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## RESEARCH ARTICLE

### Assessing the Students' Perception of the Quality of Dental Program offered in Saudi Arabia

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#### Abstract:

#### Background:

In Saudi Arabia, dental students' program evaluation is highly focused on improving dental education quality, so that an effective workforce could be developed for the nation.

#### Objective:

This study aims to assess the students' perception of the quality of dental program offered at Saudi dental schools.

#### Methods:

All final year students of the selected Saudi dental schools (N=4) were included as the population of this study. The students were administered a questionnaire named "Dental Program Evaluation Survey." The survey consisted of four dimensions, with 31 Likert scale items and one global item studying the dental students' satisfaction towards the programs offered at Saudi dental schools. The responses obtained using the survey were subjected to statistical analysis using SPSS 20.0.

#### Results:

The results demonstrated that the dimensions, such as faculty characteristics, institutional characteristics, the efficacy of the program, and program changes due to the COVID-19 pandemic, were perceived as "High Quality." The cumulative percentage of most of the items was graded as "Acceptable." Overall, 89.2% of students were satisfied with the quality of the programs offered in their dental schools. A significant difference was found in students' perception of the dimensions and overall satisfaction with respect to their gender and dental schools.

#### Conclusion:

Overall, the students were highly satisfied with the quality of the dental program offered in Saudi Arabia. This study would help policymakers in developing appropriate strategies that can enhance and sustain the quality of dental program offered at Saudi dental schools.

**Keywords:** Dental program , Dental schools , Program evaluation survey , Satisfaction , Undergraduate dental students , Saudi dental schools.

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## 1. INTRODUCTION

Program evaluation is termed a methodical process of changing intricacy associated with data gathering, observations, and analyses, concluding in a value decision concerning the program's quality being assessed, considered in its total, or using some of its components [1]. Program evalua-

tion refers to applying assessment approaches, methods, and knowledge to methodically evaluate and assess the planning, execution, and efficacy of programs [2]. It provides the stakeholders with a meaning of quality for their program. Program evaluation models alone are not likely to focus on the assessment of quality implementation. Such models emphasize systematic data collection on the program and describe strengths and weaknesses to pursue decision-making [1]. The program assessment aims to provide feedback on how the program could be enhanced. It informs faculty and decision-makers about the contribution and impact of the program. It

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informs the stakeholders regarding the achievements of the program. It offers support for program review, strategic planning, and accreditation [3]. Students' evaluation surveys on specific aspects of higher education institutions (HEIs), including programs, provide valued information, thus helping in managing higher education quality [4]. Accordingly, higher education institutions (HEIs) are actively engaged in assessing their programs' quality using students' feedback since those are the primary customers of HEIs [5, 6].

Though various health science programs are offered by HEIs, the dental program is treated as one of the vital programs since the dental professions play an essential role in meeting the oral health necessities and individuals' demands [7]. Generally, the dental program is offered by dental schools in various countries around the world. The dental workforce is rising as more students graduate from dental schools, and supplementary expatriate dentists are licensed in the United States [8]. As such, various dental schools in Saudi Arabia offer dental program to the student community across the globe. In Saudi Arabia, an intense rise in dental colleges' count was observed in less than a decade. Such a rise showed a substantial increase in the volume of dental graduates, and thereby demanded a rise in the job openings for the fresh dental graduates [9]. However, the COVID-19 pandemic pushed Saudi and global HEIs to close down and the students were directed to practice social distancing as the critical preventive approach [10]. Though the COVID-19 pandemic has led to several snags in delivering clinical dentistry, dental instructors are offered the chance to update their methods to proper pedagogy through recent digital ideas and improving online communication and usage of learning platforms [11].

