presented a set of recommendations that would benefit the health sector and decision-makers, the most important of which is the importance of reducing stress and psychological pressure on patients and their families, providing periodic psychological consultations, ensuring the delivery of correct medical information, as well as identifying and clarifying the decisions of the medical team, automating operations and data, and periodically following up on patients on waiting lists.

Keywords: Increase the number of patients, waiting list, organ transplantation, organic failure patients

1. Introduction:

The health system is one of the basic and important matters in society and the life of the individual. Countries seek to improve the health environment for their citizens to improve the quality of life and well-being and enhance productivity. The health system may be exposed to pressures and exhaustion, such as waiting lists for patients with organ failure in hospitals, as the increase in the number of patients on waiting lists burdens the health system, especially patients who have donors from their relatives but refuse to accept the donation without medical reasons preventing that.

The Kingdom of Saudi Arabia pays great attention to the health system. Among the pillars of the Kingdom's Vision 2030 are improving the quality and efficiency of health services, empowering creative national capabilities to lead the health transformation, and keeping pace with the digital transformation in the health sector.

Increasing waiting list for organ failure patients requires effective management that combines administrative, technological, medical factors, and psychological and social support. With global health developments and ongoing challenges, health institutions need to develop, research, solve problems, such as improving the management of waiting lists for patients with organ failure, which will be addressed in this study. To keep pace with global developments, and achieve sustainability to achieve community and economic development.

According to the National Kidney Foundation in the United States of America, there are several criteria for priority on the waiting list for patients who receive a donated organ from a deceased person, including the duration of dialysis and the waiting period. Patients who have spent a longer time waiting and dialysis are given priority, as well as age, medical compatibility, the neediest, and the spatial distance between the donor and the patient. These factors are included in their electronic identification system, but there are still some challenges and difficulties facing organ transplant centers in managing, developing, and improving waiting lists, and this is what we will focus on in this study.

1.1. Study problem:

The organ transplant centers in the Kingdom of Saudi Arabia face increasing challenges with the length of waiting lists for patients with organic failure, which leads to delaying organ transplantation and the exacerbation of the health condition of patients. Among the prominent factors that contribute to this delay, many patients refused to accept donation from their relatives even though they are compatible, which increases the pressure on waiting lists. This problem stems from the overlapping of medical, administrative, and technical factors that negatively affect the management of waiting lists and lead to increased waiting periods. Therefore, there is a need to analyze these factors comprehensively and suggest solutions to improve the management of waiting lists and reduce waiting periods.

1.2. Study questions:

1. What are the medical, administrative, and technical factors that lead to an increase in the number of patients in the waiting list for organ transplantation in the Kingdom of Saudi Arabia?

2. How does the refusal of patients to donate their relatives affect the increase in the waiting period, and what are the psychological and social reasons behind this refusal?

3. What are the administrative factors that contribute to increasing the length of the waiting period, and how can it be improved?

4. How can improve waiting lists for organ transplants to increase efficiency and reduce waiting periods?

5. What is the role of psychological and social support for patients and their families in improving the decision to accept donation from relatives?

1.3. Study objectives:

1. Analysis of the factors affecting the increase in the number of patients in the waiting list for organ transplantation for patients with organic failure in the Kingdom of Saudi Arabia.

2. Determine and analyze medical factors, including patients' refusal to donate their relatives, understand the reasons behind this rejection and how to reduce its effect on the waiting list.

3. Analyzing administrative and technical factors that contribute to increasing the waiting list and proposing improvements at the level of operations and management.

4. Provide suggestions and recommendations to increase efficiency and reduce waiting periods by improving the management of waiting lists for organ transplantation.

1.4. Study importance:

The importance of this study comes from the importance of the health sector and the need to develop and improve quality and maintain the provision of excellent services, as well as preserve human life and enhance its well-being. This study provides useful insights into health management that help health institutions and researchers understand the factors affecting the increase in waiting lists for patients with organ failure in the Kingdom of Saudi Arabia and work to improve them and understand the motives and hidden factors behind patients' refusal to accept donation. The importance of this study also lies in providing new information in the field of waiting list management and organ donation in light of the scarcity of research and studies that address the subject.

2. Lecture review:

Anita Barth et al. (2021) conducted a study on Factors Affecting Access to the Kidney Transplant Waiting List in Eastern Hungary, applying it to 254 patients with renal failure between 18 and 75 years old from 8 dialysis centers. The study found that patients with end-stage renal failure have equal access to the waiting list and that those registered on the current waiting lists are younger, male, economically active, and have sufficient knowledge in this field.

In a study conducted by Emre Erdem et al. (2019) to investigate factors of registration on a kidney transplant waiting list with 355 prevalent adult patients undergoing hemodialysis in Turkey, the study found that patients who register on a kidney transplant waiting list are younger and more educated, and those who do not register on waiting lists from the previous year are older because they believe they are not eligible for transplantation.

