

Original Research Article

# Special Needs Dentistry: Perception, Attitudes and Educational Experience of Dental Students in Riyadh Colleges of Dentistry and Pharmacy, KSA.

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**Introduction:** Special care dentistry has been described as "an approach to oral health management tailored to the individual needs of people with a variety of medical condition or limitations that require more than routine delivery of care", it encompasses preventive, diagnostic, and treatment services. **Materials and methods:** 455 male and female students from clinical levels took part in this study. An ethical approval was acquired from Riyadh College's Institutional Review Board before data collection. A closed-ended questionnaire was used in this study with questions including demographics, exposure of students to patients with special needs, students' attitude and practice towards it. **Results:** This study included 455 dental students from clinical levels out of which 56% were females. 24% were from level 9, 32% level 10, 17% level 11 and 30% level 12. We also divided the students on the basis of their current overall GPA, which included 7% having GPA less than 3, 37% from 3-4 and 56% more than 4. **Conclusion:** Male students showed more readiness and positive attitude towards the treatment of SND patients. There was a significant difference in male students comfort levels to treat such patients as compared to females.

**Keywords:** Special Needs, Dental Students, Dental Education.

## INTRODUCTION

Dental students come across patients belonging to different medical conditions and histories including those patients with special health care needs. Patients with special health care needs (SHCN) are defined as those " whose medical, physical, psychological, or social situations make it necessary to modify normal dental routine in order to provide dental treatment for that individual "(Commission on Dental Accreditation CODA). There are many challenges to treat these patients including access to oral health care facilities, economic and physical barriers. These challenges prevent these patients, who may have complex medical histories and physical or psychological disabilities from accessing appropriate continuing dental care (Davis, 2009).

As in all aspects of dental education, there are a series of significant difficulties including specialized clinical training that can undermine efforts to expand programs. Many of these challenges can become even worse by the addition of curriculum time to teach students to address the oral health

care of patients with special needs (Waldman et al, 2005). Special care dentistry has been described as "an approach to oral health management tailored to the individual needs of people with a variety of medical condition or limitations that require more than routine delivery of care", it encompasses preventive, diagnostic, and treatment services. It is important to have educational component of preventive oral health care for person with SHCN since they have more dental disease than any other segment of the population. Educational programs concerning the treatment of patients with special needs may be effective in providing the students with basic knowledge and expertise (Krause et al, 2010).

One area of improving the situation is to know to what extent dental student are prepared to treat such patients and whether they have the knowledge or not in treating patients with special health care needs. It is not an easy task to teach dental student the knowledge and communication skills to work with a patient with developmental disabilities since they will not

always have access to these patients in their clinical training. Although this research does not provide the immediate actions for improvements, however, it acts as the starting point where it gives a more accurate statistics about the current level of preparation for further studies to be done.

There was a study conducted by a group of dental students and associate professors from University of Michigan, The study focused on the educational experience, behavior, professional attitude and knowledge of dental student toward patients with special needs. The study also measured the satisfaction of student in regard of their level of education they have. Majority of the student had neither clinical training nor enough information about dealing with special needs patients. Students in higher levels (Fourth year) showed more comfortable levels in dealing with special needs patients than students in lower levels. Students showed a positive attitude toward learning more about treating a patient with special needs since they will be part of their future patients (Vainio et al, 2011).

In a study in one of the dental schools in Jeddah, Saudi Arabia and Boston, United States of America. This study used online questionnaires to determine the dental students' readiness toward the treatment of patients with developmental disabilities. It was reported that Saudi dental students knowledge was not up to mark when it came to treat special care needs patients as compared with the US dental students (Al Kahtani et al, 2013). According to a recent study conducted in Malaysia, most of dental students had treated elderly patients, physically compromised patients and felt comfortable while treating them, but some of the students could not manage and felt uncomfortable due to the low knowledge and low exposure to special care needs. Undergraduate students agreed on needing more training and experience to special needs patients, which will lead to better treatments outcomes (Ahmad et al, 2015).