Concerning Saudi dental schools' accreditation, National Center for Academic Accreditation and Assessment (NCAAA) is authorized to observe academic accreditation processes and grant academic accreditation for HEIs, including dental schools. Dental schools must evaluate their program from the students' perspective using surveys, thereby improving dental education quality and attaining academic accreditation. In the Saudi Arabian context, an earlier study utilized the program evaluation survey (PES) at the end of the program to assess the students' experience of the undergraduate dental program offered by a Saudi University. It has been concluded that irrespective of timing for PES, there is a need for improvement related to every question confirming continuing developmental phase [12]. It also conducted a comparative appraisal between PES and student experience survey (SES) concerning the undergraduate dental students' experience of their program. Another study by Al Rubaish [13] discussed the utility of the global items' results with the individual items in enhancing the quality of higher education. The students' experience at the end of their academic programs offered by a Saudi medical and dental school was evaluated using PES. The results demonstrated the poorly graded global items results. This finding indicates the need to emphasize global item findings and attain ongoing progress in all the areas emphasized in the survey. To warrant the findings' generalizability even in identical settings, the programs comprising more students would be a better choice. Abdelsalam *et al.* [14] explored the faculty and students' level of satisfaction with their dental

curriculum in a Saudi dental school. A high level of satisfaction was reported by faculty than students as faculty perceived that the curriculum developed proficient graduates. Areas that required to be focused on were revealed to restructure the future curriculum in order to make good graduates with capabilities associated with the international benchmarks and Saudi Arabia Qualification Framework recommendations.

While reviewing the previous literature, two studies by Al Rubaish in 2011 [12, 13] assessed the dental students' feedback using PES, where the first one dealt with the comparative analysis of PES timings with the student experience survey (SES) and another study with the global items' usefulness. However, in the Saudi Arabian context, no exclusive studies have focused on evaluating dental program's quality from the students' perspective in recent times, considering the COVID-19 pandemic. Hence, this study intended to assess the students' perception of the quality of undergraduate dental program offered at Saudi dental schools. The findings would help policymakers of Saudi dental schools frame strategies for improving and sustaining the quality of dental program.

## 2. MATERIALS AND METHODS

### 2.1. Study Population

In this study, the exploratory study design was applied to assess the students' perception of the quality of dental program offered at Saudi dental schools. The study population involved all the final year students belonging to the undergraduate program of the selected Saudi dental schools (N=4) during the academic year 2020-21. The distribution of final year students (N=530) among the selected four Saudi dental schools viz., King Saud University (KSU), King Abdulaziz University (KAU), Imam Abdulrahman Bin Faisal University (IAU), and Al Jouf University (JU) was 180, 160, 100, and 90, respectively. The students were administered with a self-structured questionnaire using an online application. The ethical approval for this study was obtained from the Institutional Review Board (IRB), Imam Abdulrahman Bin Faisal University (IAU), Saudi Arabia.

### 2.2. Questionnaire

This study used the "Dental Program Evaluation Survey (Dental PES)," a self-structured questionnaire, to attain its objectives. The survey is a modified version of the instrument formed by Al Rubaish [12]. It has two sections. The first section, named "I. Demographic profile," includes 06 items covering the respondents' demographic information. The second section, named "II. Factors influencing the students' perception of the Dental program quality," involves four aspects with a total of 31 items. Those aspects are faculty characteristics (07 items), institutional characteristics (09 items), the efficacy of the program (09 items), and program changes due to the covid-19 pandemic (06 items). It has a global item (one item) covering the students' overall satisfaction regarding the dental program's quality. The responses are recorded with a five-point Likert scale (Strongly agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly disagree (1)). All participants were requested to complete this

survey within a stipulated time frame after filling the informed consent form.

