

Barriers to improved orofacial pain practice in Saudi Arabia

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Research article

Keywords: barriers, clinical research study, dentist, orofacial pain, recommendations, survey

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Abstract

Background: Orofacial pain (OFP), an emerging field in dentistry, is associated with evaluation diagnosis, and treatment of non-odontogenic disorders affecting the mouth, jaws and face. The aim of this study was to investigate the barriers encountered by Saudi dentists engaged in OFP practice.

Methods: A cross-sectional survey study was performed using a validated closed-end questionnaire that was distributed to the general dental practitioners (GDPs) and dental specialists in four major provinces in Saudi Arabia: Riyadh, Makkah, Asir, and Eastern Province. Inclusion criteria were registration with the Saudi Commission for Health Specialties and a minimum of 2 years' experience. The collected data were analysed using descriptive parameters.

Results: Three-hundred-and-forty questionnaires were completed by 168 males and 172 females. Around two-third of the participants were GDPs (60.9%), and the remainder were dental specialists. There was an obvious consensus by the participants that "Low payment/reimbursement" and "Lack of OFP knowledge" were among the most common barriers (85% and 83.5%, respectively; both P-value < 0.01). In contrast, "Legal risks" was the least frequently reported factor (38.8%; P-value < 0.01). The most commonly reported barrier by GDPs was "Shortage of patients/lack of demand;" this was significantly different from the experience of dental specialists (87% vs. 72.2%; P- value < 0.01). In terms of the country of graduation or years of experience, there were no significant differences

Conclusion: The current study demonstrates the existence of many significant barriers other than OFP knowledge, such as reimbursement, facility, and demand that could present obstacles and challenges to the management of OFP by dentists. Most participants believed that dentists should manage this condition and that OFP courses should be included in dental schools' curricula
Keywords: barriers, clinical research study, dentist, orofacial pain, recommendations, survey

Background

Orofacial pain (OFP) is an emerging field in dentistry, involving evaluation, diagnosis, and treatment of non-odontogenic pain affecting the mouth, jaws, and face. OFP includes temporomandibular joint disorders (TMDs), masticatory musculoskeletal pain, cervical musculoskeletal pain, neurovascular pain, neuropathic pain, sleep disorders related to orofacial pain, orofacial dystonias, headaches, and intraoral, intracranial, extracranial, and systemic disorders that cause OFP, as outlined by the American Academy of Orofacial Pain (1).

The prevalence of various OFP symptoms in the population is 21–42% (2–4). OFP can have a significantly negative impact on quality of life directly and indirectly, as it causes functional limitation in chewing and speaking, and social and physical disability. Moreover, OFP is also associated with psychological discomfort and disability (5), and has a severe impact on daily, social, and work activities (4). Recognition of these disorders is an essential skill for dental care providers, since patients mainly seek dental care due to pain.

Several surveys have assessed the OFP knowledge levels among dentists, assuming that this is the only barrier to OFP practice, and found different knowledge levels between general dental practitioners (GDPs) and dental specialists (6–11). However, several other dentist- and patient-related barriers may also exist, but no previous report has addressed these. Therefore, there is a need for comprehensive understanding of the barriers to providing OFP care.

The current study thus explored potential barriers to provision of OFP care by dentists and the opinion of practicing dentists regarding OFP.

Methods

A human research ethical approval was obtained through King Saud University – Faculty of Dentistry (KSU-FD), Riyadh, Saudi Arabia. A cross-sectional survey was performed using a two-part English language questionnaire that included 14 close-ended questions. The first section focused on socio-demographic and descriptive parameters, including age, sex, specialty, experience, type of practice, and country of graduation. The second section assessed potential barriers to management of patients with OFP and relevant recommendations. There was a cover letter attached to the questionnaire including information regarding the background and objective of the study. The survey was conducted from February to August 2018.

