

# Covid-19 Pandemic Effects on Orthopedic Patients: Northern Saudi Patients' Perspectives

Muhannad Faleh Alanazi<sup>1</sup>, Ziyad Thamer Alanazi<sup>2\*</sup>, Meshari Owaid Alanazi<sup>3</sup>, Sultan Rohayel Alanazi<sup>3</sup>, Wael Owaid Alanazi<sup>3</sup>, Yazeed Owaid Alanazi<sup>4</sup>, Abdulsalam Saleem Alanazi<sup>3</sup>

<sup>1</sup>Department of Radiology, College of Medicine, Jouf University, Sakaka, Saudi Arabia. <sup>2</sup>Department of Orthopedics, Qurayat General Hospital, Qurayat, Saudi Arabia. <sup>3</sup>College of Medicine, Jouf University, Sakaka, Saudi Arabia. <sup>4</sup>Department of Nursing, College of Applied Medical Sciences, Jouf University, Saudi Arabia.

## Abstract

The COVID 19 has become a significant public health issue worldwide, leading to the cancelation of several elective surgeries, including orthopedics. This study aimed to explore the effect of the COVID-19 pandemic on orthopedic patients of northern Saudi and to evaluate the psychological effect and improvement on the patients who have appointments that were canceled due to the pandemic. In this cross-sectional study, 405 adult orthopedic patients were randomly enrolled. A pre-tested questionnaire was used in data collection. This study revealed that (46.7%) of the patients had visits to the orthopedic department during the COVID-19 pandemic; (8.9%) of the patients attended the clinic, (12.6%) called in a virtual clinic. Most of the patients (37%) were affected by this canceled or postponed visit, whereas (56.3%) of the patients were satisfied with these changes. About the psychological effect of the COVID-19 pandemic; (37%) of the patients felt nervous, anxious, on edge, or worrying a lot about the disease. Most of the patients were not very easily getting tired at all (42.7%). (38%) had muscle tension, aches, or soreness for several days. One-third (33.6%) of the patients become easily annoyed or irritable for several days. The COVID-19 pandemic affected one-third of the patients psychologically, such as pandemic by feeling nervous, anxious, restless, and easily annoyed for several days. A focused health program to be conducted by the concerned authorities to resolve the issues faced by the patients.

**Keywords:** Orthopedic patients, Northern Saudi, COVID-19 pandemic, Psychological

## INTRODUCTION

The first case of very severe pneumonia was found in Wuhan city of China in December 2019. The World Health Organization (WHO) called it SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2). In the last week of January, this pneumonia was declared a pandemic worldwide by the WHO [1, 2]. This disease was officially named novel coronavirus or COVID-19 in February 2020 [2]. In the Kingdom of Saudi Arabia (KSA) first COVID – 19 case was reported on March 2<sup>nd</sup>, 2020, from Saudi inhabitants who returned from Iran and Bahrain [3, 4].

The COVID-19 pandemic impacted significantly on the other patients who require health care [5-7]. This scenario has dramatically affected surgeons and patients who required surgical care. Around the world, most of the hospitals and health care settings were told to postpone or delay elective surgery cases for the preparation of pandemic management [8-10]. In the KSA, to allocate the bed for the covid patients, the Saudi general surgery society (SGSS) has prioritized patients according to urgency. Similar to other surgical departments, orthopedics care is also affected by the COVID-19 pandemic. The orthopedic surgery was halted for a while except for oncology, trauma cases [10].

In addition, the residency training program of significantly influenced by the COVID-19 pandemic. Due to the high threat of the COVID-19, face-to-face treatments have become very difficult. The half-day weekly reserved activities converted two-week virtual learning for academic purposes. The Saudi Orthopaedic Association participated in the entire virtual learning performance by organizing webinars in Saudi Arabia's different sub-specialties.

The Saudi Commission for Health Specialties (SCFHS) has completed the same, but they have a focal point on the topics related to COVID-19. The SCFHS (Saudi commission for the health specialties) suggested that the scientific committee

**Address for correspondence:** Ziyad Thamer Alanazi, Department of Orthopedics, Qurayat General Hospital, Qurayat, Saudi Arabia. Ziad.al3bdli@gmail.com

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develop recommendations related to residency programs throughout this critical period. It was recommended to the orthopedic scientific committee to continue a 3-month regular change in the 2<sup>nd</sup> part of 2020 as a general orthopedic rotation for junior residents and as an elective rotation for senior residents. It was decided that if the dire situation of COVID-19 remains as it is, additional commendation will be developed [11]. Assessment of the impact of the COVID-19 pandemic on orthopedic patients will help the stakeholders to develop appropriate preventive actions.