Kim et al. (2012) conducted a study on the management of patients on the waiting list for deceased donor kidney transplantation by analyzing the medical records of 1231 patients on the waiting list between 2000 and 2010 in Korea. The researchers found that the time to transplantation of the 201 recipients was between 2.5 and 4.5 years of waiting, and 97 patients died while waiting. The health complications of patients on the waiting list increased over time. The researchers recommend that patients on the waiting list should be examined periodically to detect any complications or diseases that may appear and increase.

In a study conducted by Park J. (2023) on the use of computer programs in waiting list management in Korea, the researcher reported the use of Evernote program for smooth communication between medical teams and organ transplant coordinators and the rapid assessment of cases in the event of the availability of a brain-dead donor as well as determining the necessary tests and confirmation.

3. Methodology:

To achieve the objectives of the research that deals with the study of the reasons for increasing the number of patients in the waiting list for patients with organic failure in the center of organ transplantation in the Kingdom of Saudi Arabia and ways to improve the management of this list, the study methodology will be used by the mixed curriculum that combines the quantitative methods of questionnaire and specific methods of open questions, and considered this The study is an open segmental survey on the random sample to know the general direction of the study sample to answer the study questions and achieve its goals.

3.1. Study community and sample:

The study community was represented by workers, administrators, patients and their relatives in health centers and hospitals in the Kingdom of Saudi Arabia, as well as some experts in the field of waiting list management and health care. The type of respondent was specified in the questionnaire to cover the sample comprehensively. The study tool was distributed to the sample randomly, and the response was optional. No interviews were conducted or a deliberate sample was selected, so prior consent from patients and their relatives was not required. The study sample consisted of 1876 respondents.

3.2. Study tool:

The study tool was represented by the electronic questionnaire which was distributed electronically

to the study sample. The study tool consisted of five axes. The first axis was to obtain demographic data for the sample. The second axis was Administrative and technical factors and consisted of eight statements. The third axis was medical factors and consisted of eight statements. The fourth axis was psychological and social factors and consisted of fifteen statements. The fifth axis was improvements and suggestions and consisted of six questions. The questionnaire included Thirty-seven questions in addition to demographic information.

The questionnaire was prepared in cooperation with experts in the field of study and the questionnaire was divided into axes to analyze the factors affecting waiting lists from more than one aspect and to present recommendations and proposed improvements.

3.3. Statistical methods:

Statistical analysis using SPSS programs was used to analyze the quantitative data according to the three-point Likert model and calculate the frequencies, percentages, standard deviations and the general trend of the respondents' response.

Table 1. Three-point Likert scale answer division

Classification	Percentage (%)
Agree	66.7% - 100%
Neutral	33.4% - 66.6%
Disagree	0% - 33.3%

3.4. Ethical considerations:

The academic officer was followed in preparing this research and directing the questions in general and not directly to the study sample and randomly to ensure the privacy and freedom of the sample. No personal data was collected about the respondents. Also, this research did not include any experiments on humans or animals.

4. Results and Discussion:

To achieve the study objectives and answer its questions, the questionnaire axes were divided into five axes. The first axis included demographic data, and the second to fifth axes included the respondents' answers to the study questions. We begin with the demographic data of the study sample, as shown in Table No. 2.

4.1. Demographic data of the sample:

Table No. 2. the demographic data of the study sample (n=1876)

No	Variable	Answer	Number	Percentage %
1.	Age	18 - 30	170	9.06%
		31 - 40	654	34.86%
		41 - 50	796	42.43%
		51 - 60	151	8.05%
		Above 60	104	5.54%
2.	Gender	Male	1148	61.19%
		Female	727	38.75%
3.	Category	Relative to a patient	809	43.12%
		Kidney failure or liver failure patient	401	21.38%
		Health practitioner	333	17.75%
		Doctor	201	10.71%
		Administrative practitioner	131	6.98%
4.	Educational level	Secondary school	273	14.55%
		Health diploma	51	2.72%
		Bachelor's degree	744	39.66%
		Master's degree	500	26.65%
		PhD degree	307	16.36%
5.	Social status	Married	1464	78.04%
		Single	227	12.10%
		Separated	148	7.89%
		Widowed	36	1.92%

We find from table No.2 that the age group 41-50 came in first place with 796 and 42.43% of respondents. Followed by the age group 31-40 with 34.86%, then the age group 18-30 with 9.06%. The age group 51-60 came in at 8.05%, and in last place was the age group over sixty years old at 5.54%. These results indicate that the largest group of respondents is the youth and intellectual maturity group, with a small number of elderly people.