Another study conducted in the United States showed the importance of students' attitude in treating patients with special health care needs. It highlighted that many factors such as patient's ability to pay and the amount of time needed to treat them will play a role in a dentist's decision to treat special needs patients. However, providing a solid knowledge and skills basis will improve dentists' attitude toward treating these patients and will give them more confidence. (Dao, Zwetchkenbaum & Inglehart, 2005). From the above, we intended in this study to determine the knowledge and clinical experience of dental students in Riyadh Colleges of Dentistry and Pharmacy regarding treatment of patients with special needs and to compare their knowledge and clinical experience based on their gender (male/female), their different levels of study, their GPAs.

## AIMS OF THE STUDY

- To determine the knowledge and clinical experience of dental students regarding treatment of patients with special needs.
- Comparison between male/female as well as different levels of dental students.
- To compare between students with different GPAs.

## MATERIALS AND METHODS

This is a cross-sectional study, which utilized undergraduate dental students from Riyadh colleges of dentistry and pharmacy. 455 male and female students from clinical levels

took part in this study. An ethical approval was acquired from Riyadh College's Institutional Review Board before data collection. A closed-ended questionnaire was used in this study with questions including demographics, exposure of students to patients with special needs, students' attitude and practice towards it.

The survey was divided into four parts, including perceptions of dental education and climate, education-related attitudes, satisfaction levels with various aspects including facilities and professional attitudes. A 5 point Likert scale was used. The data was subjected to statistical analysis using SPSS version 16. One way ANOVA was done to compare the responses between genders, levels of dentistry and GPA. The significant value was kept under 0.05.

