NK1 – Research

NK1: Provide a synopsis of one completed institutional review board-approved (IRB-approved) nursing research study.

- *Note: The nursing research study must have been conducted within the applicant organization.*

Study overview

Title: Investigating the factors that influence patients' waiting time at an outpatient department of a tertiary hospital in Saudi Arabia.

IRB Approval date: November 30, 2020, Full board approval

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Study start date: December 2020

Study end date: 31 March 2022

Contents

1. Research Team

Name	Role	Unit
Moira Abrahams, BSN RN	Principle Investigator (PI)	RDU
Basmah Fallatah, BSN RN	Fieldworker	RDU
Afaf Muhalhal, BSN RN	Fieldworker	RDU
Farida Dandouleh, BSN RN	Fieldworker	RDU
Jermaine Antivola, BSN RN	Fieldworker	OPD
Teresa Dijamco, BSN RN	Fieldworker	OPD
Anna liza Gomez, BSN RN	Fieldworker	OPD

1. Study aim

The study aimed to determine the factors influencing patient waiting time in an outpatient setting in a tertiary hospital in Saudi Arabia.

2. Significance of the Literature Review

2.1. Importance to Nursing

Patient waiting time is regarded as the time patients spend at each service point before being attended to by healthcare providers, and the overall time a patient spends in a facility from arrival at registration to the time of leaving the facility or last service (Ghazali, Manaf, Bakar, Salikin, Umapathy, Ali, Bidin & Ismail, 2011). Patient waiting time is influenced by three factors, i.e., processes, technology, and staffing. These three factors also seem to overlap to some extent (Huang, Sabljak, and Puhala, 2018). Further, Tran, Nguyen, and Nong (2017) highlight working procedures, patient overload, and appointment schedule as the factors influencing patient waiting time.

On the other hand, long waiting times affect medical staff productivity, service quality, clinic efficiency, and health care costs (Huang, Sabljak, and Puhala, 2018). Press Ganey, America's leading provider of patient satisfaction surveys, found that American patients spend 22 minutes waiting to see a doctor in an outpatient setting (The American Hospital Association, 2013). Tran et al. (2017) also states that the

average waiting time ranges from 60 minutes in Atlanta to 188 minutes in Michigan. Thus, it worsens in countries with low provider-to-patient ratios. They also state that as waiting time increases, the patient's experience of waiting time worsens.

2.2. Current Knowledge

In the Kingdom of Saudi Arabia (KSA) health care organizations are experiencing a shift towards self-sufficient business models such as health care privatization which is a result of socioeconomic challenges faced by the country. Health policies implemented by the Saudi government to fund, manage, and deliver public health care services gradually resulted in a weak and fragmented health care system. Privatization was thus seen as a solution to bring in efficiency, quality, and public satisfaction in the provision of health services (Rahman, 2020). In a broadcast message about the Saudi Arabia government's 2030 vision, the Crown Prince and Chairman of the Economic and Development Affairs of Saudi Arabia, Prince Mohammed Bin Salman Bin Abdulaziz, related that government employees should commit themselves to the provision of world-class government services by adopting international best-practices to meet the needs of Saudi Arabia citizens (Saudi Vision 2030 message: 2017).

Health care organizations where it was previously designed around treating a disease, the shift is now to realize that health care is around treating people (Díaz, Gomez, Martin-Consuegra & Molina 2017) According to Grigoroudis et al. (2013), measures of customer satisfaction include expectations, performance, and loyalty. According to Oliver (2014) on the customer perspective; satisfaction (or the lack of satisfaction) is an inevitable outcome of consumption of services. Thus, it can be argued that patient satisfaction is a consequence of perceived service quality and is a function of observed performance of healthcare service, and patient expectations. Javed & Ilyas (2018) explained further that waiting time and the customer's perception of satisfaction are closely linked to actual customer satisfaction.