Our research team did an extensive review of the literature, and we could not find any published studies that explored this subject in this region. Hence, we planned this study to explore the effect of the COVID-19 pandemic on orthopedic patients in the KSA and to evaluate the psychological effect and improvement on the patients who have appointments that were canceled due to the pandemic.

## MATERIALS AND METHODS

### Study Design

This study is a cross-sectional study carried out among adult orthopedic patients in North Saudi Arabia toward the effect of the COVID19 pandemic on their orthopedic Follow-ups, Surgeries, and Appointments.

### Study Area

This study was conducted in the North of Saudi Arabia in 2020, including Tabuk, northern border regions, Al Jouf, and Hail.

### Study Population

The study population was orthopedic patients who live in North Saudi Arabia.

### Ethical Consideration

All the study participants gave informed consent to participate in the research. Since it was a questionnaire-based survey, there was no risk to the participants. Also, only overall results are presented. Hence, anonymity and confidentiality were maintained. The present study is approved by the research ethics committee, Qurayat health affairs, through wide approval number:046.

### Inclusion and Exclusion Criteria

The patients aged more than 18 years, of both genders, northern KSA citizens and residents were included, and those who were not willing to participate and other region residents were excluded.

### Sample Size

We calculated the sample size with Cochran's sample size estimation formula ( $n = z^2 pq/e^2$ ). Applying the expected proportion of 50% with the confidence interval of 95% and 80% of power, 384 was the enumerated sample size. A non-probability convenient sampling technique was employed to

collect the data from the participants. These patients were distributed in different hospitals and regions.

### Data Collection Tools and Instruments

A author-made, validated, pre-tested questionnaire was used in data collection. The questionnaire includes questions about socio-demographic factors and questions about how the COVID19 pandemic affects patients Follow-ups, Surgeries, Appointments by canceling/postponing them, and how the pandemic affects orthopedic patients psychologically.

### Data Analysis

Data was coded, entered, and analyzed using the Statistical Package for Social Science (SPSS) version 23. We have used frequency (n) and proportion (%) to describe the data presented.

## RESULTS AND DISCUSSION

In this study, 405 voluntary orthopedic patients were enrolled classified based on their socio-demographic information (**Table 1**). It is evident from the given data that most of the patients were males (n = 248, 61.2%) while 157 (38.8%) were females. The age distribution of the sample showed that 146 (36%) of the patients were in the age group (18 - 24) years, 95 (23.5%) were in the age group (25 – 35) years, 78 (19.3%) were in the age group (46 – 55) years, 68 (16.8%) were in the age group (36 - 45) years whereas a few were older than 55 years of age (4.4%). Most of the orthopedic patients were Saudi nationals (97.8%).

**Table 1.** Socio-demographic characteristics of participants (n=405)

Characteristics	Frequency	Percent	
Gender	Male	248	61.2%
	Female	157	38.8%
Age (Years)	18 - 24	146	36%
	25 - 35	95	23.5%
	36 - 45	68	16.8%
	46 - 55	78	19.3%
	> 55	18	4.4%
Nationality	Saudi	396	97.8%
	Non-Saudi	9	2.2%
Marital Status	Singe	182	44.9%
	Married	190	46.9%
	Divorced	16	4%
	Widow	17	4.2%
Educational Level	Primary	5	1.2%
	Middle	7	1.7%
	Secondary	103	25.4%
	University	262	64.7%
	Other	28	6.9%

Concerning marital status, most of the participating patients (46.9%) were married, 182 (44.9%) were single, 17 (4.2%) were widowed, and 16 (4%) were divorced. Regarding the level of education, most of the patients (n=262, 64.7%) graduated, 103 (25.4%) were secondary educated, and 28 (6.9%) had other educational degrees.