## RESULTS

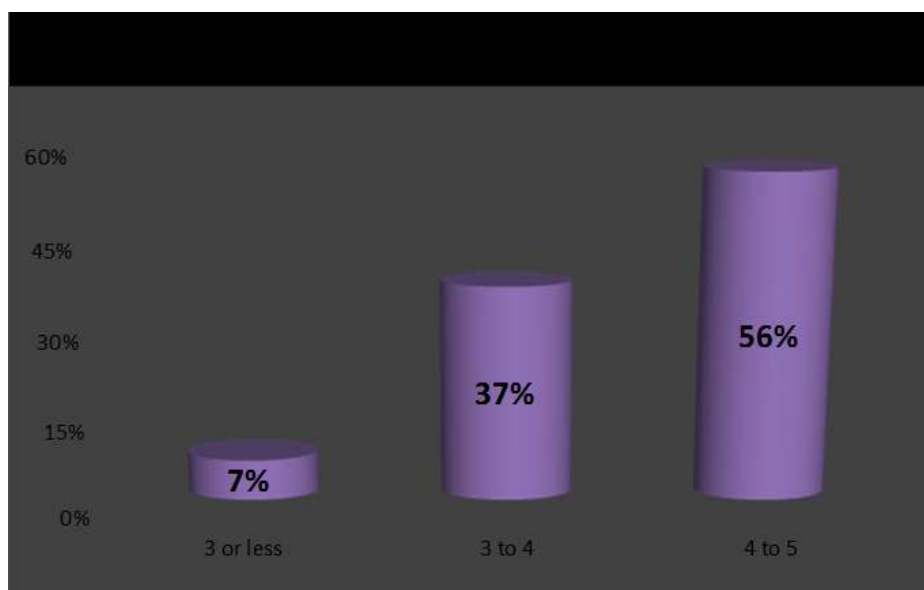
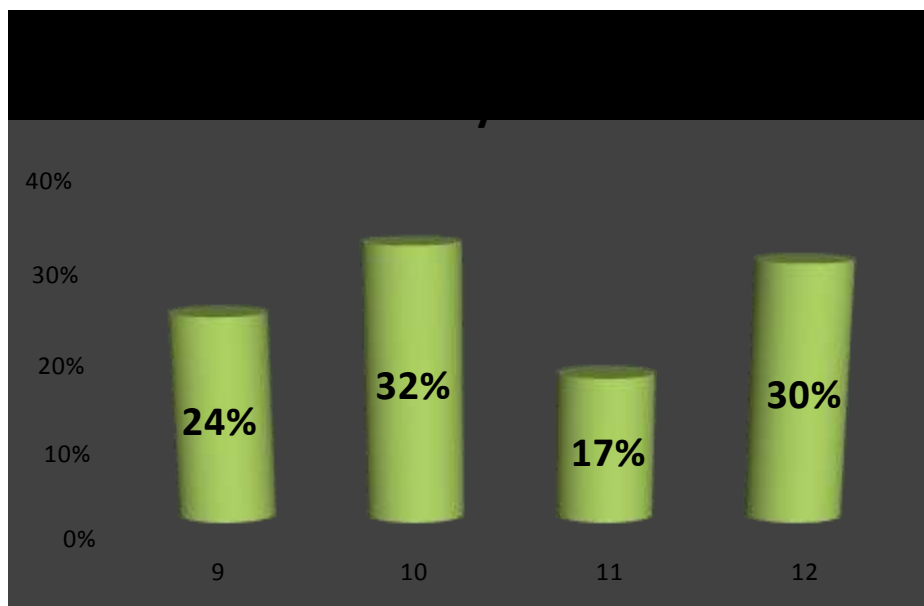
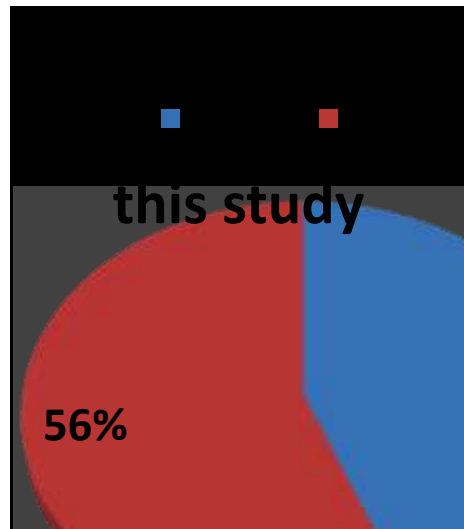
As shown in figure 1, female participants in this study were 56% while male were 44%. Various levels from pre-doctoral dental student participated in this study, the highest response was from level 10 student (32%), followed by level 12 (30%) responses, then level 9 (24%) while level 11 dental students were the lowest response (17%), (figure 2).

Figure 3 shows that 56% of participant had 4 to 5 GPA, while 37% had 3 to 4 GPA and only 7% had 3 or less GPA. Regarding the first part from (table 1) in the perceptions of dental education and climate, the first question was about if the classes prepared the students well for treating patients with special need, we observed from our results that the mean value for level 10 was the highest which is 3.47 and the mean value for level 9 was the lowest which is 3.34. When it came to the comparison between male and females, males were higher 3.47 than females (3.43).

GPA score results gave us that students with lower than 3 had the highest mean value which is 3.78 and score between 3-4 had the lowest which is 3.51. The second question for the students was about if the students believe that their school has an honest concern about the treatment of SNPs, the results revealed that level 9 had the highest mean value which is 3.60 and level 12 had the lowest which is 3.32. In the female and male comparison, males had the highest mean value which is 3.40 and females had the lowest which is 3.19. GPA results gave us that less than 3 score had the highest which is 3.56 and more than 4 score had the lowest which is 3.23.

The last question was about if the school clinics provide an environment that is sensitive to treating patients with SN's, and the results was that level 9 believed that it provides by 3.40 and it was the highest, while level 11 had the lowest 3.09. Males had a higher mean value which is 3.40 while females had the lowest which is 3.19. GPA results revealed that students with GPA score less than 3 had the highest mean value which is 3.56 and students with more than 4 score had the lowest which is 3.23. In the second part of the (table 1), the first question was about education-related attitudes, we asked the students about the curriculum should include more about treating special need patients and the results revealed that level 9 had the highest mean value which is 4.04 and level 12 had the lowest which is 3.86.

