Association of Level of Education and Utilization of Restorative Dental Care among Rural Women in India: Cross-sectional Study

Abstract

Background: The utilization of restorative dental care is very scarce in rural India. Association between level of education and health of a person has been well-documented in many countries and time periods with a range of potential factors shaping the connection between both. Objectives: This cross-sectional survey was conducted to evaluate an association between the level of education (educational qualification) and utilization of restorative dental care among rural women associated with self-help groups. Materials and Methods: A semi-structured questionnaire was administrated to 660 rural women associated with self-help group by trained research assistants. The 604 completed questionnaires were received and reviewed. The education levels were divided into three groups: Group 1 - illiterates (17.2%), Group 2 - school educated (69.4%), and Group 3 - college educated (13.4%). Chi-square test was applied to evaluate the utilization of dental care services by rural women, and logistic regression was applied to evaluate the influence of their educational qualifications on utilization. Results: A total of 604 properly filled questionnaires out of 660 (91.51% response rate) were included in the analysis. Only 56.9% of the sampled rural women indicated that they have visited dentists earlier. The maximum number of individuals who have never visited the dentist belonged to illiterate group (55.7%), and the association was statistically significant (0.004) when compared with educated individuals. Conclusion: The results of this study concluded that the level of education has a significant influence on the utilization of dental care.

Keywords: Dental caries, education, gingivitis, restorative care, utilization

Introduction

Common dental diseases such as dental caries, gingivitis, and periodontitis are largely treatable and preventable by awareness created by dentists during regular restorative dental care visits.[1] Restorative dental care encompasses various treatment options to treat the chronic oral conditions such as dental caries, gingivitis and periodontitis and loss of teeth. Patients with regular dental visits are more likely to have oral diseases detected in the earlier stages and obtain restorative care. However, nonreceipt of dental care or a delay in receiving such treatment can result in delayed diagnosis, untreated oral diseases, and conditions along with compromised health status.[2] Utilization is the actual attendance by the members of the public at health-care facilities to receive care. The factors influencing dental care utilization include gender, age, education level, income level, race and ethnicity, geographic location, general health status, and dental insurance status. A survey conducted by the Indian Market Research Bureau highlighted that Indians only approach a dentist when faced with a crisis.[3] Since literacy rates are lower among rural population compared to urban population, it restricts them from utilizing dental facilities and seeking restorative dental care. According to the WHO, the provision of oral health-care services is very little in rural parts of India, further complexity is lent by the great variation that occurs across this population on social parameters such as income and education.[4,5] In India, the unmet treatment need of the rural population is high, and the dental services, especially in the primary health-care centers are dismal and inadequate in most parts of the country.[5] According to the Indian oral health survey conducted in 2013, the key issues that have to be addressed in the coming 5 years are gingival diseases (19%), dental caries (18%), and oral health awareness (17%). The survey concluded that there is a desperate need to improve

Address for correspondence:
Dr. Neeta Shetty,
Manipal College of Dental Sciences, Manipal University,
Light House Hill Road,
Mangalore - 575 001,
Karnataka, India.
E-mail: neetara70@gmail.com

How to cite this article: Shetty N, Mala K, Suprabha BS, Shenoy R. Association of level of education and utilization of restorative dental care among rural women in India: Cross-sectional study. Indian J Dent Res 2017;28:642-5.
oral health in India, especially among the underprivileged population which essentially comprises of rural women.[5]

The main objective of any health-care system is to maintain and improve health outcomes which depends on adequate knowledge of the way that the individuals use health services and the factors predictive of this behavior.[6]

Regular dental checkups are recommended every 6 months for early detection of oral diseases and reversing the process of initial carious lesion or gingivitis. In India, dental care is underutilized even though provided free of cost in government institutions and is comparatively affordable when compared to western countries. To improve the utilization of restorative dental care, there is a need to focus on oral health promotion to educate and motivate people. It is our belief that higher the levels of education, better is the comprehension and awareness about dental health knowledge and need for dental care. Furthermore, the study of dental health care utilization is an important topic in dental services, research, and implementation. Hence, this cross-sectional questionnaire study was undertaken with the objective to determine an association between the level of education and utilization of restorative dental care among rural women associated with self-help groups in India (Mangalore taluk).

Objectives

The present study is undertaken to find out:
1. If there is any association between the level of education and utilization of restorative dental care
2. Reasons of participants for not visiting the dentist or not utilizing restorative dental care among rural women associated with self-help groups in India (Mangalore taluk).

Materials and Methods

No prototype questionnaire specifically formulated for utilization of restorative dental care was available. Therefore, semi-structured questionnaire was developed in the local language Kannada and English. This questionnaire addressed the demographic and socioeconomic characteristics, dental health status, geographical accessibility, and beliefs regarding dental restorative care. Ethical clearance was obtained from the Institutional Ethics Committee (no. 13007). Before administering the questionnaire to the individuals, the validity and reliability of the questionnaire were tested. The trained research assistants administered the questionnaire in the local language after obtaining informed consent from each participant. The questionnaire was administered among 660 women members of the self-groups situated in rural areas of Mangalore taluk.

