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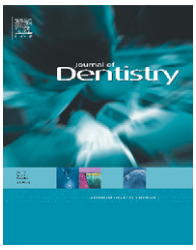

Key factors associated with oral health-related quality of life (OHRQOL) in Hong Kong Chinese adults with orofacial pain

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ABSTRACT

Objectives: To investigate key factors associated with oral health-related quality of life (OHRQOL) of Hong Kong Chinese adults with orofacial pain (OFP) symptoms.

Methods: A cross-sectional study was conducted amongst a random sample of registered patients at a primary medical care teaching clinic in Hong Kong. Patients who were aged 35–70 years and had experienced OFP symptoms in the past 1 month were included. The OHRQOL was assessed by the Chinese version of the Oral Health Impact Profile (OHIP-14). A structured questionnaire on OFP symptoms and characteristics in the past 1 month, the depression and non-specific physical symptoms (NPS) scale in the research diagnostic criteria for temporomandibular disorders (RDC/TMD) questionnaire, and questions about professional treatment and dental attendance were administered before a standard clinical assessment. Negative binomial regression with forward stepwise selection was used to investigate key factors associated with the OHIP-14 additive score.

Results: The mean OHIP-14 additive score of the 200 participants was 10.1 (SD 9.4). Regression analysis revealed that five independent factors were significantly associated with higher OHIP-14 additive scores (indicating a poorer OHRQOL): a higher pain scale rating in the past 1 month ($p = 0.001$), OFP clinical classification as musculoligamentous/soft tissue (MST) or dentoalveolar (DA) instead of neurological/vascular (NV) ($p < 0.001$), more frequent dental attendance ($p = 0.008$), moderate/severe RDC/TMD depression ($p = 0.005$) and moderate/severe RDC/TMD NPS with pain ($p = 0.003$).

Conclusion: Various factors were associated with OHRQOL and could have implications for the improvement of OHRQOL in people in the community who have OFP symptoms.

1. Introduction

Orofacial pain (OFP) can be classified according to the affected anatomical region–that is, oral or facial pain. Facial pain refers to pain originating below the orbitomeatal line but above the neck and anterior to the ears, whereas oral pain refers to pain within the mouth.[1] Orofacial pain comprises a heterogeneous group of conditions, which include dental pain, musculoskeletal pain, and neuropathic pain.[1,2] It is generally recognized that OFP symptoms are associated with both physical and psychosocial factors.[3–5]

Orofacial pain symptoms are prevalent in community-dwelling populations. Epidemiologic studies have shown that

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the prevalence of OFP symptoms amongst adults ranges from 14% to 42% and that OFP symptoms have a detrimental impact on oral health-related quality of life (OHRQOL).[6–11] In Hong Kong, the prevalence of OFP symptoms was found to be 24% in Chinese adults in a population-based telephone survey[8] and OFP symptoms were associated with substantial negative impact on various aspects of daily life.[10] However as found in another study, only 27% of Hong Kong adults with OFP symptoms had ever sought professional advice.[12]

Although OFP symptoms are common and subsequently compromised OHRQOL, only a few studies have addressed OHRQOL amongst people with OFP in a systematic way, and the key factors associated with OHRQOL in such populations remain unclear. Previous studies have found that socioeconomic status, dental factors, dental service attendance, self-perceived oral health and psychological factors may affect people's OHRQOL.[13–19] In addition, several studies amongst patients with OFP seeking dental treatment showed that OHRQOL varied with diagnostic subgroups, pain characteristics and psychological factors.[20–23] Nevertheless, patients who seek treatment may not fully represent all those living in the community. Therefore, factors associated with OFP symptoms in general community populations warrant further investigation.

The aim of the present study was to investigate the key factors associated with OHRQOL in community-dwelling Hong Kong Chinese adults with OFP symptoms. The null hypothesis that OHRQOL had no association with pain characteristics, clinical classification, dental service attendance or other treatment seeking, socio-demographic status or psychological symptoms was tested.