While testing the reliability and validity, the overall Cronbach alpha value was found as 0.885, which demonstrated that the variables assessing the concept of the instrument could be graded as “good” [15]. Hence, it also indicated the instrument to be a reliable one. The Cronbach alpha value of the dimensions, such as faculty characteristics, institutional characteristics, the efficacy of the program, and program changes due to the COVID-19 pandemic was observed as 0.851, 0.878, 0.784, and 0.860, respectively. Furthermore, a confirmatory factor analysis (CFA) with the varimax rotation method described 62.652 percent of the variance in students’ perception towards the quality of dental program offered at Saudi dental schools. Besides, a performance grading criterion used by Al Rubaish [12, 13] was adopted to describe the mean scores of responses recorded towards each dimension of the survey used. This criterion describes the mean scores as follows: (i) High quality (3.6 & above), (ii) Acceptable (2.6-3.6), (iii) Improvement required (below 2.6). Also, the cumulative percentage data of students chosen for either “Agree” or “Strongly agree” on all items in the Dental PES were explained as (i) High quality (80% & above), (ii) Acceptable (60-80%), (iii) Improvement required (Less than 60%). The data obtained were further subjected to statistical analysis using appropriate statistical tools.

### 2.3. Statistical Analysis

Dental students' perceptions regarding the dental PES dimensions were analyzed using a mean score and the cumulative percentage data chosen for both “Agree” and “Strongly agree” on the five-point Likert scale. A one-way multivariate analysis of variance (MANOVA) was applied to reveal any significant difference among the students’ perception of dental PES dimensions concerning their gender and dental schools. Further analysis was carried out using the Univariate ANOVA to observe whether there was any significant difference in the students' perception among the dental schools concerning the dental PES dimensions. All statistical analyses were performed through SPSS 20.0 at the level of significance of 5%.

### 3. RESULTS

Out of 445 completed surveys by the participants, 182 (41%) were male, and 263 (59%) female. Those respondents were Saudis. The distribution of respondents belonging to the selected dental schools, namely King Saud University (KSU), King Abdulaziz University (KAU), Imam Abdulrahman Bin Faisal University (IAU), and Al Jouf University (JU), was observed as 146 (33%), 132 (30%), 91 (20%), and 76 (17%), respectively. The response rate was assessed as 84%. Further, the demographic characteristics of the respondents are described in Table 1. The results showed that the mean score of the survey dimensions, namely faculty characteristics, institutional characteristics, efficacy of the program, and program changes due to the COVID-19 pandemic, was 4.27, 4.16, 4.22, and 4.31, respectively. Based on the adopted criteria, these dimensions were perceived as “High Quality.” The range of the mean score of the items under four dimensions was observed from 3.78 to 4.46. While analyzing the cumulative percentage results, the highest value was observed as 86.5% indicating that the students agreed that their dental college offered sufficient knowledge and insisted on good practice to combat COVID-19. As the lowest value, 62% agreed that the library resources were sufficient and available when the students needed them. A total of 10 items were observed with a cumulative percentage of more than 80% and graded as “High Quality,” and the remaining items were observed as “Acceptable” (*i.e.*, 60-80%). The global item showed a mean score of 4.49, and 89.2% of respondents were overall satisfied with the quality of their learning experiences at their institution's dental program, and it was graded as “High Quality” (Table 2).

**Table 1. Demographic characteristics.**

University	Number of Respondents		Total
	Male	Female	
KSU	63	83	146
KAU	56	76	132
IAU	35	56	91
Al Jouf	28	48	76
Total			445

**Table 2. Mean score and the cumulative percentage of students who chose either “Agree” or “Strongly agree” on several items in the Dental PES.**

S.No.	Items	Mean ± Standard Deviation	Agreement Scores (%)
<b>I Faculty Characteristics (4.27±0.74)</b>			
Q7	The instructors were available for consultation and advice when I needed to speak with them.	4.24±0.86	81.2
Q8	The instructors in the dental program inspired me to do my best.	4.29±0.84	81.6
Q9	The instructors in the program gave me helpful feedback on my work.	4.46±0.77	86.3
Q10	The instructors in the program had a thorough knowledge of the content of their courses.	4.23±0.88	76.4
Q11	The instructors were enthusiastic about the program.	4.00±0.89	68.4
Q12	The instructors cared about my progress.	4.10±0.88	70.5
Q13	The instructors conduct effective practical training sessions and assessments.	4.12±0.91	73.9
<b>II Institutional Characteristics (4.16±0.76)</b>			
Q14	Study materials in the courses were up-to-date and useful.	4.39±0.81	83.2

(Table 2) contd.....

