Factors related to the use of dental services among adolescents from Gravataí, RS, Brazil, in 2005

Fatores associados ao uso de serviços odontológicos entre adolescentes de Gravataí, RS, em 2005

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Abstract

Introduction: Access to health services, including those for oral health, depends upon socioeconomic, environmental and individual factors. Moreover, cultural and lifestyle differences also influence the degree to which services are sought. Objective: This study aimed to assess factors associated with the use of dental services among adolescents in the 7th grade of public primary schools from the city of Gravataí, RS, Brazil, in 2005. Methods: A cross-sectional survey was carried out. Data were collected in schools through self-administered questionnaires evaluating demographic, socioeconomic and psychosocial factors, lifestyle, oral health habits and behaviors of 1,170 adolescents, using the Global School-Based Student Health Survey, International Physical Activity Questionnaire and Body Shape Questionnaire. Data analysis was carried out by means of Cox regression modified for cross-sectional studies, using the STATA 6.0 software. Univariate and multivariate analyses were performed from a hierarchical conceptual model supported by the literature on hierarchical models. Results: The use of dental services was less frequent among those who reported concern with body image and involvement in fights; those whose parents did not know where they were in their leisure time, those who brushed their teeth less than twice a day, those who did not use dental floss daily, those who reported seeking dental services for curative treatment and those with a lower socioeconomic status. Conclusions: The results suggest that the use of dental services by adolescents depends upon the interaction of psychosocial and individual factors as well as the family context.

Keywords: Use of dental services. Dental care. Adolescents. Oral health. Global School-Based Student Health Survey.

Resumo

Introdução: O acesso a serviços, incluindo os serviços odontológicos, depende de fatores socioeconômicos, ambientais e individuais. Por outro lado, as diferenças, culturais e estilo de vida também influenciam o grau em que os serviços são utilizados. **Objetivo:** O objetivo deste estudo foi avaliar os fatores associados ao uso de serviços odontológicos entre adolescentes da 7ª série de escolas públicas do município de Gravataí, RS, no ano de 2005. **Métodos:** Foi realizado um estudo analítico transversal. Os dados foram coletados nas escolas, por meio de questionários autoaplicados, investigando fatores sociodemográficos, psicossociais, estilo de vida, hábitos e comportamentos de saúde bucal em uma amostra de 1.170 adolescentes, usando o *Global School-Based Student Health Survey*, o Questionário Internacional de Atividade Física e o *Body Shape Questionnaire*. A análise dos dados foi executada no software STATA 6.0, por meio de regressão de Cox modificada para estudos transversais, tendo sido realizadas análises univariada e multivariada a partir de um modelo conceitual hierárquico suportado pela literatura sobre modelos hierárquicos. **Resultados:** O uso de serviços odontológicos foi menor para aqueles que relataram preocupação com a imagem corporal e envolvimento em brigas, aqueles cujos pais não sabiam onde os filhos estavam em seu tempo livre, que escovavam os dentes menos duas vezes ao dia, aqueles que não usavam fio dental diariamente, que relataram procurar os serviços odontológicos para tratamento curativo, e aqueles com piores condições socioeconômicas. **Conclusões**: Os resultados sugerem que o uso de serviços odontológicos por adolescentes depende da interação de fatores psicossociais e individuais, bem como do contexto familiar.

Palavras-chave: Uso de serviços odontológicos. Adolescentes. Saúde bucal. *Global School-Based Student Health Survey*.

Introduction

Access to health services, including those for oral health, depends upon socioeconomic, cultural, environmental and individual factors[1,2]. Moreover, cultural and lifestyle differences also influence the degree to which services are sought. According to Freeman[3], oral health behaviors are also influenced by adolescents' social contacts, tending to adopt behavior similar to their peers. Among adolescents, it has been shown that low socioeconomic status and poor mental health can increase the risk of adopting health risk behaviors[4]. Additionally, unhealthy habits such as smoking, eating sweets and physical inactivity are associated with fewer visits to dentists and greater curative needs[5]. The age group of adolescents has drawn the attention of the World Health Organization, because adolescence is a period marked by considerable physical, sexual, cognitive and emotional changes[6]. It is a period when habits and behavior change, remaining in the future and influencing both their general and oral health. This is why adolescence represents an essential time for health promotion[2]. In Brazil, a large section of the population has very poor access to dental and health services. As an example, a national study performed in 2003 showed that 22% of Brazilians, aged from 15 to 74 years, had never been to a dentist[7]. This percentage was 14% among adolescents, increasing to 22% in more impoverished areas. Among all adolescents studied, 30% reported toothaches as the reason for seeking dentists and only 34% made a dental appointment for routine/maintenance purposes[7]. Based on the WHO recommendations, Brazil has introduced health investigation strategies into the schools, prioritizing the 7th grade of primary education. Because of this new initiative and the lack of information about factors affecting dental care among Brazilian adolescents, the present study was conducted, aiming to investigate factors associated with the use of dental services among adolescents in the 7th grade of primary schools included in the

