MF Nunes
MCM Freire
CR Leles

Quality of life of public health service dental hygienists in Goiânia, Brazil

Authors' affiliations:
Maria de Fátima Nunes, Public Health Service, Goiânia, Goiás, Brazil
Maria do Carmo Matias Freire, Dental School, Federal University of Goiás, Brazil
Cláudio Rodrigues Leles, Dental School, Federal University of Goiás, Brazil

Correspondence to:
Maria de Fátima Nunes
Rua 70, n. 586
Apto 404-Ed
Rejane-Centro-Goiânia-GO
Brasil 74.055-120
Brasil
Tel.: +55 6232251901
Fax: +55 6232238543
E-mail: fatinhan@terra.com.br

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Abstract: The aim of this study was to assess quality of life (QoL) and related factors among dental hygienists. A cross-sectional study was conducted in a sample of dental hygienists working in the public health service of Goiânia, Central-West Region, Brazil, in 2004. All active dental hygienists received a mailed questionnaire containing the shortened version of the World Health Organization instrument to measure quality of life (WHOQOL-Bref), demographic and job-related data, and questions about self-rated general health status and QoL. Response rate was 58.5% (n = 93). Descriptive statistics, simple and multiple logistic regressions were used in the analysis of data. The WHOQOL-Bref instrument revealed that the Social Relationships domain had the highest mean score (70.56), followed by the Physical (65.49), Psychological (61.3) and Environment domains (56.25). Most of the dental hygienists had a high QoL in the Social Relationships domain and a low QoL in the Physical, Psychological and Environment domains. There was an association between self-rated health status and the Physical domain; satisfaction with health and the Physical, Psychological and Social Relationships domain and self-rated QoL and the Psychological and Social Relationships domains. The conclusion is that a low QoL was common among the dental hygienists and has perceptible effects on their perceptions of their health status and QoL.

Key words: dental hygienists; oral health manpower; quality of life; WHOQOL; WHOQOL-Bref

Introduction

In the last decades, there has been growing interest in a wide range of aspects involving people's quality of life (QoL) and

health, including physical, psychological and social impacts caused by diseases, dysfunctions and environmental conditions (1). QoL measures are important indicators of health-related problems and may influence therapeutic decisions among health professionals about patients and public health policies. Assessments of QoL among population subgroups were extensively explored in the 1990s when many instruments to measure QoL were proposed (2).

Quality of life concept is 'an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns' (3). This definition was from a multicentric project of the World Health Organization (WHO) that also aimed to propose an instrument to measure QoL with an international and transcultural dimension. The WHOQOL-100 instrument (3) and its shortened version – the WHOQOL-Bref (4), focuses on individuals' own views of their well-being. Both instruments have been widely used in medical practice, research, audit and in policy making (5) and were validated and tested in their Brazilian versions (6, 7).

Although there has been increasing research interest in the working conditions and psychosocial factors among healthcare workers, only a few studies have been published on their QoL using the WHOQOL instrument. They were carried out among Brazilian nurses (8) and dentists (9). Data on dental hygienists' QoL are not available in the literature.

In Brazil, the dental hygienist works under the supervision of a dentist, performing reversible clinical procedures such as topical fluorides application, insertion, condensation and polishing of amalgam restorations, suture removal, manipulation of restorative and impression materials, calculus debridement, pulp vitality tests, intra-oral radiography, cleanliness and asepsis of operative area, surgical instrumentation, training of auxiliary team, collaboration in educational activities and epidemiological surveys and administrative support (10). No previous study explored the QoL of Brazilian dental hygienists, considering the particular socio-cultural and economic characteristics of the Brazilian population.

Considering that studies on QoL measures may contribute to improved satisfaction with work and assist employers in recruitment and retention of a dental hygienist into the practice and ultimately provide better dental care services, the aim of this study was to investigate QoL of dental hygienists of a public health service in Brazil and its association with demographic and job-related variables, self-rated general health status and self-rated QoL.

Material and methods

Type of study and sample

This study is part of a cross-sectional study carried out in 2004 to assess QoL of dentists and dental hygienists working in the public health service of Goiânia, the capital city of the State of Goiás, Central-West Region, Brazil. Results regarding the dentists are published elsewhere (9). Of the 184 existing dental hygienists, 25 (13.6%) were excluded because they were inactive during the data collection period, resulting in a sample of 159 eligible subjects. Dental hygienists' working activities were clinical dental assistance, health education and management services. Of the 159 individuals invited to participate, 93 returned the questionnaires (58.5% response rate), 58 (36.5%) did not return and 8 (5.0%) did not consent.