2.3. Patient Outcomes

The findings of the study completed by Javed & Ilyas (2018) revealed that, in the public sector, patient satisfaction is most strongly related to empathy. However, in the private sector i.e., privately owned healthcare facilities, responsiveness influences patient satisfaction. Responsiveness is patient waiting time and this is seen as one of the questions included as a category for patient satisfaction with Press Ganey and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAPS) patient satisfaction surveys (Eisenstat, n.d). Oche and Adamu (2013) state that the amount of time a patient remains to be seen is one factor that affects the utilization of healthcare services. Studies have shown that prolonged waiting is associated with low patient satisfaction (Anderson et al., 2007), and according to Alnemer et al. (2015),

the only factor that had a significant influence on the overall satisfaction was waiting time, with those waiting for over 30 minutes reporting that they were dissatisfied with the service provided.

2.4.   Gaps in Current Knowledge

Patient waiting times within outpatient and emergency departments have been described extensively internationally (Danksy & Miles, 1997; Hendershot et al, 2005; Harding et al, 2019; Pak et al, 2021) however, within the health care context and specifically within the outpatient setting in KSA, few studies have been reported. Waiting time is a significant indicator for quality health services and in order to ensure timely access to quality outpatient services, an objective evaluation to pinpoint which services causes delays, is needed (Musinguzi, 2015). Wafula (2016) and Al-Harajin, et al (2019) highlight that more work needs to be done on types of services patients seek in Outpatient departments, patient arrival time, and staff availability. Literature has shown that patient waiting time is influenced by various factors, e.g., overbooking, discharge and admission procedures, arriving late, provider-to-patient ratios, and whether the client is a new or follow-up patient (Zhu et al. 2012; Kagedan et al. 2021). It was, however, not clear what precisely influenced waiting time at the institution under study. It is against this background that this study was undertaken guided by the study (conceptual) framework of Wafula (2016). At King Faisal Specialist Hospital and Research Center-Jeddah (KFSHRC-J) the acceptable waiting time from arrival to discharge within the Outpatient Department is 60 minutes or less. The best practice waiting time recommended in KSA is thirty 30 minutes or less (Albelall, 2019) and within 60 minutes (CIPP- MCA-J-ADM-01-033; 2017)

3.   Innovation

Several international and local studies have explored waiting time to improve the patient experience at a facility (Danksy & Miles, 1997; Hendershot et al, 2005; Ahmad et, a 2017; Harding et al, 2019; Pak et al, 2021). Most studies did not also encounter a pandemic during data collection and analysis. What was not foreseen was that the pandemic possibly helped health professionals better recognize the everyday obstacles patients face, from transportation burdens to wait times which resulted in patients not attending appointments or arriving before the allotted time slot. COVID-19 has shed new light on how the future of outpatient visits will be conducted. Virtual or telephonic consultations could replace follow-ups consultations where no physical assessment is necessary. This could reduce the number of no-shows, waiting time at registration, triage, and consultation, and lessen crowding within the hospital. By allowing patients to attend appointments through virtualized and digitalized applications, there is potential for decreasing outpatient no-shows, as stated by Morris (2020).

4. Study definitions

    4.1.   Patient Waiting Time –is defined as the time difference between time the patient checks into the department and the time the patient is discharged.

    4.2.   Late arrival – defined as a patient arriving no more than 30 minutes after their scheduled appointment.

    4.3.   Walk in – unscheduled patients who attended an outpatient visit on the same day (CIPP- MCA-J-ADM-01-033; 2017).

5. Study design

The study used a quantitative descriptive cross-sectional design.

6. Research questions

The primary research question was:

    6.1.   What are the factors that influence patient waiting time in an outpatient setting of a tertiary hospital in Saudi Arabia?

Secondary research questions were?