Prior to the study, the questionnaire was validated by 10 dental practitioners to assess its feasibility and validity and to determine the time needed to conduct the survey. Their comments were thoroughly considered in the final modification of the questionnaire. The study was then distributed to 600 participants [300 GDPs and 300 dental specialists] in the four major provinces in Saudi Arabia: Riyadh, Makkah, Asir, and Eastern Province. Participants were selected randomly as representative of the Saudi dental community, and included governmental hospitals, large private dental practices (> 10 dentists), and dental schools. Inclusion criteria were registration with the Saudi Commission for Health Specialties and a minimum of 2 years' experience. Prior to data collection, written informed consent was obtained. There was no financial incentive for participants to complete the questionnaire. The study was performed with anonymized data.

Statistical analysis

Statistical analysis was performed using SPSS software (IMP SPSS statistics, Version 22, Armonk, NY, 2013). Age, sex, specialty, experience, type of practice, and country of graduation responses were expressed as frequency. Proportional t-tests and chi-square tests were used to analyse intergroup differences. Statistical significance for all analyses was set at P-value < 0.05.

Results

Participants' demographics

Three-hundred-and-forty dental specialists and GDPs returned the completed survey from Riyadh, Makkah, Asir, and Eastern province in Saudi Arabia. The response rate was 56.6%. The questionnaires were completed by 168 males (49.4%) and 172 females (50.6%). Around two-thirds of the participants were GDPs (60.9%), while the remainder were dental specialists (39.1%). Most had a Saudi educational background (253/340), and around 52% of participants were < 30 years old. Overall, 71.1% (247/340) had < 10 years' occupational experience. Participants were either employed in the governmental sector (37.3%), at academic institutes (28.2%), in private practice (20.8%), or in a combination of these. Participants' demographics are shown in Fig. 1.

Perceived barriers

Participants perceived "Low payment /reimbursement" and "Lack of orofacial pain knowledge" as the most common barriers to practicing OFP care (85% and 83.5%, respectively; both P-value < 0.01). In contrast, "Legal risks " was the least reported issue (38.8%; P-value < 0.01). Almost equal proportions of participants considered OFP practice as being (49.4%) or not being (43.5%) "Time consuming" (P-value = 0.10). Detailed responses are listed in Table 1.

Table 1
Participants' responses to potential perceived barriers

Variable	Agree	Not sure	Disagree
Lack of orofacial pain knowledge	284 83.5%	35 10.3%	21 6.2%
Shortage of patients/lack of demand	276 81.2%	12 3.5%	52 15.3%
Time consuming	168 49.4%	24 7.1%	148 43.5%
Low payment /reimbursement	289 85%	29 8.5%	22 6.5%
Legal risks	132 38.8%	38 11.2%	170 50%
Lack of facility	270 79.4%	19 5.6%	51 15%

This table shows the responses to each potential barrier in percentage and number. Proportional t-tests were used to compare between the responses. *The third barrier, "Time consuming," was the only insignificant (P-value = 0.1)

The barrier most frequently reported by GDPs was "Shortage of patients/lack of demand;" this was significantly different to the barriers experienced by dental specialists (87% vs. 72.2%; P-value < 0.01). On the other hand, the greatest barriers experienced by dental specialists were "Lack of orofacial pain knowledge" (86.5%) and "Low payment/reimbursement" (86.5%). However, no other differences were

significant between GDPs and specialists. Both groups noted "Legal risks" (41.5% and 34.6%, respectively) as the least important barrier (Fig. 2).

Graduates from Saudi programs mostly reported "Shortage of patients/lack of demand" (87%) as a barrier, whereas the statement "Low payment/reimbursement" was most common among graduates from non-Saudi programs. Both graduate groups reported "Legal risks" (44.8% and 36.8% respectively) as the least common barrier. Differences between the two graduate groups were not statistically significant (Fig. 3).

GDPs and dental specialists reported the same barrier factors, regardless of years of experience. Although the differences were not significant, "Shortage of patients/lack of demand" and "Lack of facility" were barriers that decreased with years of experience. On the other hand, the "Time consuming" response increased with years of experience (Fig. 4). There were no other significant differences within each groups related to sex, country of graduation, or years of experience.

Perceived recommendations

Agreements to the two proposed recommendations were highly significant (P-value < 0.01). Overall, 74.7% of participants agreed that dentists should manage patients with OFP, while 25.3% were not sure about or disagreed with this concept. Most GDPs and dental specialists (95.9%) in the study recommended adding a course on OFP care to dental education curricula (Table 2).