The data collection was carried out for a duration of 3 months by ten trained research assistants by face-to-face interview. The 604 completed questionnaires were received and reviewed. The individuals were divided into three groups depending on their education levels.

- Group 1 - Illiterates are those who do not know how to read and write
- Group 2 - School educated are those who have attended primary or high school
- Group 3 - College educated are those who have received college education.

The data were compiled and analyzed using Statistical Package for Social Sciences (SPSS), version 16.0 (SPSS Inc., Chicago IL, USA). The descriptive statistics was obtained regarding the percentage of literacy and utilization of dental services. Chi-square test was applied to evaluate the utilization of dental services by rural women, and logistic regression was applied to evaluate the influence of their educational qualifications on utilization. P < 0.05 was set for statistical significance. Logistic regression was done to find the factors associated with nonutilization of dental services.

Results

A total of 604 questionnaires were collected from 660 questionnaires distributed among rural women associated with self-help groups (91.51% response rate). The majority of the rural women had visited a dentist at least once (56.9%), and 43.1% had never visited a dentist nor utilized restorative dental care. Figure 1 shows the distribution of rural women according to their education level and dental visit. The majority of the participants who have never visited a dentist belonged to illiterate group (55.7%), and the association was statistically significant (0.004) when compared with educated individuals. The percentage of illiterates who have visited a dentist is lower than that of literates, and the association is statistically significant.

The descriptive analysis [Table 1] shows 48% of the illiterate respondents never utilized restorative dental care due to fear toward dental treatment. Self-perception

![Figure 1: Association between education level and dental visit. Higher the levels of education, better is the comprehension and awareness about dental health knowledge and need for restorative dental care. Chi square value=11.4, df=2, P<0.004](image-url)
of not suffering from any kind of dental problem among illiterates (41.66%) and school educated (48.19%) was a major reason for not utilizing the dental care. About 30% of illiterates have low levels of awareness about the importance of dental health. Furthermore, there is no association between level of education and time constraints that restricts them from seeking restorative dental care [Figure 2].

According to logistic regression analysis, the illiterates and school educated are scared of dental treatment when compared to graduates \((P = 0.00)\). The illiterates and school educated have a self-perception that they do not have any dental problems, and it is statistically significant when compared to graduates. They considered dental treatment and travel expenses toward dental treatment to be expensive \((P = 0.017, P = 0.00)\). There was no statistical significant difference between groups on awareness about Dental health facilities to receive treatment [Table 2].

Discussion

The social structure of the society includes education as one of its parameters and one of the most important predisposing factors in determining the extent of utilization of restorative dental care. Previous epidemiological studies have suggested underutilization of restorative dental care.\([7,8]\) Hence, in this study, we have concentrated on the influence of level of education on the various barriers that prevents them from seeking restorative dental care.

According to the result of this study, 43.04% of the respondents had never visited dentists. Based on the level of education, number of illiterates who have visited dentists is lower (42.3%) when compared with educated individuals, and the difference is statistically significant \((P < 0.004)\). Attendance to dental clinics among college graduates (58%) was comparable to school educated (60.4%). This result is in accordance with Guiney et al. where higher educated groups make more use of dental services than less educated, and according to them, education brings about high levels of health consciousness which in turn stimulates preventive behavior.\([9]\) According to Van der Heyden et al. education is more influential than income in terms of utilization of health services, which may indicate that cognitive barriers are more important than financial barriers.\([10]\) Fear and anxiety were the most frequently reported barriers on utilization, along with other factors such as age, gender, education, ethnicity, language, perception of need, anxiety states, and feeling of vulnerability.\([11,12]\) People with high dental fear have poorer oral health and often suffer significant social and psychological impacts associated with their oral state.\([13]\) Gender differences in dental care utilization and dental fear have been studied, and it is reported that dental fear is more prevalent among females.\([14,18]\) The apparent outcome of fear and anxiety reaction are the avoidance of dental treatment. A study conducted in South India is in accordance with our study which concluded that anxiety scores were higher among the less educated patients.\([16]\) The self-perception of not being affiliated by any dental problems among these rural women could be related to dental anxiety and lack or low level of education, which hinder them from understanding the importance of seeking dental care. In this present study, compared to the graduates, the illiterates and school-educated individuals showed higher levels of self-perception that they do not have any dental problems and also expressed fear of dental treatment. The awareness about dental health was low among the illiterates, which could be because they have not received any form of schooling and thus are not able to comprehend its importance and the effect it has on systemic health of an individual or oral health-related quality of life.