We also find from the results of Table No. 2 that the number of males is 1148, representing 61.19%, and the number of females is 727, representing 38.75%.

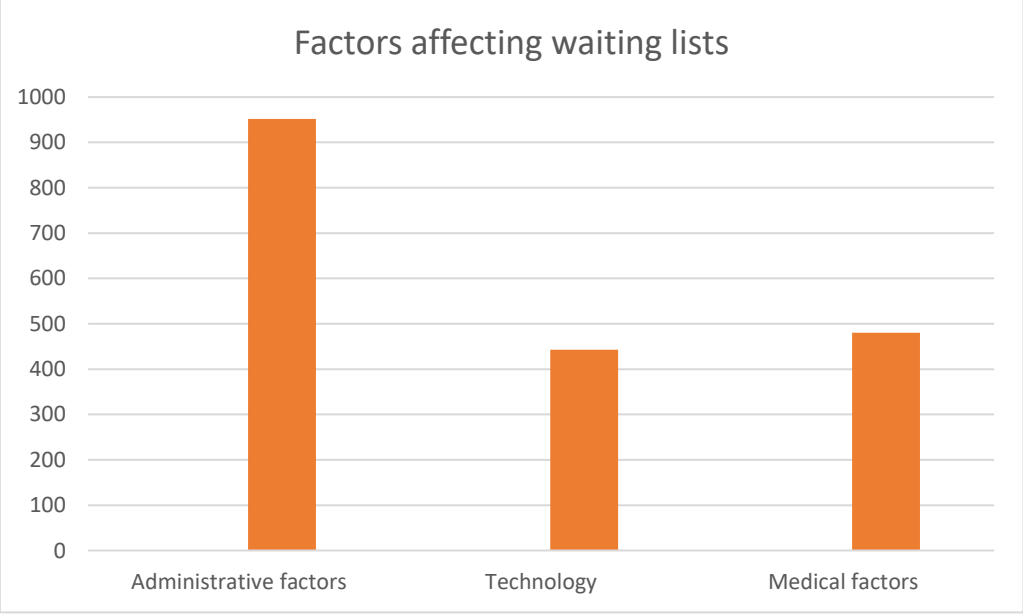
To cover all those concerned with the study topic, the category of respondents was determined in the third question of demographic data, where Relative to a patient came in first place with a percentage of 43.12%, followed by Kidney failure or liver failure patient with a percentage of 21.38%, then Health practitioner with a percentage of 17.75%, Doctor with a percentage of 10.71%, and finally administrative practitioner with a percentage of 6.98%. The indicators in the respondents' response here give strong results and cover all the study axes.

As for education, the majority of the sample has university and postgraduate education, at a percentage of 82.67%, respectively, with a bachelor's degree of 39.6%, followed by a master's degree of 26.6%, and then PhD degree of 16.3%. This gives an impression of the sample's expanding culture and their awareness of the importance of organ donation and saving patients' lives.

4.2. Analysis of the answer to the study questions:

To answer the study questions, the study tool's axes were divided into four axes that we will discuss in detail. To answer the first question of the study, which stipulated an analysis of the factors affecting the management of waiting lists for patients with organ failure and ways to improve them, we find the respondents' answer in Figure No. 1.

Figure No. 1. Factors affecting the management of organ transplant waiting lists.



From the above graph, we find that the number of respondents who think that administrative factors affect waiting lists reached 952, representing 50.74%, those who answered with medical factors were 480 respondents, representing 25.50%, and technological factors were 443, representing 23.60%.

4.2.1. Administrative and technical factors:

To answer the second study's question about knowing the administrative and technical factors affecting waiting lists, we review through Table No. 3 the frequencies, percentages, and arithmetic averages of the respondents' answers and know the general trend of each phrase of the administrative and technical factors axis.

Table No. 3. Administrative and technical factors affecting waiting lists, n=1876

No	question	Agree	Neutral	Disagree	Mean	Std. Dev
1.	The administrative procedures for patients with kidney failure and liver failure are long and complicated.	1418	315	142	2.68	0.61
		75.5%	16.79%	7.5%		
2.	The information provided to the patient about the procedures for placing his name on the waiting list is clear and sufficient.	1028	535	312	2.38	0.75
		54.7%	28.5%	16.6%		
3.	The hospital's communication with the patient about his status on the waiting list is sufficient and effective.	877	427	571	2.16	0.86
		46.7%	22.7%	30.4%		
4.	Patients feel that there is an unjustified delay in the administrative procedures of the waiting list.	1310	348	217	2.58	0.69
		69.8%	18.5%	11.5%		
5.	Do administrative procedures significantly affect the speed of organ transplantation	1417	199	259	2.62	0.72
		75.5%	10.6%	13.8%		
6.	The use of technology contributes to facilitating the management of waiting lists.	1559	223	93	2.78	0.52
		83.1%	11.8%	4.9%		