Table 2
Participants' responses to recommendations

Variable	Agree	Not sure	Disagree
You believe dentists should manage patient with orofacial pain	254 74.7%	45 13.2%	41 12.1%
You believe a course of orofacial pain should be included in dental education curriculum	326 95.9%	1 0.3%	13 3.8%
This table shows responses of each recommendation in percentage and number. Proportional t-tests showed that all recommendations suggested were highly significant (P-value < 0.01).			

Discussion

OFP is challenging to diagnose and manage, given the complexity of the pain mechanism and inadequate education on OFP.

In this study, most participants (74.4%) believed that management of OFP conditions forms part of dental professional responsibility, highlighting the importance of addressing this field and its barriers. Most participants (83.5%) reported lack of OFP knowledge as a major barrier, and 95.9% recommended that OFP should receive more attention in dental curricula. This finding agreed with previous reports. For

example, Klasser and Gremillion reported on OFP education in the US since 1973 (12) and found that although OFP education had improved, it was still lacking in some respects. Ziegeler et al. found that 83% of German senior dental students reported that OFP was only included in a lecture on another topic (13). Thirty percent of senior German dental students did not feel confident at all in diagnosing OFP, while 48% were somewhat confident. Klasser and Greene recommended including OFP study in pre-doctoral dental education (14). The International Association for the Study of Pain (IASP) has recently suggested an interprofessional pain curriculum outline, which included multiple topics on OFP (15). Although the present study confirmed that lack of knowledge of OFP was a major factor, we found no differences between graduates of Saudi and of non-Saudi programs. However, Al Khotani et al. found dental professional knowledge in Saudi Arabia was significantly less than that of their Swedish counterparts(11), suggesting gaps in in the Saudi dental educational system.

OFP practice is undoubtedly time-consuming in both diagnosis and management; however, this was the only potential barrier showing conflict among our participant groups, with almost equal proportions agreeing (49.4%) and disagreeing (43.5%) that this is a barrier. This may be because OFP could be overlooked as a health problem that requires prioritising by the physician. In addition, years of experience might also have contributed to this conflict. We noted that participants with more years of experience tended to agree more that this was an issue. It is possible that practitioners with more years of experience have encountered more OFP patients, so that they are more aware of how time-consuming OFP practice could be. We also found that 85% of our study sample considered that "low payment /reimbursement" is a significant barrier; this may be because OFP care is time-consuming and does not have as high a cost-effort ratio as other dental procedures.

Most of our participants underestimated OFP prevalence: 81.2% of participants reported that shortage of patients/lack of demand was one of the major barriers, although the specialists agreed less with this statement than did GPs. This perception was inconsistent with the reported prevalence of various OFP conditions, which affects approximately 10–26% of the adult population and up to 50% of the elderly (16, 17). For example, the National Institute of Dental and Craniofacial Research reported that the prevalence of temporomandibular joint disorder (TMJD) was 5–12% (18). A systematic review article showed that masticatory myofascial pain disorders, as one of the TMD subgroups, occurred in about 45.3% of TMD patients (19). Neuropathic OFP is much more heterogeneous and its true prevalence is unknown. The incidence of trigeminal neuralgia varies from 4.3 to 27 cases per 100,000 per year (20, 21) with a 0.3% prevalence (22), whereas glossopharyngeal neuralgia has an incidence of 0.2–0.7 cases per 100,000 persons per year (23). Additionally, the reported prevalence of continuous neuropathic OFP conditions, such as persistent idiopathic facial pain (formerly known as atypical odontalgia, atypical facial pain, or phantom tooth pain) was 0.03–1% in the general population (22, 24) and 2.1–10.6% in a tertiary OFP centre (24). The prevalence of burning mouth in the US civilian population was 0.7% among adults (3). In Saudi Arabia, the reported prevalence of TMJDs is 21–34%, with no available data for other OFP disorders (25).