6.1.1. What are the actual waiting times of patients in the Outpatient department?

6.1.2. What areas of the Outpatient department cause an increased waiting time?

6.1.3. What patient factors influence patient waiting times in the Outpatient department?

7. Sample description

    7.1.   Type of sample

A convenience sampling technique was used and included all patients ages 18 years and above who reported to the Outpatient department for examination or consultation.

    7.2.   Inclusion criteria

- Patients who are 18 years and older attending the Outpatient department clinics,

- Patients who could read and write English

    7.3.   Exclusion criteria

- Patients who refused to partake in the study.

- Patients younger than 18 years of age.

- Patients who could not read or write English

7.4. Sample size

Accordingly, all patients who attended the outpatient department and fit the inclusion criteria were targeted/requested to participate in the study. Patients were approached when registering for an appointment during the morning and afternoon clinic sessions. With the help of a statistician, the sample size was calculated using the recorded average monthly census of patients who attended the outpatient department over one year. The study sample size of n=424 was then pre-determined. This number reflected 3% of the average monthly outpatient census over three months. The sample was adjusted for a dropout rate of 10%. A final sample size of n=407 participants partook in the study.

8. Location of the study

This study was conducted at King Faisal Specialist Hospital and Research Centre Jeddah (KFSHRC-J), a 385 bedded tertiary hospital. This hospital serves the western region of Saudi Arabia and was chosen as it has a strategic goal to improve patient experience (patient satisfaction) and specifically patient waiting time in the Outpatient department. The Outpatient department comprises clinics for specialties, including Internal Medicine, oncology, ophthalmology, 'ear, nose and throat' (ENT), neurology, and surgery. Patients are Saudi nationals, Saudi employees and their families, and expatriate employees of the organization.

9. Study procedures

9.1. Data collection process

Data collection was completed over one month, December 01-31, 2020 during clinic times; Sunday to Thursday from 08:00 to 17:00 daily. Fieldworkers were clinical nurses working within the organization and were mainly Arabic speaking. Some expatriate staff with conversational skills in Arabic, were also trained by the researcher.

A role play was carried out to ensure all aspects of what to expect were understood. All fieldworkers were offered time for questions and clarifications to ensure the data collection process was understood. Training included how to recruit patients to attain the desired number of patients over both morning and afternoon clinics, the process for consent and refusal, the preciseness of timing devices-mobile phones, and that it will be checked each morning before the commencement of data collection.

Fieldworkers tracked the participants through service points while recording the actual waiting time on the tool using synchronized mobile phones. Further, staff was not informed of the survey to eliminate the Hawthorne and the observer-expectancy effect. (Polit & Beck (2017) state the Hawthorne effect is the effect on the dependent variable resulting from people's awareness that they are participants under study. Individuals modify an aspect of their behavior in response to their awareness of being observed. This also explains the observer-expectancy effect as a form of reactivity in which a researcher's cognitive bias causes them to influence the participants subconsciously.

The fieldworkers approached the potential participants, i.e., the patients, to participate in the study upon their arrival and subsequent registration in the Outpatient department. A minimum of five patients per clinic session per corridor per day were requested to participate in the survey voluntarily. This totaled to a minimum of 80 patients per day. One trained fieldworker per corridor was recruited to ensure patients received assistance at any time. Once participants were selected, the data collection process was explained in Arabic.

Verbal consent was obtained from participants. The patient was given the questionnaire with a unique number identifier (UNI) to document their answers on the questionnaire. A fieldworker was available to each participant to assist and answer questions or concerns. Participants were also encouraged to make suggestions or recommendations under the comment category. Each day different clinics within the corridors were surveyed, ultimately ensuring the involvement of patients from each clinic. At the end of the visit, the fieldworkers received the questionnaires and placed them in an envelope for collection by the PI. The completed questionnaires were collected by the PI at the end of each clinic day. This process was repeated each day for four weeks until the target of 420 patients during December 2020 was achieved.