7.	The availability of human and technological resources is currently sufficient to manage waiting lists effectively.	324	303	1248	1.51	0.77
		17.2%	16.1%	66.5%		
8.	The patient has received sufficient medical information to make a decision to donate and not join the waiting list in the presence of related donors.	1244	325	306	2.67	0.65
		66.3%	17.3%	16.3		
Total					**2.40**	**0.71**

From the table above, we find that the statement The use of technology contributes to facilitating the management of waiting lists came in first place with the approval of the respondents with an arithmetic mean of 2.78 and a standard deviation of 0.52, which indicates a greater agreement among the respondents. From the results of the table above, the first statement came in second place, followed by the fifth statement, then the fourth statement, then the second and third statements, and the seventh statement came with a higher percentage of disagreement, as the number of those who do not agree that the availability of human and technological resources is currently sufficient to manage waiting lists effectively. reached 1248 with an arithmetic mean of 1.51.

Based on the results of the table above, it is clear that the need to enhance human and technological resources contributes to improving waiting lists.

66.3% of respondents agree that the patient has received sufficient medical information to make a decision to donate and not join the waiting list in the presence of related donors. This is confirmed by Sque et al. (2018) in their UK study on Family members of brain-dead patients that Better medical staff-family communication protocols increase consent to donations. Empathy and family care also increase donation decisions, and the importance of following thoughtful protocols for communication between the medical team, patients and their families and improving and developing these protocols over time.

4.2.2. Medical factors:

To answer the third question in the study, which stated, “What are the medical factors that affect waiting lists?”, the frequencies, percentages, arithmetic means, and standard deviations of the

statements of the third axis in the questionnaire, which included statements about medical factors, were calculated, as shown in Table No. 4.

Table No. 4. Medical Factors affecting waiting lists, n=1876

No	question	Agree	Neutral	Disagree	Mean	Std. Dev
1.	The patient has received sufficient procedures and information about the steps to include his name on the waiting list.	1028	535	312	2.38	0.75
		54.7%	28.5%	16.6%		
2.	The patient refused donation from relatives and preferred to put his name on the waiting list due to fear of health complications for the donor.	1459	225	191	2.67	0.65
		77.7%	11.9%	10.1%		
3.	The patient's refusal to donate from relatives and preferring to put his name on the waiting list may lead to a worsening of his health condition.	1602	97	176	2.76	0.60
		85.3%	5.1%	9.3%		
4.	Providing the patient with alternative (temporary) medical options can reduce the anxiety of the patient's consent process for donation from relatives without choice the waiting list.	1597	111	168	2.76	0.60
		85.1%	5.9%	8.9%		
5.	Lack of medical information provided to the patient and his relatives by the medical staff may lead to refusal to donate and preference for the waiting list.	1580	211	84	2.79	0.50
		84.2%	11.2%	4.4%		
6.	Educational awareness and medical follow-up contribute to reducing the number of patients on the waiting list.	1515	302	58	2.77	0.48
		80.7%	16%	3%		
7.	The patient's anxiety about the results of the donation process makes him prefer the waiting list despite the availability of a close donor.	1522	181	172	2.72	0.62
		81.1%	9.6%	9.1%		

8.	The patient refused to donate and preferred to join the waiting list for reasons related to fear of medical errors.	953	482	440	2.27	0.81
		50.7%	25.6%	23.4%		
Total					**2.64**	**0.62**

The results shown above regarding the respondents' response to the medical axis statements, and from the table above we find that: The phrase "The patient's refusal to donate from his relatives and his preference to put his name on the waiting list may lead to the deterioration of his health condition" came in first place in terms of approval percentage 85.3%, This is what was confirmed by the study of Kim et al., (2012) that increasing the length of time for patients on waiting lists increases the risk of complications and their infection with new diseases that affect their current health condition.

85.1% of respondents believe that providing alternative (temporary) medical options to the patient can reduce the anxiety of the patient's consent process for donation from relatives without choice the waiting list. This result indicates that the process of psychological support for the patient by reducing stress and tension through providing alternative medical solutions may help him make the decision to accept donation from relatives instead of waiting lists.

The statement ranked third: "The failure of the medical staff to provide medical information to the patient and his relatives may lead to the rejection of donation and preference for the waiting list." With an approval percentage of 84.2%, this result confirms the importance of providing medical information by the medical staff, which is what the researchers recommend, which is to provide medical information periodically and ensure that the correct medical information reaches the patients and their relatives and establish a confirmation system for that.