Instrument, measures and data collection

The research instrument was a self-administered questionnaire answered in the dental hygienists' workplace. It was sent to the hygienists and returned to the researchers through an internal mail. A cover letter including an explanation of the aims, procedures, benefits and risks of the research and a consent form were sent with the questionnaire.

The questionnaire included demographic and job-related data, a brief self-rated health status inventory and the WHOQOL-Bref instrument. Demographic data included gender, age and marital status. Questions on job-related data were formulated for this study and referred to the hygienists' general work characteristics (years of conclusion of dental hygienists course, work hours per day in the last 6 months and professional field) and their work in the public health service of Goiânia (years of work, if they worked exclusively in that service, and their main activity in the last 6 months). The Portuguese version of the WHOQOL-Bref has been previously tested and validated by Fleck *et al.* (7) and showed good performance concerning internal consistency and validity. The whole instrument was previously tested in a pilot study.

The WHOQOL-Bref instrument is an abbreviated version of the WHOQOL-100 (5) containing 26 questions, 24 of which break down into facets and are further grouped into four major domains – Physical, Psychological, Social Relationships and Environment (Table 1). Domains are divided into several components expressed by objective questions categorized into a five-point Likert-type scale (question scales have different category labels). Other two additional questions explore individuals' overall perception of QoL (self-rated QoL) and perceived general health (satisfaction with health), and are examined sep-

Table 1. **The WHOQOL-Bref domains and facets (5)**

Physical domain
Pain and discomfort; energy and fatigue; sleep and rest; mobility; activities of daily living; dependence on medicinal substances and medical aids; work capacity
Psychological domain
Positive feelings; thinking, learning, memory and concentration; self-esteem; body image and appearance; negative feelings; spirituality/religion/personal beliefs
Social relationships domain
Personal relationships; social support; sexual activity
Environment domain
Financial resources; freedom, physical safety and security; home environment; health and social care: accessibility and quality; opportunities for acquiring new information and skills; participation in and opportunities for recreation/leisure activities; physical environment (pollution/noise/traffic/climate); transport

arately. All questions refer to the individual's last 15 days. The WHOQOL-Bref produces domain scores, but not individual facet scores. Computed scores for each domain are calculated, ranging from 0 to 100, and are scaled in a positive direction (i.e. higher scores denote higher QoL). The mean scores of items within each domain are used to calculate the whole domain score.

Ethical aspects

The research protocol was approved by the Ethics Committee of the Federal University of Goiás Hospital. A signed permission had been provided by the health service coordinator and informed consent was obtained from all dental hygienists who agreed to participate.

Data analysis

Descriptive statistics included frequency analysis for nominal variables and mean, median and standard deviation for continuous variables. Internal consistency of domains was assessed using Cronbach's alpha. Steps for checking and cleaning data, and for computing domain scores were according to the WHO instructions (5).

All variables were dichotomized and simple and multiple logistic regressions were used to test the association between QoL domains and independent variables. Dependent variables were each of the four QoL domains (Physical, Psychological, Social Relationships and Environment). Subjects were dichotomized into two categories (high QoL and low QoL) by the median values in each domain: 67.89 in the Physical, 62.50 in the Psychological, 75.00 in the Social Relationships and 52.02 in the Environment domain.

Independent variables were demographic and job-related information, self-rated QoL and self-rated health status. The categorical variables with more than two categories were dichotomized into two categories. Continuous variables were dichotomized using the following cut-off points and criteria: age (cut-off point close to the mean value of 40 years), years of conclusion of dental hygienists' course and years of work in the public health service of Goiânia (10 years) and work hours per day in the last 6 months (close to the mean number of hours of 8 h).

A value of $P < 0.05$ was considered statistically significant. For the regression models, *P*-values were obtained from the Wald test, and estimated odds ratios and their 95% confidence limits were determined. SPSS 10.0 software was used for data analysis (SPSS Inc., Chicago, IL, USA).

Results

Almost all respondents were women (96.7%). Their mean age was 43.3 years (SD 6.7), ranging from 26 to 59 years. Other sample characteristics are detailed in Table 2.

Cronbach's alpha values were 0.82 for the whole WHOQOL-Bref and 0.75 for the domain scores, demonstrating good internal consistency of the instrument.

Quality of life was self-rated as 'good' or 'very good' by 68.8% of the respondents and 58.1% judged to be 'satisfied' or 'very satisfied' with their own general health status. Although most of the dental hygienists reported that they had good health (70.9%), 77.4% of the sample reported at least one health problem at the time of the study (Table 3).

Table 4 summarizes QoL measures according to the four domains that constitute the WHOQOL-Bref instrument. The Social Relationships domain had the highest mean scores (70.56), followed the Physical (65.49), Psychological (61.13) and Environment domains (56.25). Most of the dental hygienists had a high QoL in the Social Relationships domain and a low QoL in the Physical, Psychological and Environment domains.