S.No.	Items	Mean ± Standard Deviation	Agreement Scores (%)
Q15	Library resources were adequate and available when I needed them.	3.93±0.93	62.0
Q16	Classroom facilities (for lectures, labs, etc.) were of good quality.	4.17±0.96	73.9
Q17	Computer facilities for students were sufficient for my needs.	3.96±0.99	66.3
Q18	Adequate facilities were available for extracurricular activities (e.g., sports & recreation).	4.01±0.98	69.4
Q19	Adequate facilities were available for religious observances.	3.94±1.16	66.8
Q20	Field experience programs (internship, practical, cooperative training) were effective in developing my skills (If applicable to your dental program).	3.78±0.98	65.6
Q21	Adequate academic and career counseling was available for me throughout the dental program.	4.29±1.00	81.5
Q22	I am satisfied with the students' evaluation surveys conducted to improve the quality of dental education.	4.42±0.83	84.4
<b>III Efficacy of the Program (4.22±0.68)</b>			
Q23	What I have learned in this dental program will be valuable for my future.	4.14±0.83	77.2
Q24	As a result of this program, I have developed sufficient interest to keep up-to-date with new developments in my field of study.	4.17±0.84	77.7
Q25	The program developed my ability to investigate and solve new problems.	4.11±0.86	76.2
Q26	The program improved my ability to work effectively in groups.	4.13±0.86	76.2
Q27	The program improved my communication skills.	4.22±0.99	75.1
Q28	I have developed good basic skills in using technology to investigate issues and communicate results.	4.39±0.82	83.9
Q29	I am confident that I have developed the knowledge and skills required for my chosen career.	4.03±1.00	69.8
Q30	I am satisfied with the knowledge and skills that I acquired at this dental program of my institution/college.	4.32±0.97	78.5
Q31	I am not stressed with the objective structured clinical examination (OSCE) assessment.	4.06±0.93	70.6
<b>IV Program Changes due to COVID-19 Pandemic (4.31±0.71)</b>			
Q32	My dental college offered adequate knowledge and insisted on good practice to combat COVID-19.	4.44±0.79	86.5
Q33	My dental college provided academic services efficiently during the COVID-19 pandemic.	4.03±0.91	67.2
Q34	My dental college offered an active online learning environment (online educational platforms, e-learning resources, etc.) during the COVID-19 pandemic.	4.06±0.86	69.4
Q35	The instructors motivate and support me in effective learning and research during the COVID-19 pandemic.	4.05±0.86	78.6
Q36	During the COVID-19 pandemic, my dental college adopted sufficient preventive measures during the practical training sessions.	4.36±0.81	83.0
Q37	I am satisfied with the measures taken by my dental college to ensure the quality of dental education.	4.39±0.85	84.2
<b>V Overall Satisfaction</b>			
Q38	Overall, I am satisfied with the quality of my learning experiences at this dental program of my institution.	4.49±0.72	89.2

Table 3. MANOVA assessing students' perception of the quality of dental program with respect to their gender and dental schools.

Category		Faculty Characteristics	Institutional Characteristics	Efficacy of the Program	Program Changes Due to COVID-19 Pandemic	p-value
Gender	Male	3.99 (0.81)	4.01 (0.85)	4.01 (0.68)	4.32 (0.70)	0.000*
	Female	4.47 (0.61)	4.27 (0.67)	4.36 (0.64)	4.30 (0.71)	
Dental Schools	KSU	4.40 (0.65)	4.08 (0.72)	4.34 (0.70)	4.38 (0.65)	0.000*
	KAU	4.27 (0.69)	4.16 (0.77)	4.20 (0.66)	4.34 (0.79)	
	IAU	4.23 (0.80)	4.31 (0.78)	4.19 (0.59)	4.26 (0.70)	
	Al Jouf	4.09 (0.87)	4.17 (0.79)	4.07 (0.74)	4.19 (0.67)	

\*Significant at 0.05 level.