9.2. Data collection Instrument and analysis

The data collection questionnaire used was adapted from a previous research study by Wafula (2016), who developed the questionnaire based on an extensive literature review and a previous items used in a study conducted in Uganda (Musinguzi,2015). This questionnaire Wafula (2016) was used as this was the only existing easily accessible tool. The questionnaire mainly contained closed questions and one open-ended question. The open-ended question enabled the capturing of any other patient experiences that had influenced the patients' waiting time. The questionnaire included seven focus areas: demographic data, a tracking questionnaire, type of service sought by the patient, availability of staff to attend to the patients, patient arrival, patient waiting time, and the open-ended question. The researcher obtained email permission for the author Wafula (2016) to modify and use the questionnaire and for this study.

Modifications included adding one open ended question '***What are your suggestions to decrease the waiting time?'***

9.3. Reliability

The questions contained in the questionnaire do not lend themselves to internal consistency. The questionnaire has mostly close-ended questions requiring specific answers or options unrelated to a Likert scale. Subsequently, the calculation of Cronbach's alpha coefficient was not applicable. However, reliability was ensured through using the same questionnaire right through the data collection and the same fieldworkers who received training regarding the purpose of the study and the preciseness of data related to the tracking questionnaire. To enhance reliability trained fieldworkers:

- Recruited all participants

- Explained the questionnaire to each participant

- Assisted with the completion of the time tracking questionnaire

- Remained with the participants until the completion of the visit.

Any delays, such as laboratory tests during the consultation, were documented as this was necessary and might be attributable to a long waiting time.

9.4. Validity

The tracking part of the instrument concerns real-time data that proposes pinpointing bottlenecks, duplication, and hindrances in the patient flow and therefore identifying areas of improvement. The original survey was developed by experts in public health (Musinguzi,2015). Furthermore, the questionnaire is aligned to the central concepts reflected in the study's conceptual framework (Wafula, 2016).

9.5. Data analysis

Data was analyzed using frequencies and percentage.

10. Ethical considerations

Before implementation of the project, ethical approval was obtained from Nursing Affairs and the Institutional Review Board at KFSHRC-J. The fieldworkers assured participants that they were under no obligation to participate in the study and could withdraw at any time. Confidentiality, privacy, and anonymity were maintained by ensuring that the participants to the questionnaires would be anonymized and data would not be traceable to individuals. Verbal Informed consent was obtained from

the participants. Data in completed questionnaires is kept safe under lock and key at the institution for five years and will thereafter, be destroyed through shredding

11. Results

Sample

Analysis of the data showed that a total of n=407 patients participated in the study. The gender distribution was almost equal, n=200 (49.0%) females and n=207 (51.0%) males. The mean age for males was 46 years and females 43.4 years and the average for all participants was 44.7 years.

Demographic variables related to the waiting time

The age group, 31-40 years, n=64 (15.7%) appeared to wait for the longest (1.5 hours, i.e., 90 minutes), but when comparing all age groups, the average waiting is similar, 1.2 hours (72 minutes) to 1.5 hours (90 minutes). The waiting time according to gender varied irrespective of the day or time, females n= 90 (45.0%) received services quicker than males (slightly more than 4.5 hours and males almost 5 hours), but the difference is statistically insignificant. This could be attributable to factors such as women receiving scheduled bookings for earlier in the day, women who participated in the study arrive early and are thus served on time, or to cultural factors related to the prioritization of women. Exploration of the latter was not within the purview of this study.

Daily attendance and distribution of appointments

Most patient appointments occurred in the morning n=295 (72,4%), that were:

- scheduled n=394 (96.8%) rather than walk in's, n=20 (4.9%),

- follow up visits n=298 (73.2%).

The three highest clinic specialties sought included

- cardiology n=106 (26,0%);

- ophthalmology n=71(17.4%); and

- nephrology n=51(12.5%).

The type of appointments sought included

- follow consultations n=320 (78.7%);

- new consultations n=59 (14.5%);

- specialized consultations n=7 (1.7%);

- prescription refill n=6 (1.5 %);

- referrals n=3 (0.7);

- lab reviews n=1 (0.2%) and

- other n=11(2.7%).