In the comparison between males and females, females had the highest which is 3.98 and males had the lowest which is 3.88. Regarding to the GPA, less than 3 score of the GPA had the highest mean value which is 4.06 and between 3-4 score of GPA had the lowest mean value which is 3.89.



**Table 1:** Average responses concerning the quality of students' education about patients with special health care needs

<b>Perceptions of Dental Education and Climate:</b>											
<b>My classes prepared me well for treating patients with special needs.</b>											
9: 3.34	10: 3.47	11: 3.40	12: 3.37	p: 0.018	M: 3.47	F: 3.43	p: 0.565	< 3: 3.78	3-4: 3.51	>4: 3.27	p: 0.049
<b>I believe that my school has an honest concern about treatment of SNPs</b>											
9: 3.60	10: 3.44	11: 3.50	12: 3.32	p: 0.317	M: 3.49	F: 3.42	p: 0.531	< 3: 3.75	3-4: 3.60	>4: 3.33	p: 0.004
<b>School clinics provide an environment that is sensitive to treating patients with SNs</b>											
9: 3.40	10: 3.38	11: 3.09	12: 3.32	p: 0.069	M: 3.40	F: 3.19	p: 0.276	< 3: 3.56	3-4: 3.33	>4: 3.23	p: 0.337
ANOVA: Levels: F=1.654, p=0.001 Gender: F=1.2111, p=0.163 GPA: F=1.999, p=0.000											
<b>Education-Related Attitudes</b>											
<b>Curriculum should include more about treating special need patients</b>											
9: 4.04	10: 3.93	11: 3.96	12: 3.86	p: 0.478	M: 3.88	F: 3.98	p=0.365	< 3: 4.06	3-4: 3.89	>4: 3.95	p: 0.292
<b>It is very important to educate students about the treatment of patients with special needs.</b>											
9: 4.55	10: 4.35	11: 4.24	12: 4.33	p: 0.364	M: 4.34	F: 4.41	p=0.027	< 3: 4.28	3-4: 4.31	>4: 4.42	p: 0.049
<b>I feel comfortable treating patients with special needs</b>											
9: 3.39	10: 3.25	11: 3.14	12: 3.05	p: 0.000	M: 3.37	F: 3.07	p=0.044	< 3: 3.71	3-4: 3.22	>4: 3.13	p: 0.215
ANOVA: Levels: F=1.313, p=0.007 Gender: F=1.544, p=0.214 GPA: F=1.930, p=0.124											

Dentistry levels Gender GPA

Note: Answers ranged from 1=strongly disagree to 5=strongly agree

**Table 2:** Average responses concerning satisfaction with various aspects of education about treating patients with special health care needs

<b>Satisfaction with</b>											
<b>Classroom experience:</b>											
9: 3.48	10: 3.65	11: 3.54	12: 3.70	p: 0.296	M: 3.72	F: 3.51	p: 0.039	< 3: 3.96	3-4: 3.73	>4: 3.48	p: 0.012
<b>Clinical experience:</b>											
9: 3.40	10: 3.34	11: 3.06	12: 3.04	p: 0.024	M: 3.36	F: 3.10	p: 0.021	< 3: 3.68	3-4: 3.46	>4: 3.00	p: 0.000
<b>Extramural experience:</b>											
9: 3.28	10: 3.49	11: 3.32	12: 3.13	p: 0.014	M: 3.43	F: 3.20	p: 0.017	< 3: 3.62	3-4: 3.46	>4: 3.16	p: 0.002
<b>Faculty experience:</b>											
9: 3.58	10: 3.54	11: 3.44	12: 3.56	p: 0.728	M: 3.67	F: 3.43	p: 0.014	< 3: 4.00	3-4: 3.53	>4: 3.48	p: 0.020
<b>Patient pool:</b>											
9: 3.23	10: 3.23	11: 3.13	12: 3.10	p: 0.557	M: 3.21	F: 3.14	p: 0.216	< 3: 3.50	3-4: 3.21	>4: 3.11	p: 0.124
<b>Teaching resources:</b>											
9: 3.44	10: 3.51	11: 3.42	12: 3.49	p: 0.886	M: 3.50	F: 3.44	p: 0.205	< 3: 3.75	3-4: 3.52	>4: 3.40	p: 0.190
ANOVA: Levels: F=1.632, p=0.121 Gender: F=1.233, p=0.009 GPA: F=1.721, p=0.179											