**Table 4. ANOVA assessing students’ perception of the four dental PES dimensions with respect to their dental schools.**

Source of Variance	Dependent Variables	Sum of Squares	Mean Square	p-value
Dental schools	Faculty characteristics	4.911	1.637	0.029*
	Institutional characteristics	3.033	1.011	0.155
	Efficacy of the Program	3.927	1.309	0.035*
	Program changes due to the COVID-19 pandemic	2.322	0.774	0.198

\*Significant at 0.05 level.

**Table 5. Independent ‘t’ test for students’ overall satisfaction of the quality of learning experience in the dental program with respect to their gender.**

Dependent Variable	Gender	N	Mean ± Standard Deviation	p-value
Students’ overall satisfaction	Male	182	4.43±0.803	0.006*
	Female	263	4.54±0.658	

\*Significant at 0.05 level.

**Table 6. ANOVA assessing students’ overall satisfaction of the quality of learning experience in the dental program with respect to their dental schools.**

Dependent Variable	Source of Variance	Mean ±Standard Deviation	Sum of Squares	Mean Square	p-value
Students’ Overall Satisfaction	KSU	4.65±0.606	8.388	2.796	0.001*
	KAU	4.52±0.671			
	IAU	4.41±0.816			
	Al Jouf	4.26±0.822			

\*Significant at 0.05 level.

Further, MANOVA showed a significant difference in the students' perception of the quality of their dental program with respect to their gender and dental schools ( $p < 0.05$ ) (Table 3). While reviewing the mean agreement score of students as regards to gender, females showed a higher mean score than males in all dimensions except for program changes due to the COVID-19 pandemic (Table 3). Besides, the students’ perception of each dimension of the Dental PES concerning their dental schools was revealed using ANOVA (Table 4). The results showed a significant difference in the dental students’ perception over the two dimensions, namely faculty characteristics and efficacy of the program. However, the remaining dimensions failed to show a significant difference. Subsequently, a Tukey’s HSD post-hoc test was performed with the significant dimensions observed in ANOVA concerning the dental schools. While observing the students’ perception of faculty characteristics, a significant mean difference was found between KSU and Al Jouf ( $p < 0.05$ ). Based on the mean score, it is revealed that the dental students of KSU were more satisfied with faculty characteristics than those of KAU, IAU, and Al Jouf. Further, a significant mean difference was observed between KSU and Al Jouf ( $p < 0.05$ ) concerning the efficacy of the program. Based on the mean score, it has been observed that the dental students of KSU were more satisfied with the efficacy of the program than those of KAU, IAU, and AlJouf.

Regarding the dental students’ overall satisfaction, the

independent ‘t’ test revealed a significant gender difference in the students’ overall satisfaction. Overall, female students (mean=4.54) were more satisfied than male students (mean=4.43) concerning the quality of the learning experience with the dental program offered at their dental schools ( $p < 0.05$ ) (Table 5). Besides, the overall satisfaction of the students’ belonging to the selected Saudi dental schools was observed as 4.65 (KSU), 4.52 (KAU), 4.41 (IAU), and 4.26 (Al Jouf), respectively. There was a significant difference observed in the students’ overall satisfaction with respect to their dental schools ( $p < 0.05$ ) (Table 6). Notably, a significant mean difference was found only between KSU and Al Jouf using Tukey’s HSD post-hoc test.

**4. DISCUSSION**

In this study, the dental students perceived the dimensions, such as faculty characteristics, institutional characteristics, the efficacy of the program, and program changes due to the COVID-19 pandemic as positive with a mean score of greater than 4.0. Overall, the students’ perception of the quality of learning experience in the dental program offered at their dental schools was observed as 4.49. Using the adopted performance grading criteria, those dimensions and students’ overall satisfaction were sorted as “High Quality”, since their mean scores were equal to or greater than 3.6 using a Likert scale. Contrary to these findings, Al Rubaish [13] observed that a Saudi university's dental students rated most items and a global item of PES with the mean score graded as “Acceptable.” However, in this study, the cumulative percentage of 21 items under four dimensions was observed between 60-80%, *i.e.*, Acceptable. It denotes a scope for further improvement, and the policymakers should focus on those items employing the appropriate strategies in order to enhance the quality of dental program offered in Saudi Arabia.