Other statements come in varying proportions about the reasons for the patient's refusal to accept the donation and the waiting lists lead to fear of health complications for the donor with a percentage of agreement: 77.7%, the patient's anxiety about the results of the donation process with a percentage of agreement: 81.1%, and fear of medical errors. With a percentage of agreement: 50.7%

4.2.3. Psychological and social factors:

To answer the fourth question in the study, which stated, "What are the psychological and social factors affecting waiting lists?", the frequencies, percentages, arithmetic means, and standard deviations were calculated for the statements of the third axis in the questionnaire,

which included statements about psychological and social factors, as shown in Table. (5).

Table No. (5). Psychological and social factors affecting waiting lists, n=1876

No	question	Agree	Neutral	Disagree	Mean	Std. Dev
1.	The social aspect (family environment) of the patient greatly influences the increase in waiting lists.	1528 81.4%	261 13.9%	248 13.2%	2.62	0.69
2.	Psychological counseling may help the patient make the right decision to donate from relatives and avoid joining the waiting list.	1643 87.5%	161 8.5%	71 3.7%	2.83	0.45
3.	Family or social pressures greatly influence a patient's decision to donate from relatives and prefer the waiting list.	1524 81.2%	303 16.5%	48 2.5%	2.78	0.46
4.	The psychological support provided by the hospital to the patient is sufficient for the patient to decide to donate from relatives and not to join the waiting list.	1056 56.2%	548 29.2%	271 14.4%	2.41	0.72
5.	The patient feels that he has enough social and family support to make the appropriate decision about donation without choice the waiting list.	1033 55%	546 29.1%	196 10.4%	2.47	0.68
6.	Providing psychological support to patients and their relatives can increase the acceptance percentage of donation without choice the waiting list.	1561 83.2%	273 14.5%	41 2.1%	2.81	0.44
7.	The psychological support provided to the medical and administrative staff is sufficient to deal with the psychological conditions of patients.	1186 63.2%	344 18.3%	345 18.3%	2.44	0.78
8.	The psychological state of patients greatly affects their medical decisions, including	1607 85.6%	231 12.3%	37 1.9%	2.83	0.41

	whether to donate from relatives or join the waiting list.					
9.	The waiting period affects the patient's psychological state or his decision to accept a donation from relatives.	1171 62.4%	426 22.7%	258 13.7%	2.49	0.72
10.	The patient considers the decision to accept a donation from a relative as something that makes him feel regret and indebted to the donor, so he prefers the waiting list.	1337 71.2%	322 17.1%	216 11.5%	2.59	0.68
11.	The decision to refuse donation from relatives and prefer the waiting list depends on the gender of the donor (male/female).	891 47.4%	546 29.1%	438 23.3%	2.24	0.80
12	The current occupational status of a potential relative donor influences a patient's decision to accept donation and preference for waiting list.	1263 67.3%	426 22.7%	186 9.9%	2.57	0.66
13.	The relationship of potential relative donor to the patient influences the patient's decision to accept donation and preference for the waiting list.	1361 72.5%	404 21.5%	110 5.8%	2.66	0.58
14.	The age of a potential relative donor influences a patient's decision to accept donation and preference for the waiting list.	1334 71.1%	325 17.3%	216 11.5%	2.59	0.68
15.	The professional and future health status of a potential relative donor may influence a patient's decision to accept donation and preference for the waiting list.	1286 68.5%	309 16.4%	280 14.9%	2.53	0.74
Total					**2.59**	**0.63**

From the table above, we find that the majority of participants, at a percentage of 87.5%, find that psychological counseling can help the patient make the right decision to donate from relatives and avoid joining the waiting list, which gives an impression of the importance of providing psychological counseling to patients. The majority of respondents also agree that the psychological state of patients greatly affects their decisions, with an agreement percentage of 85.6%, which confirms the importance of monitoring the patient's psychological state over time. Also, providing psychological support to patients and their relatives can increase the acceptance percentage of donation without choice the waiting list, with an agreement percentage of 83.2%.

There is moderate agreement that the donor's current, health and future professional status, the relative age of the donor and the relationship between the patient and the donor are factors that somewhat influence the patient's decision to accept donation. The highest percentage of disagreement (23.3%) is that gender, male or female, may influence the decision to donate.

4.3. Suggested improvements:

In order to obtain qualitative answers from the respondents, three open-ended questions were asked, which were optional to answer, to achieve the fourth objective of the study, which was to identify improvements and suggestions to improve the management of waiting lists. The answers were as follows:

4.3.1. What are the main reasons you think patients refuse donation from relatives? (Open-ended question with the respondent given the opportunity to write).

Since the answer to this question is optional, not all of the sample responded. Below are Some respondents answered as follows: Poor medical awareness. As well as poor dissemination of awareness by visual channels; Full awareness of the medical condition as well as donation through medical education; Anxiety and fear for the donor and with the presence of some incorrect information; As for me, my relatives were not suitable for me to donate because of a genetic disease called Alport Syndrome; Fear for relatives; Anxiety for the donor; Educational awareness must be done; Fear of the donation process and lack of medical education and the psychological state of the patient; Feeling guilty and sympathy.