About the history of chronic diseases, 267 (65.9%) out of 405 of the patients have chronic diseases, which include Diabetes mellitus (26.2%), Hypertension (22.5%), Depression/Anxiety (13.9%), Hypothyroidism (10.9%), and others (26.6%) (Figure 1).

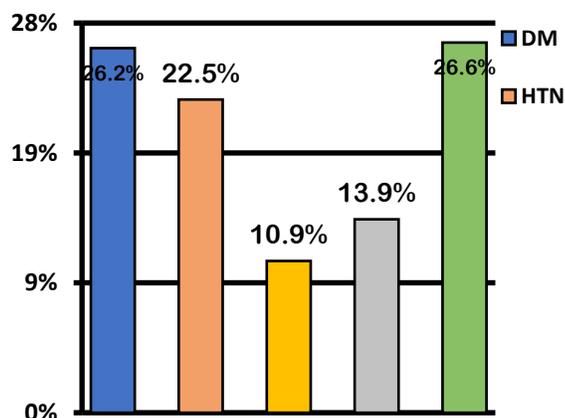


Figure 1. Frequency of chronic diseases

To explore the effect of the COVID-19 pandemic on orthopedic patients in Saudi Arabia while focusing on the first aim of our study, data analysis summarized in Table 2 revealed that 189 (46.7%) of the patients have visits to the orthopedic department during the COVID19 pandemic, for follow up (24.9%), surgery (7.9%) or new visit (13.8%). 36 (8.9%) of the patients attended the clinic, 51 (12.6%) called in a virtual clinic while the other patients their visits were post-pended (16.5%) or canceled (10.1%).

Patients were asked if the canceled/postponed visits affected their health; 150 (37%) were affected, while 110 (27.2%) were not. Most of the patients (56.3%) were satisfied with these changes during the COVID-19 pandemic. 351 (86.7%) of the patients think there is an area of improvement in dealing with their visits during the COVID-19 pandemic, while 54 (13.3%) did not.

Concerning the degree of concern of the patients about their health and their family's health during the COVID-19 pandemic, most of them (65.2%) were slight to somewhat concern about their health, 78 (19.3%) were very to extremely concern about their health. In comparison, 174 (43%) were very to extremely concerned about their family's health. Most of the patients (36.3%) their life was moderately affected by COVID-19 whereas 130 (32.1%) were slightly affected.

Table 2. Effect of the COVID-19 pandemic on orthopedic patients in Saudi Arabia

Questions	Yes	No
1. Do you have any scheduled visits to the orthopedic department during the COVID-19 pandemic?	189 (46.7%)	216 (53.3%)
2. If Yes, what is the reason for this visit?		
New visit	56 (13.8%)	101 (24.9%)
Follow up	32 (7.9%)	54 (13.3%)
Surgery		
Others		
Attended the clinic	36 (8.9%)	51 (12.6%)
a virtual clinic	51 (12.6%)	67 (16.5%)
post-pended	41 (10.1%)	53 (13.1%)
Canceled		
Others		
3. What happened to this visit?		
Yes	150 (37%)	110 (27.2%)
No		
4. If the visit was canceled/postponed, does it affect your health?		
5. Are you satisfied with these changes during the COVID-19 pandemic?	228 (56.3%)	177 (43.7%)
6. Do you think there is an area of improvement in dealing with patient visits during the COVID-19 pandemic?	351 (86.7%)	54 (13.3%)
7. Degree of concern about personal health during the COVID-19 pandemic?	Not concerned	Slightly to somewhat
63 (15.6%)	264 (65.2%)	78 (19.3%)
8. Degree of concern about family's health during the COVID-19 pandemic?	Not at all	Slightly
41 (10.1%)	190 (46.9%)	174 (43%)
Moderately		
Heavily		
9. To what extent was your life affected by COVID-19?	40 (9.9%)	130 (32.1%)
	147 (36.3%)	88 (21.7%)

The obtained data was also analyzed to cover the second aim of this study, which dealt with assessing the psychological effect and improvement on the patients who have appointments that were canceled due to the pandemic (Table 3). It was observed that 150 (37%) of the patients felt nervous,

anxious, on edge, or worrying a lot about the disease for several days, while few patients (9.6%) felt it for more than half of days or nearly every day. 128 (31.6%) of the patients felt restless for several days so that it is hard to sit still. Most

of the patients were not very quickly getting tired at all (42.7%) or getting tired quickly for several days (34.1%).