public school network of a city of the Greater Porto Alegre area, the capital of the state of Rio Grande do Sul, in Southern Brazil.

Methods

Sample

This is a school-based cross-sectional study. Participants were selected by cluster sampling. The city was divided into 15 administrative areas and all were included in the study. Firstly, schools were randomly selected, followed by classes. All students from the selected classes participated in the study. The sample calculation was based on a target population of 2,282 school adolescents from Gravataí, a city of the Greater Porto Alegre area, in Southern Brazil. Considering that the study is part of a larger research project with other objectives, the larger estimate of prevalence for multiple outcomes (50%), a confidence interval of 95% and maximum error of ± 3% were taken into consideration as reference, so that a sample of 728 subjects was obtained. Applying a design effect of 1.5 and adding 20% to compensate for losses, the sample size increased to 1,312 adolescents. This number represented about half of the schoolchildren enrolled. Because of this, it was decided that half plus one of the groups would be randomly selected from each of the 15 administrative regions of Gravataí, observing the proportionality of students per group. The sample totaled 1,366 schoolchildren and all members of the randomly selected groups were included in the study. At the end of the data collection, a response rate of 85.7% was obtained and the population studied was comprised of 1,170 adolescents.

Data collection

Data were collected in the schools by trained research assistants, using a self-assessment questionnaire which contained information about sex; age; self-reported ethnicity; family socioeconomic conditions; physical activity, classified according to the International Physical Activity Questionnaire – IPAQ[8]; tobacco, alcohol and other drug use in life; experiences at home and at school; feelings of depression; oral health, based upon the Global School-Based Student Health Survey – GSHS[6]; and perception of body image, using the Body Shape Questionnaire – BSQ, validated in Brazil by Cordás and Castilhos[9]. According to Cooper et al.[10], the BSQ score is classified into four groups: 1) not concerned about body image (<81 points), 2) slightly concerned (from 81 to 110 points), 3) moderately concerned (from 111 to 140 points), and 4) extremely concerned (>140 points). For the purposes of this study, adolescents were grouped into "not concerned about body image" (up to 110 points) and "concerned about body image" (above 110 points).

Explanatory variables were divided into socio-demographic, psychosocial and lifestyle-related. Socio-demographic factors include sex, ethnicity (white, non-white) and economic status (B, C, D+E). The classification criterion of the ABEP (Brazilian Association of Market Research Companies) was used to define the economic status, considering the following five categories: A, B, C, D, and E[11]. This classification takes into consideration household goods such as cars, televisions and washing machines. Category A is the highest and it was excluded as there were no schoolchildren classified in this category. Additionally, adolescents classified in categories D and E were grouped, as only six belonged to category E.

Psychosocial factors included concern about body image (*yes, no*); the group of variables related to social support (in the previous 30 days) – involvement in fights (*yes, no*); frequency with which parents knew where their children were in their leisure time, categorized into always/nearly always, sometimes/rarely, or never, according to the frequency of the variable; number of close friends, which followed the same criterion for categorization and was divided into 3 or more friends, 1 or 2 friends, or none –; and one variable related to feelings of depression

in the previous year, described as feeling of sadness (yes, no).

Lifestyle variables referred to alcohol, tobacco and other drug use in life (yes, no), which considered if adolescents had already consumed these substances; practice of physical activity (yes, no) for which a cut-off point of 300 minutes or more per week was established, categorizing those who were below this limit as insufficiently active[12]; initiation of sexual life (yes, no); oral hygiene habits: frequency of teeth cleaning (≥ 2 times/day and < 2 times/day) and daily use of dental floss (yes, no); type of dental service (private; non-private) and the reason for going to the dentist (preventive treatment, curative treatment); in the last two cases, children who did not use dental services were excluded.