4.3.2. What are your suggestions to improve queue management and reduce waiting list time? (Open question)

- The presence of a cadre with appropriate training

- Education and then education
- Opening donations to other nationalities for each other and setting a financial reward
- Excluding the middleman in taking the waiting period of an older patient
- Updating and developing systems
- Rewarding citizens who donate with a plot of land and a generous amount
- Giving priority to health cases
- Spreading sufficient health awareness and educating patients, activating the process of exchanging donors

We find from the respondents' answers the repetition of the importance of providing incentives for the donation process, we find that the Kingdom of Saudi Arabia, represented by its wise leadership, provided incentives and benefits to organ donors. According to the Royal Approval No. (M1489/) dated 7/5/1410 AH to grant the King Abdulaziz Medal of the Third Class to donors of major organs, which are "heart, liver, kidneys, bone marrow". Also, according to the Royal Approval No. (195) dated 8/1/1422 AH on the recommendations of the committee formed by the Ministry of Health to study cases of kidney failure and the length of waiting lists for kidney transplantation within the Kingdom, which includes increasing the reward given to the families of deceased donors whose organs were donated to patients with organ failure, approved by Cabinet Resolution No. (61) dated 6/9/1414 AH to become (50,000) fifty thousand riyals. (The Saudi Center for Organ Transplantation, 2024).

4.3.3. Are there other factors that you think influence the waiting list growth that have not been covered?

- The impact of the religious aspect on the decision to accept donation or transplantation.
- Yes, there should be mandatory medical examinations (analysis) for parents every year for children until the age of 15 or 18
- Lack of medical education for donors.
- Many patients have relatives who refuse to donate to them.
- Failure to find solutions for antibodies (DSA), which makes waiting lists the only solution for the patient.
- Failure to expand the circle of donors.
- Thinking or finding a way to increase the number of donors from members of the community.

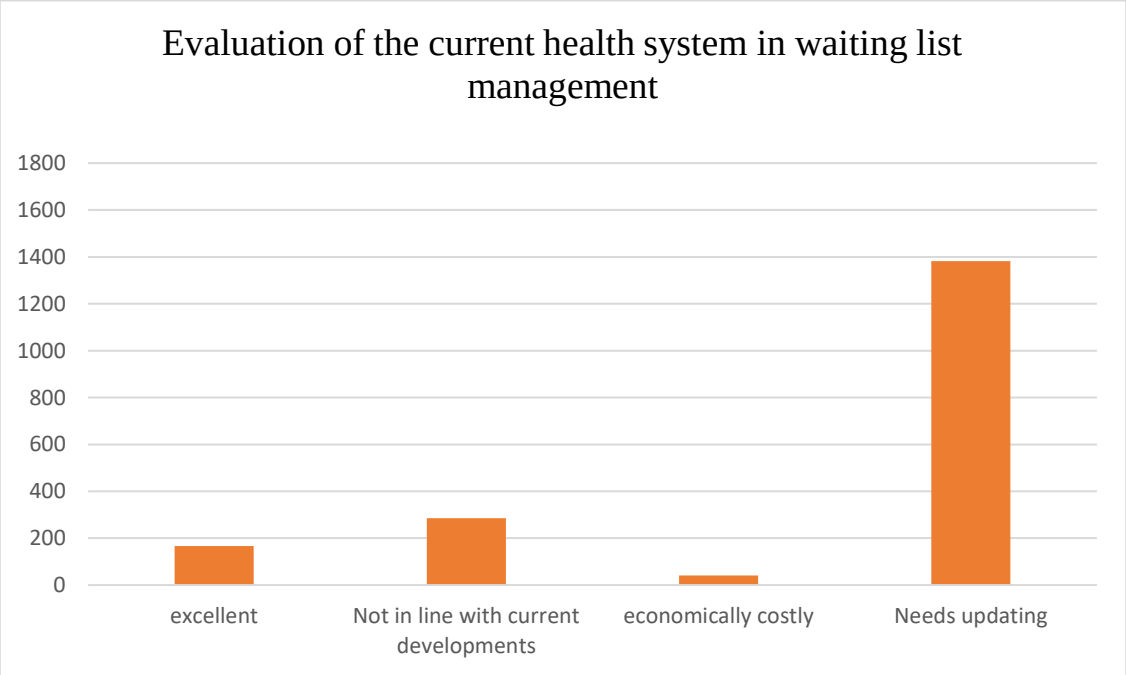
- Low number of donors after death.
- Poor organization.
- Frequent examinations and long appointments.
- Clarifying the authority of the medical team to make a decision.

