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What is the impact of acute and chronic orofacial pain on quality of life?

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ARTICLE INFO

Article history:
Received 9 March 2015
Received in revised form
1 June 2015
Accepted 2 June 2015
Available online xxx

Keywords:
Health-related quality of life
Oral health-related quality of life
Orofacial pain

ABSTRACT

Objectives: Orofacial pain (OFP) is thought to substantially reduce oral health-related quality of life (OHRQoL). Little has been reported about the impact of acute dental pain and persistent (chronic) orofacial pain conditions, other than temporomandibular disorders (TMD), on OHRQoL. The aim of this study was to examine and compare OHRQoL impairment among four OFP conditions: TMD, acute dental pain (ADP), trigeminal neuralgia (TN) and persistent dentoalveolar pain disorder (PDAP).

Methods: OHRQoL was measured using the OHIP-49 in a convenience sample of subjects with four OFP conditions (TMD ($n = 41$), ADP ($n = 41$), TN ($n = 21$), PDAP ($n = 22$) and a pain-free control group ($n = 21$)). The mean OHIP-49 summary score described the level of impact and inferential and descriptive statistics were used to examine any differences inter-condition. The mean of the OHIP-14 and 5 were also measured by extracting the corresponding items from the OHIP-49.

Results: All pain conditions presented with statistically significant ($P < 0.001$) and clinically relevant (measured by effect sizes and the OHIP's minimal important difference) impairment when compared to the control group ($P < 0.001$). The OHRQoL for the four OFP conditions had similar levels of impairment (TMD = 62.3, ADP = 55.5, TN = 58.1 and PDAP = 69.8).

Conclusion: TMD, ADP, TN and PDAP have substantial impact on OHRQoL as measured by the OHIP-49 and the extracted items for the OHIP-14 and 5. Differences among the four groups of orofacial pain conditions are likely not to be substantial.

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1. Introduction

Q2 Pain is known to negatively impact the person experiencing it, affecting social functioning, physical and psychological wellbeing[1]. Comprehensive measurements of these impacts are commonly captured using quality of life instruments[2]. Orofacial pains are also known to have a negative impact on the person experiencing it and oral health-related quality of life (OHRQoL) is an acknowledged and widely used method for measuring this impact[2,3]. Several instruments have been developed to measure the construct of OHRQoL[3], with the

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http://dx.doi.org/10.1016/j.jdent.2015.06.001
0300-5712/© 2015 Published by Elsevier Ltd.

Please cite this article in press as: Shueb SS, et al. What is the impact of acute and chronic orofacial pain on quality of life?. Journal of Dentistry (2015), http://dx.doi.org/10.1016/j.jdent.2015.06.001

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most commonly used and comprehensive instrument being the 49-item Oral Health Impact Profile (OHIP-49)[4]. The OHIP-49 is a problem index, meaning that higher scores represent higher levels of oral health impairment, with studies reporting general population scores ranging from 9.7 to 17.1[5,6]. The minimally important difference (MID), that is ''the smallest difference in score in the domain of interest which patients perceive as beneficial and which would mandate, in the absence of troublesome side effects and excessive cost, a change in the patient's management'')[7], has also been investigated and established for the OHIP-49 during prosthodontic treatment with a 6 point difference being considered clinically significant (the minimally important difference)[8].