Dentistry levels Gender GPA

Note: Answered ranged from 1=very dissatisfied to 5=very satisfied

**Table 3:** Professional attitudes and behavior concerning treating patients with special health care needs

<b>Professional attitudes:</b>											
<b>I feel comfortable treating patients with special needs</b>											
9: 3.39	10: 3.25	11: 3.14	12: 3.05	p: 0.066	M: 3.37	F: 3.07	p: 0.006	< 3: 3.71	3-4: 3.22	>4: 3.13	p: 0.019
<b>I feel comfortable having patients with special needs as part of my patient population</b>											
9: 3.74	10: 3.43	11: 3.54	12: 3.47	p: 0.072	M: 3.59	F: 3.48	p: 0.489	< 3: 3.68	3-4: 3.44	>4: 3.57	p: 0.451
<b>Behavioral intentions:</b>											
<b>I will include special needs patients in my future practice.</b>											
9: 4.05	10: 4.00	11: 3.89	12: 3.70	p: 0.009	M: 3.95	F: 3.87	p: 0.325	< 3: 3.71	3-4: 3.95	>4: 3.92	p: 0.011

Dentistry levels Gender GPA

Note: Answers ranged from 1=strongly disagree to 5=strongly agree

The second one was about a wonder if it is very important to educate students about the treatment of patients with special needs, and we observed from the results that level 9 had the highest mean value which is 4.55 while level 11 had the lowest mean value which is 4.24. Females and males comparison revealed that females had the highest mean value which is 4.41 and males had the lowest which is 4.34. GPA scores gave us that more than 4 score of GPA had the highest mean value which is 4.42 and less than 3 score of GPA had the lowest which is 4.28. The third and the last question from (table 1) was asking the students if they feel comfortable while treating patients with special needs, the results gave us that level 9 had the highest mean value which is 3.39 and level 12 had the lowest which is 3.05. Females and males results gave us that males had the highest mean value which is 3.37 while females had the lowest which is 3.07.

Regarding the GPA, less than 3 score of GPA had the highest which is 3.71 and more than 4 score had the lowest which is 3.13. Regarding (table 2), the 1<sup>st</sup> question was asking the students about Classroom experience: and we observed from the results that level 12 had the highest mean value which is 3.70 and level 9 had the lowest which is 3.48. Females and males results gave us that males had the highest mean value which is 3.72 while females had the lowest which is 3.51. GPA score results gave us that students with lower than 3 had the highest mean value which is 3.96 and score more than 4 had the lowest which is 3.48. The 2<sup>nd</sup> question for the students was about Clinical experience: results revealed that level 9 had the highest mean value which is 3.40 and level 12 had the lowest which is 3.04. In the female and male comparison, males had the highest mean value which is 3.36 and females had the lowest which is 3.10. GPA results gave us that less than 3 score had the highest which is 3.68 and more than 4 score had the lowest which is 3.3.