Through the respondents' answers to the open questions, we find that the factors varied between medical factors, administrative factors, social factors and cultural factors, which confirms the impact of these factors primarily on waiting lists and organ donation.

4.3.4. Respondents' suggestions for the current health system in managing waiting lists and their evaluation.

Q1: What is your evaluation of the current health system in managing waiting lists for organ transplants?

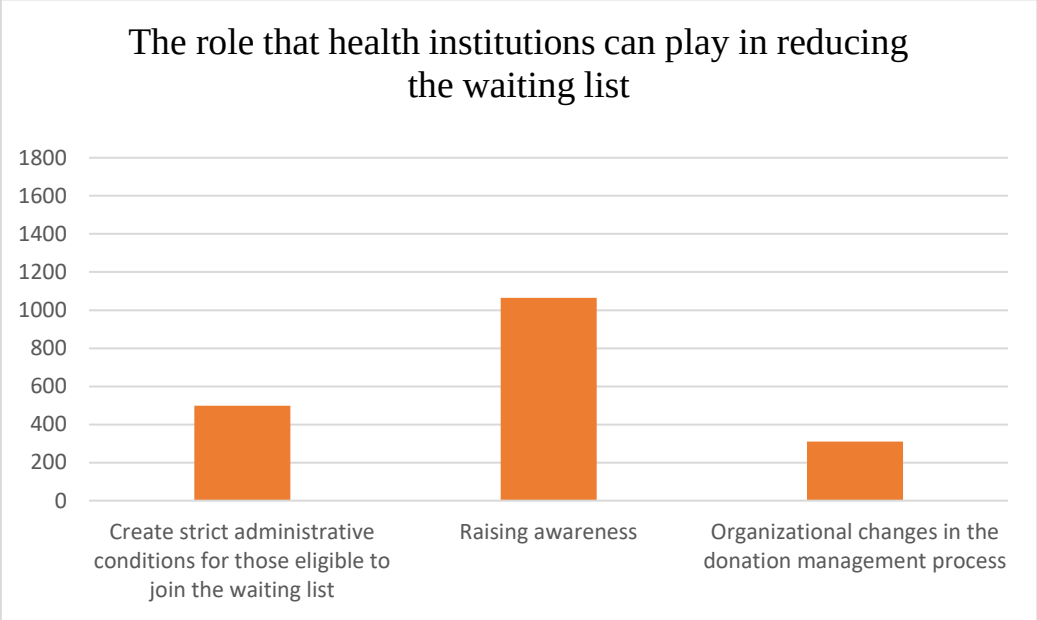
Figure No. 2. Evaluation of the current health system in waiting list management.



From the above figure, we find that the majority of participants find that the current waiting list management system needs updating, at a percentage of 73.6%. While the majority of participants believe that the current system is not economically costly, the percentage of those who believe it is economically costly is 2.1%, which is a very small percentage.

Q2. What role can health institutions play in reducing the waiting list for patients who have available relative donors?

Figure No. 3. The role that health institutions can play in reducing the waiting list.