The outcome was categorized according to the frequency of use of dental services, considering two categories: visits with a time interval ≤ 12 months (≤ 1 time/year) and visits with a time interval > 12 months (>1 time/year). The second category also included those who did not go to dental services.

Statistical analysis

Data were analyzed by Cox regression modified for cross-sectional studies, using the STATA 6.0 software. Univariate and multivariate analyses were conducted. Analyses were performed from a hierarchical conceptual model designed by the authors, supported by the literature on hierarchical models[13]. This model includes four stages that show the hierarchy of influence of independent variables on the outcome (Figure 1). In the first stage, sociodemographic variables were included; in the second stage, the psychosocial variables; in the third, lifestyle variables; and in the fourth, variables related to oral health habits and behaviors. A level of significance ≤ 0.10 was established as the cut-off point to select the variables which would be maintained in the following stage. Prevalence ratios with a p-value < 0.05 were considered to be statistically significant.

Ethical Aspects

This is one of the subprojects of the study entitled "The Health of Schoolchildren in the Public School Network of the city of Gravataí, RS, Brazil". The research protocol was approved by the Research Ethics Committee of the Lutheran University of Brazil – ULBRA (2004-375H). Parents or legal guardians of the students signed an Informed Consent Form. The authors declared that there were no conflicts of interest.

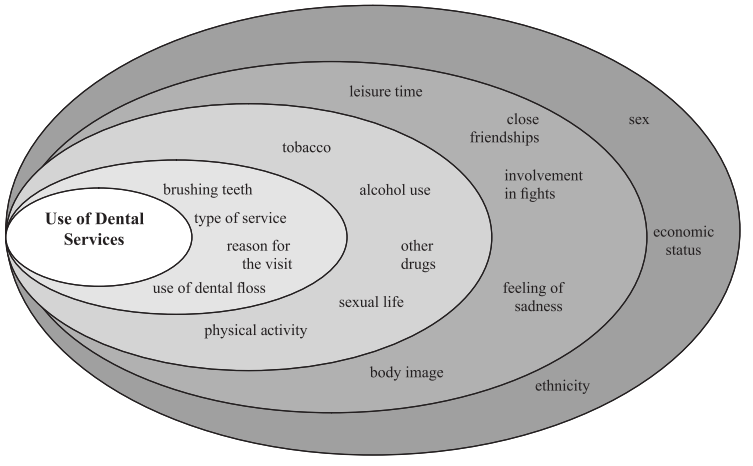

Figure 1 – Hierarchal Theoretical Model of the process of determination of use of dental services among adolescents.

***Figura 1** – Modelo Teórico Hierarquizado do processo de determinação do uso de serviços odontológicos entre adolescentes.*

Results

Of all 1,170 adolescents, 21.8% belonged to economic category B, 58.8% to category C and 19.3% to category D+E; 52.5% of the adolescents were females and 52.6% reported they were white (Table 1). The average age was 14 years (sd: 1.13 years) and 68.9% of them used dental services at least once a year. Those who did not go to these services represented 10.4% of the sample.

In the univariate analysis, the outcome was associated with socioeconomic status, concern with body image, involvement in fights and the frequency with which parents knew where their children were in their leisure time. The same occurred with tobacco use in life, frequency with which they brushed their teeth and use of dental floss.

The results of the multivariate analysis showed that use of dental services was less frequent among those with a lower socioeconomic status, those who reported concern with body image, those involved in fights; and those whose parents did not know where they were in their leisure time. A similar result was found among adolescents who brushed their teeth less than twice a day, compared with those who brushed their teeth two or more times a day; those

Table 1 – Result of the univariate analysis with the "use of dental services" outcome. City of Gravataí, RS, Brazil, 2005.
Tabela 1 *– Resultado da análise univariada com o desfecho uso de serviços odontológicos. Gravataí, RS, 2005.*