Another consensus response involved the lack of facility, in accordance with the current best evidence. Based on the patient's chief complaint and individual needs, the diagnosis of OFP conditions may need advanced diagnostic tests, advanced imaging modalities, access to controlled medications, and a multidisciplinary team approach. The accessibility of facilities may require an OFP practice in a hospital setting or tertiary pain centre. This may explain the high agreement on this factor, as most participants were GDPs and most likely work in primary dental clinics, whereas dental specialists agreed less with this statement.

The present study had several limitations. Participants were limited to dentists; however, OFP patients may express other opinions about barriers to good care. Hence future studies should investigate patients' perceptions during the process of seeking oral care. Additionally, the percentage of senior dentists was low in this study. The years of experience was a key factor that may independently influence the barriers perceived, since senior dentists will have encountered more patients with OFP. However, the distribution by age and years of experience was consistent with the distribution of dentists in the country and the potential subjects were selected randomly in this study. Moreover, there have been few previous studies on this topic, so that the newly constructed questionnaire could not be validated; this needs to be addressed in future. In addition, study participants were limited to four main provinces in Saudi Arabia. Although Riyadh, Makkah, Asir, and Eastern Province are the largest and most diverse in this country, it will be valuable to survey other provinces and investigate if differences across regions exist, to provide a more inclusive database of dentists for future improvements of national health care. Finally, the recruited participants were not randomly selected from different dental sectors within each province. However, the study sample was equally distributed over academic institutes, governmental sectors, and private practices, to compensate in part for bias.

Conclusion

OFP practice is a complex field that is further complicated by multiple barriers. Although OFP education is critical, the current study emphasises that knowledge levels among dentists was not the only barrier that requires addressing: other factors, such as reimbursement, facility, and demand were also considered barriers. There is a misconception about the prevalence of OFP among dental professionals. OFP courses should be included in dental school curricula to train future dentists. Well-designed educational programs should be planned to target dental specialists and GDPs in Saudi Arabia to insure delivery of appropriate patient care at the highest international standards. In addition, there is a critical need to address issues, such as available facilities, to encourage OFP care practise.

Abbreviations

OFP: Orofacial pain; GDPs: General Dental Practitioners; TMDs: Temporomandibular joint disorders.

Declarations

Ethics approval and consent to participate

The study was approved by the Ethical Review Committee of King Saud University, Faculty of Dentistry (KSU-FD), Riyadh, Saudi Arabia and written informed consent was taken from each participant prior to data collection

Consent for publication

Not Applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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None.

Author contributions

EH designed, analysed the data and interpreted the results, and was a major contributor to the writing of the manuscript. EH read and approved the final manuscript.