Almost third of the patients (30.9%) had difficulty falling asleep or staying asleep and 111 (27.4%) had trouble concentrating on things, such as reading a book or watching

TV for several days, while few patients (12.1%) had trouble falling or staying asleep and difficulty in concentration nearly every day. 154 (38%) had muscle tension, aches, or soreness for several days, while 159 (39.3%) had not. 136 (33.6%) of the patients became easily annoyed or irritable for several days, while 147 (36.3%) were not.

**Table 3.** Psychological effect and improvement on the patients who have appointments that were canceled due to the pandemic

Statements	Not at all	Several days	> half days	Nearly every day
1. Feeling nervous, anxious, on edge, or worrying a lot about the disease	177 (43.7%)	150 (37%)	39 (9.6%)	39 (9.6%)
2. Feeling restless so that it is hard to sit still	223 (55.1%)	128 (31.6%)	28 (6.9%)	26 (6.4%)
3. Getting tired very easily	173 (42.7%)	138 (34.1%)	51 (12.6%)	43 (10.6%)
4. Muscle tension, aches, or soreness	159 (39.3%)	154 (38%)	42 (10.4%)	50 (12.3%)
5. Trouble falling asleep or staying asleep	183 (45.2%)	125 (30.9%)	48 (11.9%)	49 (12.1%)
6. Trouble concentrating on things, such as reading a book or watching TV	209 (51.6%)	111 (27.4%)	36 (8.9%)	49 (12.1%)
7. Becoming easily annoyed or irritable	147 (36.3%)	136 (33.6%)	60 (14.8%)	62 (15.3%)

This study involved the random selection of 405 orthopedic patients in Saudi Arabia to explore the effect of the COVID-19 pandemic on them and to evaluate the psychological effect and improvement on the patients who have appointments that were canceled due to the pandemic.

In this study (46.7%) of the patients have visits to the orthopedic department during the COVID-19 pandemic for follow-up (24.9%), surgery (7.9%), or new visit (13.8%). (8.9%) of the patients who attended the clinic, (12.6%) called in a virtual clinic, while the other patients their visits were post-pended (16.5%) or canceled (10.1%). A decrease in the attendance of orthopedic patients to the clinic is required for patient safety at priority and infection control protocols. A study conducted by Alturkistany *et al.* (2020) explained that the Saudi spine society scientific committee recommended the three categories to treat the patients even in a pandemic situation [12]. The first category (A) was named immediate, category (B) was urgent, and category (C) was elective. These patients can be treated conservatively, and the first two categories are important because the patient's condition can be very critical [13].

Regarding the changes during the COVID-19 pandemic, (56.3%) of the patients were satisfied with these changes, and (86.7%) think that there is an area of improvement in dealing with their visits during the COVID-19 pandemic. These changes and improvements were explained in a study conducted by Mathai *et al.* (2020), who adopted five operational elements [14]. These elements were workflow of orthopedic patients, the functioning and possibility of operation theatre, HRM conservation of workforce in the department, provision of the training and progression to the workers, and existing strategy to restart elective work [15].

This study found that 133 orthopedic patients were treated after adopting precautions.

Concerning the degree of concern of the patients about their health and their family's health during the COVID-19 pandemic, (19.3%) of the patients were significantly highly concerned about their health, and (43%) were very to extremely concern about their family's health. The study was carried out by Benjamin C *et al.* (2020), who explained that the COVID-19 is a hazardous respiratory disease [16]. The risk for losing life is high in this infection, and during orthopedic surgery, the health workers can also be affected when the appropriate safety is not adopted.

**CONCLUSION**

This study revealed that the COVID-19 pandemic had a significant impact on orthopedics patients' perspectives. Even though the patients were satisfied with these changes during the COVID-19 pandemic, several patients were exposed to psychological issues due to delay. Furthermore, one-third of the patients were psychologically affected by the COVID-19 pandemic by feeling nervous, anxious, restless, and easily annoyed for several days. A focused health program to be conducted by the concerned authorities to resolve the issues faced by the patients.

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**ETHICS STATEMENT:** Informed consent was obtained from all participants. This proposal is approved by the Research Committee of Qurayat Health Affairs. (Approval no.49).

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