VARIABLES	N	Use of dental services			
		n	%	PR (CI 95%)	p
Socioeconomic status					
B	256	55	21.48	1.00	-
C	688	205	29.80	1.39 (1.07-1.80)	0.014
D + E	226	104	46.02	2.14 (1.62-2.81)	0.000
Concern with the body image					
No	890	260	29.21	1.00	
Yes	275	103	37.45	1.28 (1.07-1.54)	0.008
Involvement in fights					
No	947	280	29.57	1.00	-
Yes	223	84	37.67	1.27 (1.05-1.55)	0.015
Frequency parents know where their children are in their leisure time					
always/nearly always	863	255	29.55	1.00	
sometimes/rarely	165	50	30.30	1.02 (0.79-1.32)	0.845
Never	142	59	41.55	1.41 (1.13-1.75)	0.002
Tobacco use					
No	947	288	29.54	1.00	-
Yes	195	76	38.97	1.31 (1.07-1.61)	0.007
Frequency of teeth brushing					
≥ 2times/day	1124	339	30.16	1.00	-
< 2 times/day	46	25	54.35	1.80 (1.36-2.38)	0.000
Daily use of dental floss					
Yes	373	70	18.77	1.00	-
No	797	294	36.89	1.96 (1.56-2.47)	0.000
Reason for seeking dental services					
for preventive treatment	480	54	11.25	1.00	-
for curative treatment	586	210	35.84	3.18 (2.42-4.19)	0.000

who did not use dental floss daily, compared with those who did; and those who reported seeking dental services for curative treatment, compared with those who sought it for preventive reasons (Table 2).

Discussion

This study set out to increase understanding of factors associated with the use of dental services. By using a hierarchical conceptual model, it explored the relationship between psychosocial variables and the use of dental services, which had not been previously reported. There was a significant relationship between the use of dental services and concern about body image, involvement in fights, and the frequency with which parents knew where their children were in their leisure time, in addition to the commonly reported relationship between socioeconomic status, tooth brushing frequency, use of dental floss and reasons for going to the dentist.

In both univariate and multivariate analyses, the use of dental services in the

Table 2 – Result of the multivariate analysis with the "use of dental services" outcome. City of Gravataí, RS, Brazil, 2005.
***Table 2** – Resultado da análise multivariada com o desfecho uso de serviços odontológicos. Gravataí, RS, 2005.*

VARIABLES	Use of dental services		
	PR	CI 95%	p
Socioeconomic status			
B	1.00	1.07-1.80	-
C	1.39	1.63-2.82	0.013
D + E	2.14	-	0.000
Concern with body image			
no	1.00	-	-
yes	1.23	1.03-1,48	0.026
Involvement in fights			
no	1.00	-	-
yes	1.22	1.00- 1.49	0.025
Frequency parents know where their children are in their leisure time			
always/almost always	1.00	-	-
sometimes/rarely	0.96	0.74-1.24	0.746
never	1.32	1.06-1.65	0.012
Tobacco use			
no	1.00	-	-
yes	1.21	0.97-1.51	0.092
Frequency of teeth brushing			
≥ 2 times/day	1.00	-	-
< 2 times/day	1.68	1.21-2.33	0.002
Daily use of dental floss			
yes	1.00	-	-
no	1.92	1.44-2.59	0.000
Reason for seeking dental services			
preventive treatment	1.00	-	-
curative treatment	3.08	2.28- 4.15	0.000

Adjusted for sex, ethnicity, close friendships, feeling of sadness, alcohol use, other drug use, physical activity, initiation of sexual life, and type of service used.

previous year was much less frequent among adolescents with a lower economic status, a fact which, in spite of having been already expected, deserves some attention. Individuals who were poorer, apart from using dental services less frequently, did not primarily seek them for preventive reasons[14], which also reduces the possibility of their treatment needs being detected early, resulting in a worse prognosis of the illnesses diagnosed[15].

In this study, no association was found between the outcome and the sex and ethnicity variables in both analyses. These findings are different from those of other studies[1,15]. It is possible that the influence of sex in the use of services could not be found, due to the adolescents investigated being still dependent on adult care for making appointments. As regards ethnicity, the fact that no association with the outcome was found may have occurred due to the social homogeneity of the sample. All participants were public school students of the public school network and most of them belonged to the same economic category. Other studies found differences in the use of services of oral health between ethnic groups, which was less frequent among black people, although also observing that this result was associated with the socioeconomic condition[16,17].