Orofacial pain, which is estimated to affect 28% of people in the USA[9], is known to exert a considerable economic impact on wider society through increased lost workdays and the use of the health care[10]. Several studies have used the OHIP-49 to measure the amount of impairment that temporomandibular disorders (TMD) have on participants; scores ranged from 42.9 to 60.6[5,6,11,12]. The impact of acute dental pain (ADP) on OHRQoL was measured using the Croatian version of the OHIP-49 and was found to be elevated with a mean score of 108.5 mean OHIP score[13], and similar results (mean score 72.7) occurred in a Canadian study employing 17 items of the OHIP-49[14]. Whilst data exist on common OFP conditions such as TMD and ADP, much less data exist for OFP conditions such as trigeminal neuralgia (TN) and persistent dentoalveolar pain disorder (PDAP). No studies have measured the impact TN has on OHRQoL using the OHIP-49, but the impact of TN on general health status has been measured using the modified Short Form Brief Pain Inventory (mBPI-SF) and EuroQol (EQ-5D-3L) survey. This research found employment was affected in 34% of participants with TN and 33% of the participants reported the use of antidepressants, anxiolytics and/or sleep medications[15]. Little is known on the impact of PDAP on the people experiencing it[16] and a search of the literature did not reveal any reports measuring this impact using a standard construct of OHRQoL, such as the OHIP-49.

Given that considerable information is known about the OHRQoL, as measured by the OHIP-49, with common orofacial pains, the use of this metric allows for comparison of these conditions with less common orofacial pain conditions such as TN and PDAP. Obtaining this comparison is helpful in understanding the burden being experienced by those suffering from the less common orofacial pain conditions. This study, therefore, aimed to examine and compare the impact of four orofacial pain conditions on the individual using a standardized measure (OHIP-49) in order to characterize the impact and thereby allow inter-condition comparison.

2. Methods

2.1. Study design, setting and subjects

This was a cross-sectional study employing a convenience sample for each of the five different groups involved. Four groups of orofacial pain conditions were used: TMD, ADP, TN and PDAP. A control group of pain-free subjects was also used. The research ethics committee at the University of Minnesota approved this study. All participants provided written informed consent prior to their participation

Participants were given a standardized explanation of the questionnaires used, which were, in the majority of cases, completed at the clinic in the presence of one of the investigators. For logistical and practical reasons a small minority of participants completed the questionnaires at home and were informed to return them at their next visit and highlight any difficulties they had experienced to the investigator who had issued the questionnaire. Participants were paid a nominal compensation, $20 U.S., for the time it took to complete the questionnaires.

The TMD, TN and PDAP participants were mostly recruited by faculty at the TMD, Orofacial Pain, and Dental Sleep Medicine Clinic at the University of Minnesota. Two of the PDAP participants were recruited from a private specialist orofacial pain clinic in the Twin Cities. All participants with ADP diagnosis were recruited by a private specialist endodontic practice in the Twin Cities. All dentists recruiting participants were board certified in their respective disciplines. Pain-free controls were recruited from the School of Dentistry clinics by approaching accompanying persons and using some simple screening questions to assess if they were pain-free in the last three months.

The following criteria were used to select participants for this study:

2.1.1. Inclusion criteria

- Age, 18 years old and older.
- Participants were fully able to cooperate and respond to the questions.
- Painful TMD sample: participants with TMD diagnosis including myalgia, myofascial pain, arthralgia or headaches attributed to TMD were diagnosed using the DC/TMD diagnostic criteria[17].
- ADP sample: participants were diagnosed with irreversible pulpitis and/or symptomatic apical periodontitis using the diagnostic criteria of Gutmann et al.[18].
- TN sample: participants with TN were diagnosed using the ICHD-II Diagnostic Criteria for Classical Trigeminal Neuralgia[19].
- PDAP sample: participants with persistent dentoalveolar pain disorder were diagnosed by experienced board certified clinician following the diagnostic criteria specified by Nixdorf et al.[20].
- Pain free controls had to response ''NO'' to the following question, ''Have you had any pain in your face, mouth, teeth, jaw or ears, in the last 3 months?'' They also could not have sought care for a dental problem inside of the last three months.

2.1.2. Exclusion criteria

- Participants with a history of traumatic injuries to the orofacial region.
- Participants with a major systemic illness related to altered pain sensitivity, fibromyalgia, or other widespread bodily pains.

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Please cite this article in press as: Shueb SS, et al. What is the impact of acute and chronic orofacial pain on quality of life?. Journal of Dentistry (2015), http://dx.doi.org/10.1016/j.jdent.2015.06.001

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