Patient arrival time at the outpatient department

There were n=391 responses from 407 participants to the patient arrival time. Most participants n=370 (94.6%) did not arrive on time and n=21 (5.4%) arrived on time.

The actual mean waiting time of patients in the Outpatients department

Evidence shows that patients are less likely to be dissatisfied if the waiting time is equal to or below 30 minutes (Aburayya et al, 2019; Albelall, 2019). The actual mean waiting time for patients in the Outpatient was 1.5 (90 minutes) hours, with the longest time spent in consultation. The minimum time spent was 0.15 hours (09 minutes), and the maximum was 4.8 hours (288 minutes). The gap was huge when comparing the average waiting time and the gap between the minimum time (0.15 hours) and the maximum time (4.8 hours). The waiting appeared to be the longest at the consulting rooms. The area that affected the waiting time the most was consultation to discharge. The area that affected the waiting time the least was triage to consultation.

**Table 1. Average waiting time at each station within the Outpatient Department**

Average waiting time at each station within the outpatient department			
Variable (time)	**Minimum (Hours)**	**Maximum (Hours)**	**Mean (Hours)**
Registration to triage	0.33	4.63	1.6
Triage to consultation	0.33	4.83	1.5
Consultation to discharge	0.35	4.83	1.7
Arrival at Pharmacy	0		0
Departs pharmacy	0		0
Average mean time spent in the Outpatient department			1.5

The proportion of patients who received all services at the clinics.

A total of n= 376 (92.4%) patients received all services (consultation; referrals, lab results; drugs) at the clinics attended, with n=31(7.6%) patients not receiving services.

- services not received included
- consultation n=3 (20.0%);
- referrals n= 3 (20.0%);
- laboratory results n=2 (13.3%);
- specialist n=1 (6.7%);
- drugs n=2 (13.3 %); and
- other n=4 (26.7%).

Availability of health care workers in different areas
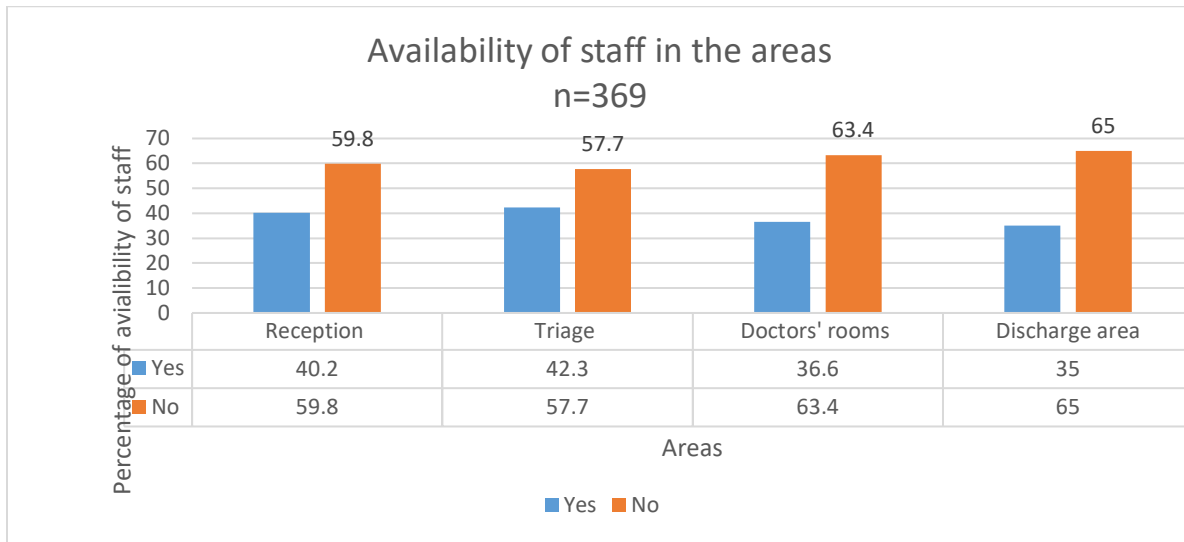
Graph 1: Availability of staff in the areas