In the multivariate analysis, the use of services was found to be lower among adolescents who were concerned about their body image and were involved in fights and whose parents did not know where they were in their leisure time. An individual's body image corresponds to the way that he/she perceives himself/herself as regards his/her own body. Moreover, the idea that this individual imagines others to have about him/her is reflected in his/her self-image and self-esteem. Dissatisfaction with one's body image can cause feelings of rejection and isolation, resulting in difficulties of living socially and with peers. A negative self-image and low self-esteem can influence the health of individuals. Oral health is linked to self-care, which is related to self-esteem. Providing a positive view of one's body-image reinforces self--confidence, with repercussions on the adolescent's health condition. In this sense, schools have a key role to play, as they are able to act positively on the development of actions of health promotion, encouraging interpersonal relationships and providing opportunities for self-expression and building self-esteem. At the same time, they can promote social interaction and integration and the adoption of protective behavior.

The frustration experienced by adolescents about their body and about family relations can trigger unhealthy behavior. Becoming involved in fights can be a way for an adolescent to express dissatisfaction with himself/herself and with the attention received from his/her family or social group, using the exposure to risk situations and negligence of self-care as a means of protesting and drawing attention to himself/herself. Unsatisfactory social support can be related to negative health behavior, and less social support is associated with lower use of dental services[18]. During adolescence, identification with parents and friends and acceptance by the peer group contribute to structuring the personality and have a protective effect[3,19]. Moreover, living among people can act as a way to monitor and encourage the adoption of healthier behavior, such as practicing physical activities and making preventive appointments, which in its turn contributes to a better quality of life. The absence of these protection mechanisms can leave adolescents more vulnerable to risk behavior and factors.

The family context exerts great influence on establishing habits and behavior in adolescence, and parents who are more present and that accompany the daily activities and development of their children, including knowing where they spend their leisure time, are usually more attentive to their health and encourage the adoption of healthy behavior. The existence of family links, where adolescents feel understood by their parents, can lead to the adoption of healthier attitudes toward their oral health,

including greater use of dental floss and preventive use of dental services[20]. On the other hand, a hostile and indifferent family context can generate feelings of abandonment and neglect, causing depression[21], which in its turn can lead to negligence of self-care actions[22]. During adolescence, seeking dental services is, in the majority of cases, a decision that does not rest exclusively on the youth, but also depends on the performance of parents, who are responsible for selecting the health service which will be used and setting up appointments.

Tobacco use lost significance, in spite of having shown an association with the outcome in the univariate analysis, when controlled for other variables related to lifestyle. This could be indicating that the manner in which tobacco consumption was measured may have failed to distinguish between the individuals who have the smoking habit and those who do not, as it took into account whether adolescents had already used this substance at any time in their life, which does not necessarily mean that consumption has persisted and become a habit.

The frequency with which dental services are used with a time interval longer than one year was higher among those who had worse oral hygiene habits, i.e. who brushed their teeth less than twice a day and did not use dental floss daily, an association which was maintained after controlling for confounding factors. This can also be related to the fact that those who made fewer appointments primarily sought dental services for curative reasons, revealing the coexistence of risk behavior. The maintenance of oral health is related to habits of adequate hygiene and preventive care, both for preventing the occurrence of dental caries by bringing fluoride to the oral cavity through toothpastes and for maintaining periodontal integrity[23]. However, the coexistence of factors which characterize an unhealthy lifestyle leaves the youth more vulnerable, as oral diseases are highly related to lifestyle[24].

The present study had good external validity as it used a representative sample. Moreover, it also showed good internal validity, because of the use of pre-tested questionnaires, the training of the research group and the supervision of field work. However, this study had some limitations: data were cross-sectional, the directions of the relationships identified could not be determined, and those not enrolled in a school were excluded from this study. The use of self-assessment questionnaires might have affected the results as it assumed that respondents had good reading and understanding skills.

Conclusion

The schoolchildren who reported the lowest economic status, insufficient family support, involvement in fights, concern with their body image, brushing their teeth less than twice a day and no daily use of dental floss sought dental services less frequently than their peers, suggesting that the use of such services by adolescents depends on the interaction of several social and individual factors, in addition to the family context.

The investigation and understanding of how adolescents use dental services and the factors associated with this use, apart from providing support to organize the health system, contribute to the adoption of protective behavior and elimination of risk factors, thereby reducing their vulnerability to health problems, including oral health. Dealing with the latter means developing actions of health promotion and education that involve the family, school and community, apart from inter-sectoral public policies aimed at improving the living conditions of the population.

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