Subjects were dichotomized into two categories by the median values (high QoL and low QoL) in each domain. Associations between QoL and demographic and job-related information, self-rated QoL and health status were tested using a logistic regression analysis. Significant associations are in Table 5. Unadjusted regression showed that the dental hygienists' QoL domains were associated with all variables related to perceived health status and QoL (self-reported health problems, self-rated health, satisfaction with health and self-rated QoL). None of the other potential explanatory

Table 2. **Demographic and job-related information of the dental hygienists (*n* = 93)**

Variable	*n*	%	Mean (±SD)
Gender			
Male	3	3.2	
Female	90	96.8	
Age (years)			
26–40	36	38.7	43.3 (6.7)
41–59	56	60.2	
Not informed	1	1.1	
Marital status			
Live with a companion	58	62.4	
Live without a companion	35	37.6	
Years of conclusion of dental hygienists course			
1–10 years	27	29.0	14.1 (5.0)
11 years or more	64	68.8	
Not informed	2	2.2	
Professional field			
Public and private	7	7.5	
Public only	86	92.5	
Work hours per day			
8 h day^{-1} or less	58	64.5	8.3 (2.9)
9 h day^{-1} or more	33	33.3	
Not informed	2	2.2	
Years at work in the public health service of Goiânia			
10 years or less	28	30.1	1.7 (0.5)
11 years or more	64	68,8	
Not informed	1	1.1	
Work exclusively in the public health service of Goiânia			
Yes	60	64.5	
No	33	35.5	
Main activity in the public health service of Goiânia			
Clinical practice	63	67.7	
Management or health education	25	26.9	
Not informed	1	1.1	
Invalid	4	4.3	

Table 3. **Self-rated QoL and health status among the dental hygienists (*n* = 93)**

Variable	*n* (%)
Self-rated QoL	
Good	65 (69.9)
Bad	28 (30.1)
Satisfaction with health	
Satisfied	54 (58.0)
Not satisfied	38 (40.9)
Not informed	1 (1.1)
Self-rated health status	
Good	66 (71,0)
Bad	27 (29.0)
Self-reported health problem	
No problem	21 (22.6)
Back pain	14 (15.0)
Vision impairment	12 (12.9)
Arthritis or rheumatism	6 (6.4)
Hypertension	5 (5.4)
Musculoskeletal work disability	5 (5.4)
Depression	4 (4.3)
Allergy	3 (3.2)
Obesity	2 (2.2)
Varices	2 (2.2)
Stress	2 (2.2)
Pregnancy	2 (2.2)
Diabetes	1 (1.1)
Hearing problems	1 (1.1)
Haemorrhoids	1 (1.1)
Heart diseases	1 (1.1)
Gastritis or gastric ulcer	1 (1.1)
Migraine and tension-type headache	1 (1.1)
Neurological or emotional problems	1 (1.1)
Bursitis	1 (1.1)
Not valid	7 (7.5)

variables (demographic and job-related variables) showed significant associations. In the Physical and Psychological domains, QoL scores were associated with self-rated health, self-reported health problem, satisfaction with health and self-rated QoL. In the Social Relationships domain, QoL scores were associated with self-rated health, satisfaction with health and self-rated QoL. In the Environment domain, QoL scores were associated with satisfaction with health.

A multiple logistic regression was performed for each of the three QoL domains associated with more than one of the independent variables, including all significant variables (Table 5). Results showed that in the Physical domain dental hygienists without reported health problems and who were satisfied with their health were more likely to have high QoL scores. In the Psychological and Social Relationship domains, those who self-rated their QoL as good were more likely to have high QoL scores. Dental hygienists satisfied with their health were more likely to have high QoL scores in the Environmental domain.

Discussion

Low QoL mean scores were observed in the Physical, Psychological and Environment domains in more than half of the dental hygienists in this study. The environment domain had the lowest score, as found previously among the Brazilian dentists working in the same service (9) and among auxiliary nurses (8). Although the methodology for scoring the WHOQOL instrument does not include the analysis of each facet or item question separately, some questions in the environment domain are particularly relevant to understand such results. These are low access to information, lack of leisure activities, low quality of personal and professional environment (climate, pollution and poverty) and financial constraints to satisfy basic needs. In Brazil, health workers in the public health service are usually low paid. Previous studies among auxiliary dental personnel in Brazil and other countries have shown a relationship between income and job satisfaction. Low incomes were associated with negative self-perceptions about the quality of work among Brazilian dental hygienists (11). Low income was

Table 4. **Descriptive statistics of QoL scores of the WHOQOL-Bref instrument for each domain (*n* = 93)**

Domain	Mean	SD	Median	Min–max
Physical	65.49	15.02	67.86	28.57–96.43
Psychological	61.13	9.09	62.50	41.67–83.33
Social relationship	70.56	17.09	75.00	25.00–100.00
Environment	56.25	13.29	52.02	18.75–81.25

also reported as a cause of job dissatisfaction in Canadian dental assistants (12) and leisure activities and other psychosocial factors were predictors of well-being and good general heath in Swedish dental hygienists (13). From a historical perspective, work-related health promotion in work environment has been widely discussed in Brazil in the last three decades (14).