2. Methods

The study population of this community-based, cross-sectional study was Chinese adults who were aged 35–70 years and registered with the teaching clinic of the Family Medicine Unit (FMU), The University of Hong Kong. The clinic is situated in the community and is not attached to a hospital or university, and it is funded by the government so as to provide low-cost primary medical care to the general population. At the time of this study, the FMU clinic had 8000 registered patients, whose characteristics and services received were typical of the 70 government general outpatient clinics in Hong Kong.

The study was approved by the Institutional Review Board of the University of Hong Kong/Hospital Authority Hong Kong West Cluster. Written consent was obtained from all participants of the final study.

On the basis of the earlier reported prevalence of OFP symptoms of 24%,[8] we calculated that 800 patients would need to be contacted to recruit 200 people with OFP. With the expectation of a 50% response rate, 1600 people were selected from a computer-generated randomly ordered list of the registrants of the FMU clinic that had been stratified by gender and age (35–54 years, 55–70 years). Initially, an invitation letter with information about the study was sent to all subjects. Each subject was then contacted by telephone by a trained interviewer and invited to complete a short telephone questionnaire survey to determine whether they had experienced OFP symptoms within the past 1 month. The screening questionnaire included 10 questions on various kinds of OFP – namely, (1) toothache, (2) pain in the jaw joints, (3) pain in the face just in front of the ears, (4) pain in or around the eyes, (5) pain when opening the mouth wide, (6) pain in the jaw joint(s) when chewing food, (7) pain in and around the temples, (8) tenderness of muscles at the side of the face, (9) prolonged burning sensation in the tongue or other parts of the mouth, and (10) shooting pain in the face or cheeks. Interviewees who responded positively to at least one question and agreed to participate were invited to attend the FMU clinic to take part in the final study, which involved the completion of a comprehensive questionnaire and a clinical assessment.

2.1. *Questionnaire*

The OHRQOL was assessed using the short form Oral Health Impact Profile (OHIP-14).[24] The Chinese version of the OHIP-14, which has been translated and validated for use in Hong Kong, was used in this study.[25] The 14-item questionnaire consists of 7 domains of oral health impact: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. Response choices of each item were as follows: 0 = never, 1 = hardly ever, 2 = occasionally, 3 = fairly often and 4 = very often. The additive scores (OHIP-ADD, ranging from 0 to 56) were calculated by summing scores across the 14 statements, whereas the simple count scores (OHIP-SC, ranging from 0 to 14) were calculated by counting the number of negative impacts (that is, 'very often' or 'fairly often' responses). A higher score indicated that a participant experienced more negative impacts and a poorer OHRQOL.

Participants also answered questions about various types of OFP symptoms that had been experienced, the commencement of pain and its frequency, the severity of pain, the duration of pain episodes and professional treatment-seeking behaviour. To facilitate comparisons of pain characteristics between the study sample and their western counterparts, we adopted the response choices for pain characteristics used by Macfarlane et al.[26] The response choices for pain commencement were 'within three months', 'more than three months ago' and 'do not know'. For pain frequency (days of pain) in the past 1 month, the response choices were 1–5, 6–10, 11–15, 16–20 and more than 20 days. For duration of pain episodes, the response choices were less than half an hour, half an hour to 1 h, 1–4 h, 5–8 h, 9–12 h and more than 12 h. The severity of pain was measured in two ways: a numerical rating scale ranging from 0 (no pain) to 10 (pain as bad as it could be), as used by Macfarlane et al.,[26] and a four-point Likert scale with the options of mild, moderate, severe and very severe. Finally, participants were asked whether they had sought professional treatment because of their OFP symptoms.

Depressive and non-specific physical symptoms (NPS) were explored using the depression and somatization sub-scales of the Symptom Checklist 90 (SCL-90) in the Chinese version of the research diagnostic criteria for temporomandibular disorders questionnaire (RDC/TMD).[27–30]

Participants were also asked to rate their oral health in general. The response choices were very good, good, fair, poor