The 3<sup>rd</sup> question from (table 2) was asking the students About Extramural experience: and the results revealed that level 10 had the highest mean value which is 3.49 and level 12 had the lowest which is 3.13. In the comparison between males and females, males had the highest which is 3.43 and females had the lowest which is 3.20. GPA results gave us that less than 3 score had the highest which is 3.62 and more than 4 score had the lowest which is 3.16. The 4<sup>th</sup> question from (table 2) was asking the students about Faculty experience: and the results was that level 9 believed that it provides by 3.58 and it was the highest, while level 11 had the lowest 3.44. Males had a higher mean value which is 3.67 while females had the lowest which is 3.43. GPA results gave us that less than 3 score had the highest which is 4.0 and more than 4 score had the lowest which is 3.4. The 6<sup>th</sup> question from (table 2) was asking the students about Patient pool: and we absorbed from the results that level 9 and 10 had the highest mean value which is 3.23 while level 12 had the lowest mean value which is 3.10.

Females and males comparison revealed that males had the highest mean value which is 3.21 and females had the lowest which is 3.14. GPA results gave us that less than 3 score had the highest which is 3.50 and more than 4 score had the lowest which is 3.11. The last question from (table 2) was asking the students about teaching resources: results gave us that level 10 had the highest mean value which is 3.51 and level 11 had the lowest which is 3.42. Females and males results gave us that males had the highest mean value which is 3.50 while females had the lowest which is 3.44. GPA results gave us that less than 3 score had the highest which is 3.75 and more than 4 score had the lowest which is 3.4. In (table 3), the first question was asking the students if they feel

comfortable treating patients with special needs: results gave us that level 9 had the highest mean value which is 3.39 and level 12 had the lowest which is 3.05.

Females and males results gave us that males had the highest mean value which is 3.37 while females had the lowest which is 3.07. GPA results gave us that less than 3 score had the highest which is 3.71 and more than 4 score had the lowest which is 3.13. The second question in (table 3) was about asking the students about if they feel comfortable to have patients with special needs as part of their patient population we absorbed from our results that the mean value for level 9 was the highest which is 3.74 and the mean value for level 10 was the lowest which is 3.34. when it came to the comparison between male and females, males were the highest which is 3.59 and females were the lowest which is 3.48. GPA results gave us that less than 3 score had the highest which is 3.68 and between 3 and 4 score had the lowest which is 3.44.

The last question in (table 3) was about asking the students if they include special needs patients in their future practice: results gave us that level 9 had the highest mean value which is 4.05 and level 12 had the lowest which is 3.70. Females and males results gave us that males had the highest mean value which is 3.95 while females had the lowest which is 3.87. GPA results gave us that between 3 and 4 score had the highest which is 3.95 and less than 3 score had the lowest which is 3.71.

## DISCUSSION

There is an increasing demand in the care of patients with special health care needs as that population grows. Previous studies identified barriers to seek oral health care for SHCN patients, those barriers subject the patients to an increasing risk of oral health problem. Dental schools must provide their students with the necessary experience and the knowledge to provide oral health care for SHCN patients in their pre-doctoral programme to encourage that student to resume providing the oral health care for that patient in their postdoctoral practice and to encourage them in order to receive further training in their postdoctoral residency program. It is crucial to prepare future dental practitioners in a way they can deliver the care needed for patients with SHCN.

The purpose of this study was to evaluate the dental student's attitude, perception and satisfaction in the education they received in this particular field of dentistry. Dental students receive education about the care for SHCN in their undergraduate dental curriculum. However, when it comes to the implementation of these modalities in the clinical setup, not many dental students seem to be confident enough to treat special needs patients.

In our study, we aimed to compare the attitudes and beliefs of dental students on the basis of gender, dentistry level, and GPA. Several studies have been conducted in different parts of the world with varying results and analysis. The findings in our study revealed a distinct change in attitude and educational experience in different levels of dental students. Lower levels of dental students showed more concern, readiness and positive attitude towards the management of SHCN patients with mean values significantly (in most responses) decreasing from lower to higher levels of dentistry.