Most of the sample in the present study had high scores in the Social domain, while most of the dentists investigated in the same health service (9) had high scores in this and in the environment domain. This suggests that among the dental hygienists personal relationships, social support and sexual activity, which are the facets included in the Social domain, are not affected by the other domains, including the financial constraints previously discussed. In addition, the contrast between good self-rated health condition in 70.9% and no self-reported health problem in only 22.6% of dental hygienists in this study suggests that, although perceived by individuals, health problems may not be sufficient to impact on their perceptions of their health. Similar results were found among dentists in Brazil (9, 15). More research is needed to explore to what extent health problems affect routine tasks, job-related well-being and result in work disability episodes in this population.

Musculoskeletal disorders are common among dental health workers (13, 16–20) and are a frequent cause of sick leave (21) and decreased work hours (22). In this study, orthopaedic problems such as back pain, arthritis or rheumatism and reports of musculoskeletal work disability were reported by 27% of the sample. Yee *et al.* (22) observed that these disorders significantly affect productivity and reduce working hours, and are common causes of a large amount of permanent pain and suffering, a huge loss of work productivity and incurs a considerable financial cost as a result of work-related health problems.

Dental hygienists in Brazil are predominantly women (23) and this was observed in the sample of the present study. The rise in the percentage of female dentists is a tendency in recent decades (15, 24) and it has been pointed out that sex differences affect health professional's practice and underlying attitudes and values, which goes beyond professional demographics and workloads to the provider–patient relationship (24). Questions about excessive work time of women due to tensions in work/life balance, domestic and familial obligations may arise and be considered as potential explanation to greater vulnerability of women to health problems.

As found among the dentists (9), and contrary to what would be expected, none of the sociodemographic and job-related variables were associated with the respondents' QoL. The association found between the dental hygienists' QoL and perceived health status and perceived QoL is not surprising, as these are subjective variables close to the WHOQOL domains.

No previous study has used the WHOQOL-Bref instrument to investigate QoL of dental hygienists. Results of the present study should be interpreted with caution due to the small sample size, which also limits other possible group comparisons. Although the profile of the non-respondents is not known, possible explanations for the low response rate are problems in the mailing of the questionnaires and the nature of some questions which may cause constrain. Future studies among other dental hygienists in Brazil and in other countries are needed to

Table 5. **Logistic regression analysis of the association between quality of Life (QoL) scores of dental hygienists and independent variables for each WHOQOL-Bref domains (*n* = 93)**

			QoL score		Unadjusted		Adjusted†	
Domains	Independent variables*		High *n* (%)	Low *n* (%)	OR (95% CI)	*P*	OR (95% CI)	*P*
Physical	Self-reported health problem	Yes	16 (55.2)	5 (7.9)	1		1	
		No	13 (44.8)	58 (92.1)	14.28 (4.43–46.02)	0.000	7.61 (2.00–28.96)	0.003
	Satisfaction with health	Yes	28 (96.6)	25 (40.3)	1		1	
		No	1 (3.4)	37 (59.7	41.43 (5.29–324.39)	0.000	18.74 (2.07–169.56)	0.009
Psychological	Self-rated QoL	Good	37 (97.4)	27 (50.9)	1		1	
		Bad	1 (2.6)	26 (49.1)	35.63 (4.55–278.98)	0.001	22.09 (2.57–189.59)	0.005
Social relationship	Self-rated QoL	Good	44 (86.3)	21 (51.2)	1		1	
		Bad	7 (13.7)	20 (48.8)	5.99 (2.19–16.36)	0.000	3.67 (1.16–11.63)	0.027
Environment	Satisfaction with health	Yes	23 (76.7)	30 (49.2)	1		1	
		No	7 (23.3)	31 (50.8)	3.39 (1.27–9.08)	0.015	3.28 (1.21–8.90)	0.020

*Only the significant variables in the final model are shown in the table.
†Adjusted for all significant variables in the unadjusted analysis.

increase our knowledge on the subject. As the instrument is mainly focused on subjective aspects of QoL, future research could explore objective components that may influence QoL measures like diagnosed health problems and other factors related to working conditions. Also, the association between dental hygienists' job satisfaction and their QoL could be addressed.

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