Further, the results indicated a significant difference in the students' perception of dental PES dimensions with respect to their gender and dental schools. Based on the mean score, it has been observed that females were more satisfied than males concerning all dimensions except for program changes due to the COVID-19 pandemic. As the students were observed under the umbrella of public dental schools in Saudi Arabia and were experiencing uniform regulations, this observation might be due to the gender-specific variation in their perception according to their needs and expectations towards the dimensions, such as faculty characteristics, institutional characteristics, the efficacy of the program, and program changes due to the COVID-19 pandemic. In line with this result, Lavin *et al.* [16] noted that females rated the instructor’s characteristics statistically higher than males, such as professionalism, clear presentations, concise explanations,

enthusiasm, responsiveness, and encouragement. Jawaid *et al.* [17] stated that female students observed their academic environment to be more positive than their male counterparts. Daniel *et al.* [18] observed that female students were highly satisfied with the university's facility provision than male students. Besides, a study by Binshehab and Ingle [19] in Saudi Arabia found the undergraduate dental students' perception regarding online learning to be positive. Aziz Ansari *et al.* [20] have also observed that 62% of the students expressed their satisfaction with online learning in Saudi universities during the COVID-19 pandemic.

Besides, this study revealed the students' perception of each dimension of dental PES concerning their dental schools. Concerning the faculty characteristics, a significant difference was observed in students' perception of the selected dental schools. This difference might be due to each faculty member's unique qualities and attributes though the faculty member belonging to public dental schools. A study by Riedy *et al.* [21] revealed a significant difference in students' perceptions of the instructor attributes. Al-Jobair and AlSarheed [22] observed that Saudi dental students perceived their faculty's performance characteristics as highly vital for their effective learning compared to personality attributes. Cultural and instructive factors play a key role in altering students' perception of the active teacher's qualities.

Regarding the efficacy of the dental program, a significant difference was observed in the perception of the students belonging to the selected dental schools. Though the public dental schools have uniform curriculum content and course delivery, this finding may be due to the variation in the students' perceived self-efficacy and self-confidence obtained through the dental program. Further, undergraduate dental programs are based on a list of competencies to be achieved by the student in order to be able to function professionally in a dental practice after graduation from the dental school [23]. Students' self-efficacy is sensitive to changes in teaching strategies and plays a spontaneous role in academic skills growth and usage [24]. A recent study by Baaij *et al.* [25] observed that the self-efficacy of students from Aarhus University did not differ significantly from that of students enrolled in the standard program at the Academic Center for Dentistry at Amsterdam. Besides, Akhlaghi *et al.* [26] observed that various teaching methods and learning processes influence the students' self-perceived confidence.

Next, the dimension "institutional characteristics" demonstrated no significant difference in the students' perception concerning their dental schools. This finding might be because the public dental schools run by the Ministry of Education (MOE) of Saudi Arabia are governed by uniform regulations regarding the institutional facilities and learning environment. Subsequently, there was no significant difference found in students' perception towards the program changes due to the COVID-19 pandemic with reference to their dental schools. This result might be because the MOE has laid the uniform rules for Saudi universities to execute the teaching and learning processes and conduct academic services effectively during the COVID-19 pandemic. During the COVID-19 pandemic, the Saudi MOE declared that the learning process

has to be continued through online classes in a harmless and protected manner. Subsequently, all universities comprising medical disciplines shifted to online learning [27]. Alzahrani *et al.* [11] stated that the COVID-19 pandemic has created clinical dentistry and dental education challenging. However, the dental instructors have the abilities and tools to update their teaching methods through adopting current digital concepts augmenting online communication.