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Figures

Figure 1

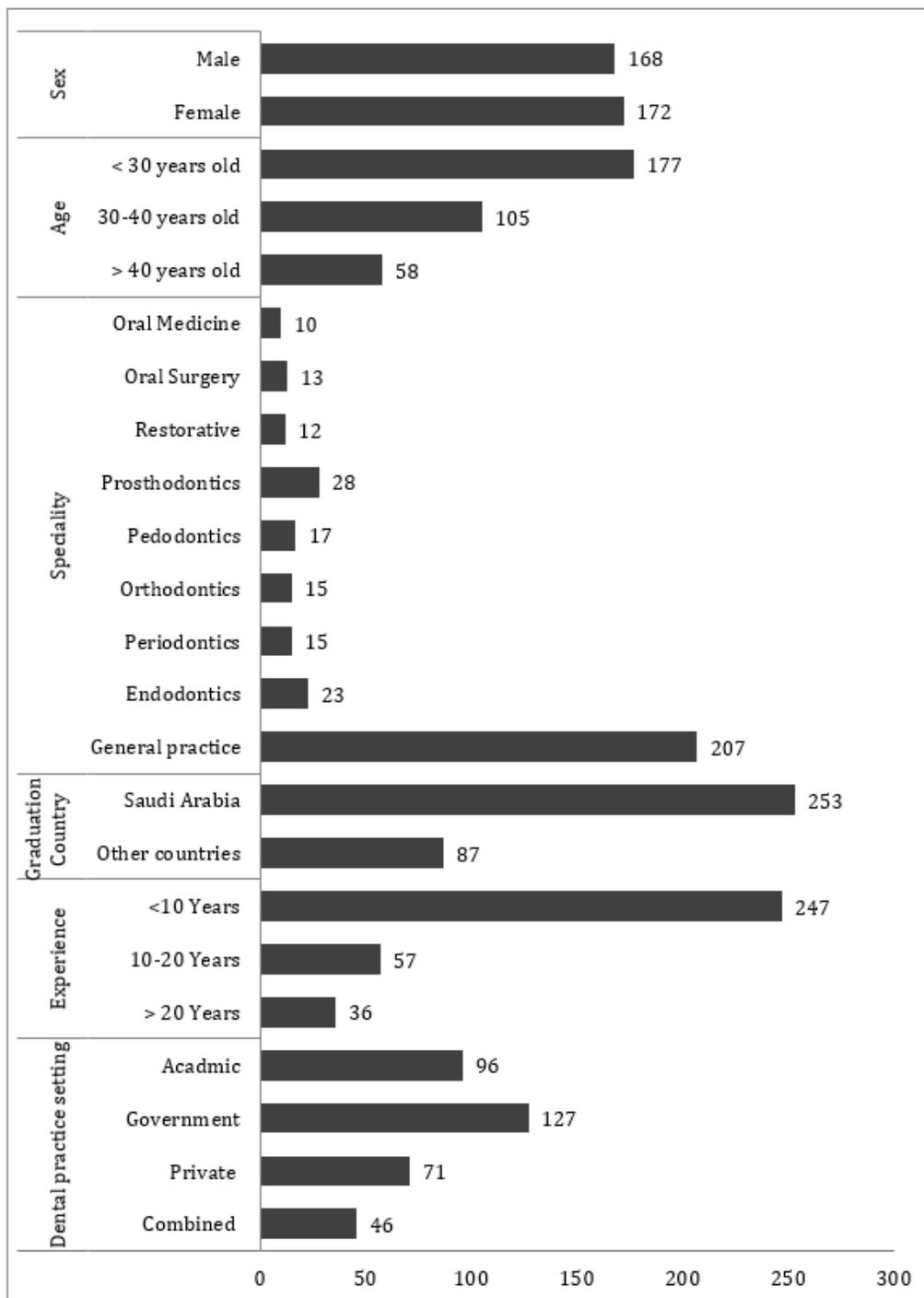


Figure 1

Demographic characteristics of study participants are presented in numbers.