For this section there were only n=369 responses from 407 participants. This study relied on self-reports from the participants. Many questionnaires were not fully completed possibly due to COVID-19 protocol restrictions and where processes were changing at a quick pace. Graph 1, highlights that most participants indicated the healthcare workers were absent to attend to them upon arrival at the different areas i.e., reception (n=221, 59.8%), triage (n=213, 57.7%), doctors' rooms (n=234, 63.4%), and discharge (n=241, 65%). Communication on the non-availability of staff was done minimally at reception n=186 (50.4%); triage n=156 (42,2) %, doctors' rooms, n=135(36.5%), and discharge n=128(34.6%). Responses show that n=289 (78.3%) participants felt that the availability of staff affected the waiting time; with n=55(14.9%) felt that it did not, and n=25(6.8%) participants did not know whether it affected them or not.

Suggestions to reduce the patient waiting time (open ended question)

The responses to the open ended question included counting the frequency of suggestions from participants. Hence, participants n=156 (38.3%) suggested that increasing staff would reduce the waiting time, with n=14(3.4%) indicating an increase in service points within the Outpatient department. A total of n=237(58.3%) responded that they did not know what could be suggested to reduce the waiting time.

Perception of acceptability of overall waiting time spent

Participants n=336 (82 %) felt that the overall waiting time was acceptable. Whilst n= 71(17.4%) reported the opposite.

12. Discussion and interpretation of findings

The actual waiting times of patients in the outpatient department.

The mean waiting time of patients at the hospital's OPD understudy was 1.5 hours, i.e., 90 minutes. The minimum waiting time was 0.33 hours, i.e., 19.8 minutes, and the maximum, 4.33 hours. The area that affected the waiting time the most was consultation to discharge. The area that affected the waiting time the least was triage to consultation.

A study on waiting time in an outpatient clinic conducted by Tran et al (2017), quoted that an average waiting time of 60 minutes in Atlanta to just over 188 minutes in Michigan was experienced. Tran et al. (2017:) determined the average waiting time to be over an hour, meaning 63.05 to 62.96 minutes. Al-Harajin et al. (2019) found that long waiting time negatively influences patient satisfaction. The Institute of Medicine recommends that at least 90% of patients receive medical care within 30 minutes of their scheduled appointment time (O'Malley, Fletcher, Fletcher & Earp, 1983). According to Sun, Lin, Zhao, Zhang, Xu, Chen, Hu, Stuntz, Li, and Liu (2017), patients attending clinics were reasonably satisfied if they waited no more than 37 minutes when arriving on time or 30 minutes or less (Albelall, 2019).

Ahmad, Khairatul, and Farnaza (2017:14) state that consultation length often varies from one country to another and is determined by patients' and doctors' characteristics. They also state that the average waiting time in hospital outpatient departments is between 1 to 2 hours in Malaysia. In this study, the average waiting time from triage to seeing the doctor was 1.5 hours (90 minutes), and from entering the doctor's rooms to discharge 1.7 hours. The actual time of the consultation was not measured. Ahmad, Khairatul, and Farnaza (2017), who completed an audit of waiting time at a Malaysian hospital, reported an average consultation time of 0.4 hours (24 minutes) and an average time to see a doctor of one hour.

Availability of staff in the areas

Participants responded to the one open question: ***What are your suggestions to decrease the waiting time?*** Participants expressed that more nurses should be made available even though participants agreed staff was available at all stations. Participants also felt that there should be an increase in staff at the various points of their outpatient journey. To the participants, this was perceived as available but not adequate. According to the data, there was a long waiting time at the doctors' rooms, which could be attributed to patients' type of diseases. Most of the appointments were for the cardiology clinic.