These results were compared with the study conducted in the University of Michigan by Vainio, Krause & Inglehart (2010), which disclosed that the senior dental students (3<sup>rd</sup> and 4<sup>th</sup> year) showed more concern and eagerness to manage special needs patients. These findings are contrary to what we observed in our study. Prior experience with special need

individual was found as a factor that increases the comfort level in treating those patients. Another study by Wolff et al. showed that students who had enough opportunities to care for SHCN patients had better capabilities than those students without any experiences.

A study done evaluating Italian dental student showed that students were not prepared and they rated the training they received as poor and that they lack the confidence for the care of special need patients. Dental student showed positive attitude in treating SHCN patients in those communities whose surrounding has a higher number of special needs patient. Dental schools should encourage dental student to provide care for SHCN patient and providing them with more opportunities for continuing education in this field of dentistry. A study done in the US and Canadian dental school found that clinics which lack special care patients clinics tend to refer those patient to pediatric and residency program. Dao et al. (2005) reported that insufficient pre-doctoral clinical training will translate to less likelihood to treating that patient as a general dental practitioner.

A study done in Latin American and Caribbean which focus in the teaching program about care of special needs patient institutions recognized the importance of experience and skills in providing the care for special needs patients. Another study done by Ahmad et al, (2014) in Malaysia showed a positive effect of extramural activities of students on the overall attitudes. They compared the dental students of Malaysia to the ones in Australia and revealed that these students had learnt to manage SND patients while volunteering in rehabilitation centers and special education schools. They also reported the high satisfactory levels of students from their undergraduate courses, which included training programs to treat SND patients.

Extramural experiences were found to be moderate as far as our students were concerned. They also showed low mean levels regarding the existing learning resources and encouragement during clinical sessions as far as treatment of SND patients was concerned. When inquired about preparing students during lectures, there was a statistically significant difference among the dentistry levels and GPA comparison. Comparison among students looking to improve on their existing knowledge was significant among genders and GPA groups similar to the finding of a study done by Holder et al in United State which showed that undergraduate dental students agreed in needing more didactic education and clinical experience in their pre-doctoral years to care for SHCN patients.

When inquired about the importance of student education for treating patients with special needs there was a statistically significant difference between the gender and GPA comparison. Males stated a significantly higher readiness towards treating SND patients as compared to the females. There was a statistical significant among gender and GPA group when asked about the faculty experience. A study done by Sigal (2010) acknowledged the role of the educator in the instructions and education of undergraduate dental student to provide care for patients with SHCN. There was a significant difference among all the three comparison groups when inquired about their clinical as well as extramural experiences. A statistical significant showed among gender and GPA groups when asked if they feel comfortable treating patients with special needs.

The lack of confidence in the undergraduate dental years will lead to a reduction in the care of SHCN patients in the primary care setup. Dentistry level and GPA groups showed statistically significant difference regarding treating special

needs patients in future practice. Management of special need patients comes with great responsibility and challenges. But it is the duty of every dentist to accept these patients to their patient pool, to achieve those dental schools must encourage their student and provide them with sufficient education and expertise in special care dentistry.

## LIMITATIONS

There were some limitations including small sample gathered and lack of generalizability of the study on other dental schools in Riyadh. Because of these limitations, interpretation of the results must be made carefully.

## CONCLUSIONS

- Male students showed more readiness and positive attitude towards the treatment of SND patients. There was a significant difference in male students comfort levels to treat such patients as compared to females.
- Mean scores of experiences such as classroom, clinical and extramural were significantly higher in males as well.
- Lower level dental students exhibited positive attitudes in treating special need patients and being prepared with the difference between them and the higher levels being statistically significant.
- Regarding experiences, there was no significant difference between levels apart from clinical and extramural.
- Students with different GPAs showed a significant difference in all domains of experiences apart from patient pool and teaching resources.
- Students with low GPA showed significantly better attitudes and readiness to treat SND patients.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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