Figure 2

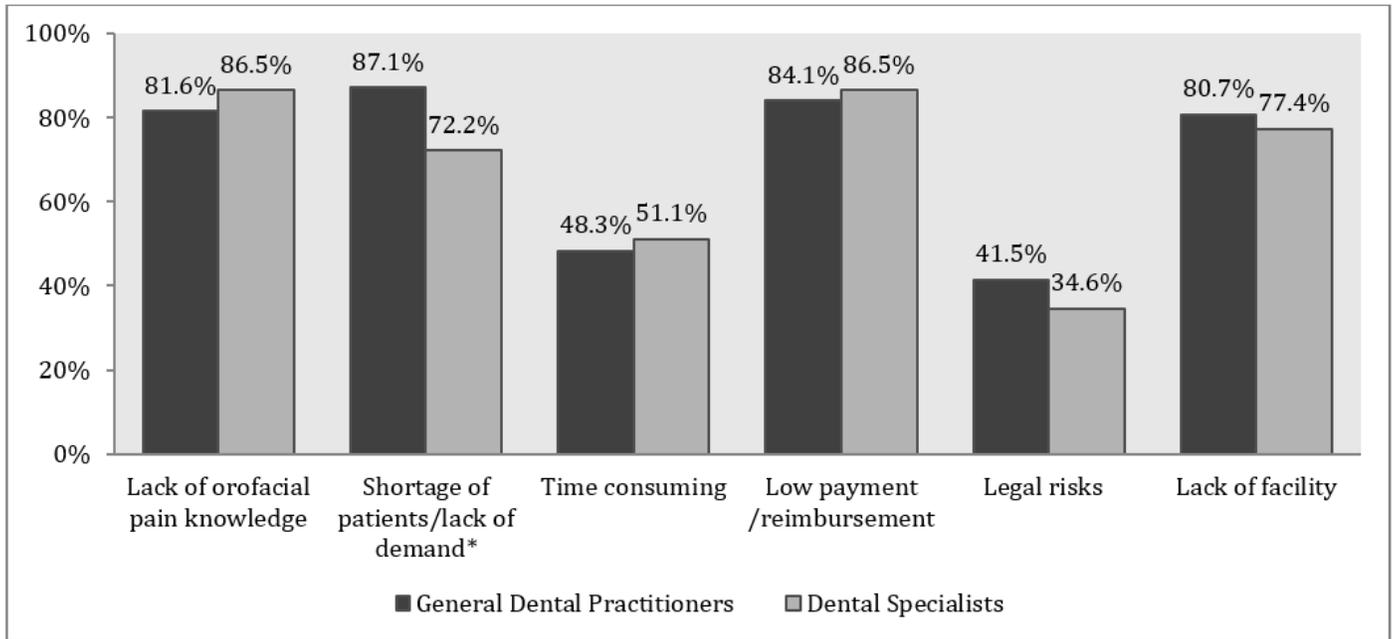


Figure 2

Respondents were divided into general dental practitioner and specialists. This graph shows the percentage of each group who agreed that each point was a barrier to offering orofacial pain care. The proportional t-test was used to compare between the two groups. *The second barrier “Shortage of patients/lack of demand” was a significantly higher perceived barrier among general dental practitioners than among dental specialists (P-value < 0.01)