The data also showed that staff was available for assistance when needed, contributing to a better patient experience within the facility. Still, strategies could be considered to improve in this area. According to Heshmat, Mostafa, and Park (2017), service providers differ significantly in managing their time; some physicians add more capacity by double booking, working for extra hours to satisfy the increasing demand, whereas others hold on firmly to their daily schedules. Thus, each staffs' management of time during their assignment could lead patients to think that more staff is needed. Mtonga et al (2021) suggest that timely services at the facility and matching staffing ratios to patient demand are vital.

The findings of the study highlights that participants n=370 (94.6%) did not arrive on time and n=21 (5.4%) arrived on time. They also state that patient arrival patterns are not uniform, and this coincides with the study findings that late patient arrivals impact the patient staffing ratio. Zhu et al (2018) determined that patients' unpunctuality also negatively affects the effectiveness of appointment scheduling systems. The schedule of appointments was more prominent in the morning in this hospital, possibly due to the COVID-19 protocol than in the afternoons compared to a study completed by Mohebbifar et al. (2014) where the study determined that afternoon waiting time was lengthened.

13. Implications of findings and recommendations to the organization

Data collection for this study was completed during the 2nd wave of the COVID-19 pandemic in KSA and has shed new light on how the future of outpatient visits will be conducted. Virtual or telephonic consultations could replace follow-ups consultations where no physical assessment is necessary. This will reduce the number of no-shows, waiting time at registration, triage, consultation, and crowding within the hospital.

By allowing patients to remotely attend appointments through audiovisual applications, virtual visits bring promise for decreasing outpatient no-shows. Future research is needed to explore the acceptability of virtual visits, why patients come late to appointments, what do patients consider an acceptable waiting time, investigate scheduling of appointments and should patient preference of appointment times be included in scheduling. Virtual visits were implemented as a precautionary measure for social distancing; thus, exploring the acceptability by patients of this service can be explored.

The possibility of evenly spreading out the appointments both over the days of the week and throughout the day to lessen the increased patient load in the mornings and during the early days of the week is an option. This, however, might impact the patient and the availability of time to access the support services such as laboratory, x-rays, physiotherapy, etc.

Patient preparation is an area to be explored to reduce the lengthy time spent in doctors' rooms. This could include patients being ready with any questions, completing all diagnostic tests, and current medication information available to the doctor. With this said, one could highlight that more consultation rooms are needed to accommodate the increase in the number of patients being seen at a given time or adjust the scheduling system.

Lastly, more research is required. In other health care settings in KSA, using a random sampling approach to allow for generalizability of the findings related to waiting time in the Outpatient departments is warranted. Also, the study was also conducted during a pandemic where processes were changing quickly. Hence future contextual research is needed that excludes a pandemic crisis. The findings of this study specifically in terms of the waiting time is not compared to the acceptable organizational waiting time within the Ambulatory areas. This study highlights that the waiting time is increased within certain areas of the ambulatory clinics and that research including other areas, a bigger sample within KFSHRC-J is needed to generalize the findings to the current context.

14. Limitations of the Study

Data collection for this study was completed during the second wave of COVID-19. The data collection process was therefore challenged by staff being either on sick leave or in quarantine, actual visits being limited and replaced by virtual visits, daily attendance limited and restrictions on the number of family members accompanying the patient for their visits. This study relied on self-reports from the participants. Many questionnaires were not fully completed possibly due to due to COVID-19 protocol restrictions and where processes were changing at a quick pace. Participants may have based their responses on previous encounters in the hospital as well as not being focused on the present day when changes were encountered due to the COVID-19 restrictions.

This study was conducted in only one tertiary outpatient hospital setting in Saudi Arabia thus it does not reflect all settings in hospitals in Saudi Arabia.

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