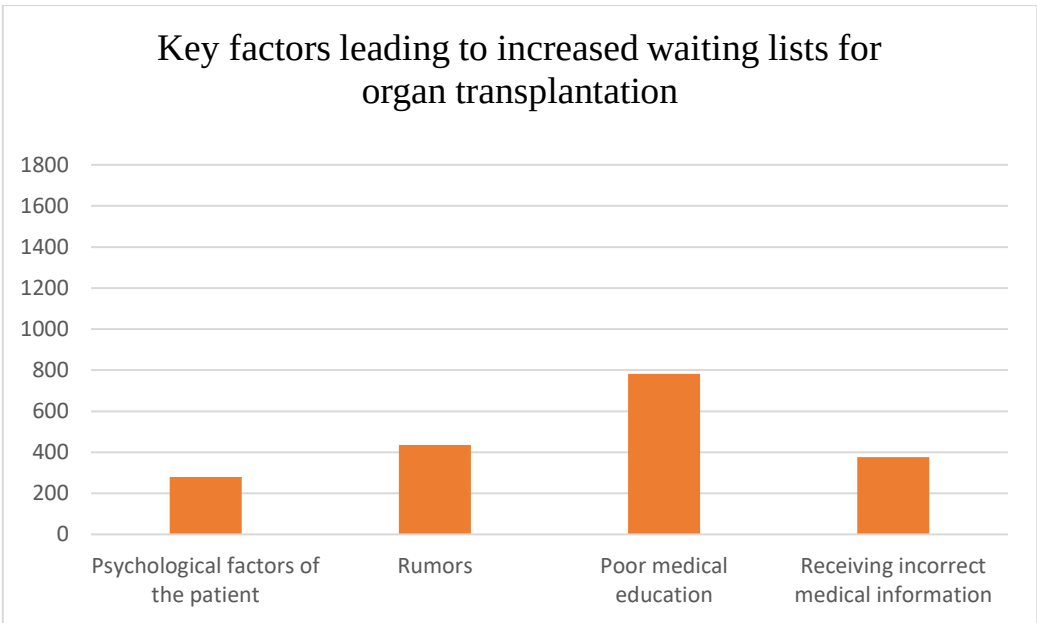


From the above figure, the majority of participants believe that the most important role that health institutions can play is raising awareness, with an approval percentage of 56.7%. This is followed by the establishment of strict administrative conditions for those eligible to join the waiting list at a percentage of 26.5%.

4.3.5. Key factors leading to increased waiting lists for organ transplantation.

To find out the main factors that led to the increase in waiting lists for organ transplantation from the respondents' point of view through the following figure:

Figure No. 4. Key factors leading to increased waiting lists for organ transplantation.



From the above figure, we find that the factors affecting the increase in waiting lists from the respondents' point of view are poor medical education and receiving incorrect medical information.

6. Conclusion:

In this study, we discussed the factors affecting the waiting list for patients with organ failure, and administrative, technical, medical, psychological and social factors, suggestions and improvements suggested by the respondents were discussed. The transplant process is the optimal and best solution for those suffering from organ failure, as well as organ failure in its final stages, but health institutions face continuous challenges in increasing waiting lists and some patients' refusal to accept donations from their available relatives.

This causes a burden on the health system, which necessitates identifying factors for managing waiting lists and inclusion criteria and employing modern technology in data analysis and decision-making.

We found through this study that the main obstacles to increasing waiting lists are, first and foremost, administrative and technical factors, followed by medical factors and then technological factors.

Also; Through the results of the study, it becomes clear that medical, administrative, technical, psychological and societal factors overlap in influencing the waiting lists for patients with organ failure. According to the majority of respondents, we find that spreading awareness and education about the importance of donation and accepting donations from relatives are among the most important things that must be taken, in addition to conveying correct medical information to both the patient and his relatives, which works to remove anxiety and motivate them to accept the donation, and also providing psychological and social support to the patient and his family contributes to motivating him to proceed with the donation process.

Some respondents also see the importance of updating the current administrative system for waiting lists and setting strict and clear conditions to determine the criteria for waiting lists and to determine and clarify the authority of the medical team to make decisions related to the patient. And some respondents see that activating the process of mutual donation and also involving other nationalities in donation, motivating the community and other nationalities to donate financially, and increasing the number of donors after death contributes to reducing and improving waiting lists.

7. Recommendations:

In light of the results concluded in the research, the researchers recommend a set of recommendations, the most important of which are:

- Increasing health and cultural awareness about donation and its importance in saving a human life.

- Updating waiting list management systems for patients with organ failure and enhancing transparency, controls and standards.

- Using modern technology and artificial intelligence systems to analyze the archive and identify common denominators for patients who refuse to accept donation from their relatives and predict similar cases in the future and develop solutions for them.

- Continuing to provide psychological and social support to patients and their relatives.

- Reducing anxiety among patients and their relatives by providing medical information periodically by the health institution and enhancing the confidence of patients and their relatives in the health system.

- Educating patients that remaining on waiting lists affects their health over time.

- Activating mutual donation between patients themselves.

- Increasing the percentage of donation after death.

- The necessity of conducting periodic examinations for patients on waiting lists and educating them about the importance of conducting these examinations for early detection of diseases that may appear and affect their health condition over time.

8. Contributors:

The first author is the primary contributor to preparing this research, as he took responsibility for the general design of the study, the formulation of research objectives, and the definition of the systematic framework that was followed. He also supervised all the research stages, starting from planning to analysis of results and writing the final report. From this standpoint, its role was not only limited to the research management, but also included supervising the implementation of all stages to ensure the achievement of the desired goals with accurate and objectively.

As for the rest of the researchers, they played pivotal roles in supporting research through effective participation in collecting and organizing field data according to the scientific foundations used.

They also conducted accurate literary reviews, which included analyzing previous related studies, which contributed to strengthening the theoretical framework of research and providing scientific visions that contribute to supporting the proposed hypotheses. Their contributions were not limited to this, but rather extended to presenting the ideas and proposals that helped link the various axes of research, which led to the construction of an integrated study in terms of scientific and methodological.

The success of this research would not have been achieved without the joint efforts between the first author and the rest of the researchers, as each individual had a fundamental role in contributing to the completion of the various stages of the research, from planning to the final results. This cooperation reflects the importance of teamwork in scientific research, as each researcher contributes to his expertise and skills in order to achieve accurate and reliable results that serve the scientific community and related applied practices

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