Finally, there was a significant difference observed in the students' overall satisfaction as regards their gender and dental schools. Overall, females were more satisfied than males concerning the quality of the learning experience at their dental schools' program ( $p < 0.05$ ). This finding may be due to the gender-specific variation in the students' overall satisfaction. In accord with this finding, Sabbagh *et al.* [28] observed that female students obtained a slightly higher mean Dundee ready educational environment measure (DREEM) score than male students in a Saudi dental school. In contrast, Al-Samadani *et al.* [29] found no significant gender difference in the mean domain values and total DREEM values among Saudi dental school students.

#### 4.1. Strategies suggested for improving the Quality of Dental programs offered in Saudi Arabia

As the students are identified as key consumers and end-users of higher education, their views and satisfaction are imperative in enhancing its quality [30]. Hence, based on the students' feedback, higher administrators should frame appropriate strategies to improve the quality of the dental program. As such, this study recommends the following strategies to improve the quality of dental education programs offered in Saudi Arabia:

(1) During the new normal situation, dental schools have gradually shifted from blended learning (*i.e.*, with 25-75% online learning) to 100% online learning. As a result, they should train their students to actively use information and communication technology (*i.e.*, Zoom, Microsoft teams, Blackboard learning management system, and online survey tools).

(2) Teachers must be trained to utilize modern technology-based teaching devices to deliver their lectures online, in both blended and hybrid modes.

(3) The instructors should keep an eye on the students' progress and conduct safe and effective practical training sessions and assessments with sufficient preventive measures considering the adverse effects of COVID-19.

(4) Dental schools should maintain adequate and readily available learning resources to aid students during online and blended learning processes.

(5) The students should be equipped with enough knowledge and skills to perform research in a safe clinical environment. It is recommended to develop collaborative training and mentoring programs for both faculty and students.

(6) It is mandatory to conduct various online surveys periodically to collect the students' feedback about online learning, blended learning, learning resources, teaching quality,

research, attained competencies, facilities, and program learning outcomes. The surveys need to be redesigned with an emphasis on the COVID-19 pandemic and online education.

(7) The schools should develop communication skills and encourage teamwork among the students to aid them in their future careers.

## CONCLUSION

Overall, the students were observed to be highly satisfied with the quality of the dental program offered in their Saudi dental schools. This study revealed that the dimensions, such as faculty characteristics, institutional characteristics, the efficacy of the program, and program changes due to the COVID-19 pandemic, were perceived as “High Quality” by the Saudi dental students. A significant difference was also noted in the students' perception towards all the dimensions and students' overall satisfaction concerning their gender and dental schools. Further, a significant difference was observed in the perception of students of the selected Saudi dental schools with respect to the faculty characteristics and efficacy of the program. The present study recommends that Saudi dental schools develop suitable strategies which may help enhance the students' satisfaction over the quality of the program being offered.

## LIMITATIONS AND RECOMMENDATIONS

This study is only limited to assessing the students' perception of the quality of undergraduate dental program offered at public dental schools in Saudi Arabia. It observed a significant difference in the students' perception of dental PES dimensions concerning their gender and dental schools. However, the relationship between dental PES dimensions and students' overall satisfaction could be further revealed. Also, the factors influencing the students' overall satisfaction towards the quality of dental program have been explored. Moreover, future research can be conducted including the students of private dental schools of Saudi Arabia so that a comparison can be made of their perception of the quality of the dental program with the perception of students in public dental schools.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The ethical approval for this study was obtained from the Institutional Review Board (IRB), Imam Abdulrahman Bin Faisal University (IAU), Saudi Arabia.

## HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures were followed in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

## CONSENT FOR PUBLICATION

Informed consent has been obtained from the participants.

## AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this study are

available on reasonable request from the corresponding author. The data are not publicly available due to information that could compromise the privacy of research participants.

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None.

## CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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