Figure 3

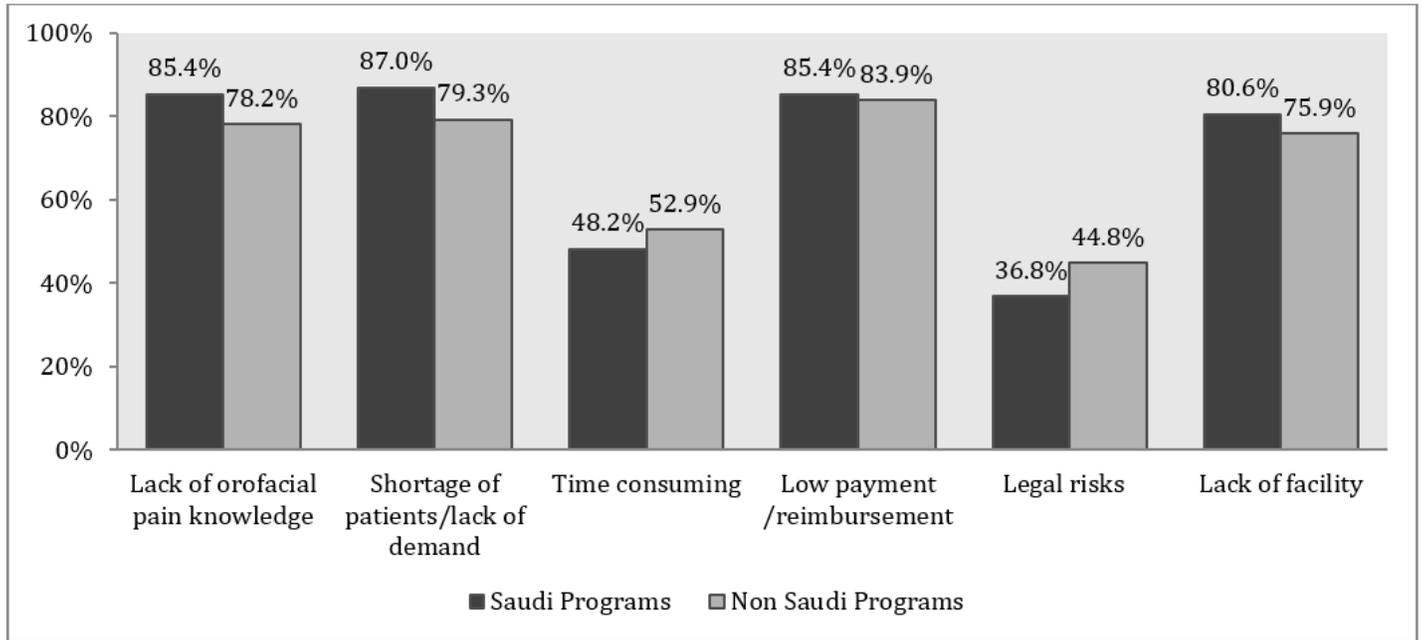


Figure 3

Respondents were divided into two groups according to the country of graduation. This graph shows the percentage of each group who agreed that each point was a barrier to offering orofacial pain care. A proportional t-test was used to compare between the two groups. There was no significant difference between graduates of Saudi programs and non-Saudi programs.

Figure 4

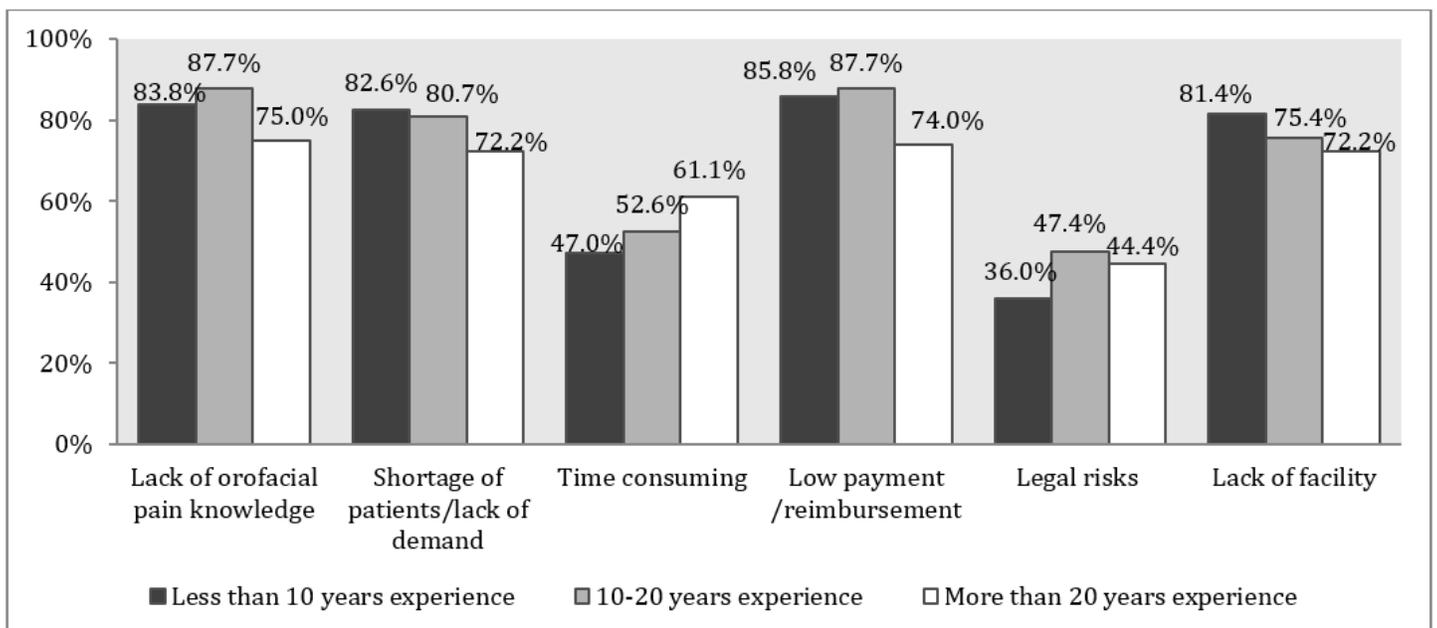


Figure 4

Respondents were divided into three groups according to years of occupational experience. This graph shows the percentage of each group who agreed that each point was a barrier to offering orofacial pain care. The chi-square test was used to compare between the three groups. There was no significant difference among the groups.