Table 1: Association between level of education and nonattendance of rural women toward utilization of restorative dental care

|                      | Illiterates (60) | Primary (166) | Graduate (34) |
|----------------------|-----------------|---------------|---------------|
| Scared of dental treatment | 29 (48.33)      | 66 (39.75)    | 12 (35.29)    |
| I believe I don’t have any dental problems | 25 (41.66)      | 80 (48.19)    | 12 (35.29)    |
| Not aware about the importance of dental health | 18 (30)         | 33 (19.87)    | 2 (5.88)      |
| Dental treatment is expensive | 9 (15)          | 15 (9.03)     | 5 (14.70)     |
| I am not aware where to receive treatment | 13 (21.66)      | 24 (14.45)    | 3 (8.82)      |
| No dentist in my locality | 13 (21.66)      | 25 (15.06)    | 4 (11.76)     |
| Long distance to visit a dental facility | 14 (23.33)      | 28 (16.86)    | 2 (5.88)      |
| Travel expenses | 11 (18.33)       | 14 (8.43)     | 2 (5.88)      |

\(\chi^2=133.09\), df=108, \(P<0.05\)
Although all the respondents in this study are associated with self-help groups and are employed, there is no association between level of education and time constraints that restricts them from seeking restorative dental care. This result is contrary to various studies where time factor was a major hinder for seeking restorative dental care. This study suggests that self-perceived belief along with fear is a major hindrance for utilization of restorative dental care, especially among lower levels of education. Hence, creating awareness programs about good oral health and motivating them to use the restorative dental services available are essential. Thus, continuing dental education and counseling by dental care providers is necessary to increase utilization of restorative dental care. Studies about restorative dental care utilization by the society are of utmost importance, especially for policy-forming bodies and dental health-care providers. This study suggests that self-perceived belief along with fear is a major hindrance for utilization of restorative dental care, especially among lower levels of education. Hence, creating awareness programs about the good oral health and motivating them to use the restorative dental services available are essential. Thus, continuing dental education and counseling by dental care providers is necessary to increase utilization of restorative dental care. Studies about restorative dental care utilization by the society are of utmost importance, especially for policy-forming bodies and dental health-care providers.

**Conclusion**

1. Education level has positive association with utilization of restorative dental care
2. Fear of dental treatment, distance to travel for treatment, and belief to have no dental problems are major hindrance for utilization of restorative dental care, especially among rural women of lower levels of education.

**Financial support and sponsorship**

Shri Kshethra Dharmasthala Rural Development Project.

**Conflicts of interest**

There are no conflicts of interest.

**References**

1. Devaraj CG, Eswar P. Association between socio-demographic factors and dental service utilization among people visiting a dental college hospital in India – A descriptive cross-sectional study. Indian J Stomatol 2011;2:212-5.
2. Wall TP, Vujicic M, Nasseh K. Recent trends in the utilization of dental care in the United States. J Dent Educ 2012;76:1020-7.
3. Kakde S, Bedi R, Verma M. Oral health inequalities: A call for action to improve oral health in India. Int Dent J 2013;63:324-8.
4. Reisine S. A path analysis of the utilization of dental services. Community Dent Oral Epidemiol 1987;15:119-24.
5. Vasisth S, Gupta N, Bansal M, Rao NC. Utilization of services rendered in dental outreach programs in rural areas of Haryana. Contemp Clin Dent 2012;3 Suppl 2:S164-6.
6. Skaret E, Raadal M, Kvale G, Berg E. Gender-based differences in factors related to non-utilization of dental care in young Norwegians. A longitudinal study. Eur J Oral Sci 2003;111:377-82.
7. Maserjian NN, Trachtenberg F, Link C, Tavares M. Underutilization of dental care when it is freely available: A prospective study of the New England Children’s Amalgam Trial. J Public Health Dent 2008;68:139-48.
8. Poudyal S, Rao A, Shenoy R, Priya H. Utilization of dental services in a field practice area in Mangalore, Karnataka. Indian J Community Med 2010;35:424-5.
9. Guiney H, Woods N, Whelton H, Morgan K. Predictors of utilisation of dental care services in a nationally representative sample of adults. Community Dent Health 2011;28:269-73.
10. Van der Heyden JH, Demarest S, Tafforeau J, Van Oyen H. Socio-economic differences in the utilisation of health services in Belgium. Health Policy 2003;65:153-65.
11. Freeman R. Barriers to accessing dental care: Patient factors. Br Dent J 1999;187:141-4.
12. Ajayi DM, Arigbede AO. Barriers to oral health care utilization in Ibadan, South West Nigeria. Afr Health Sci 2012;12:507-13.
13. Natarajan S, Seenivasan M, Paturu R, Arul Q, Padmanabhan TV. Dental fear and anxiety in different gender of Chennai population. Int J Epidemiol 2009;9:1-5.
14. Holtzman JM, Berg RG, Mann J, Berkley DB. The relationship of age and gender to fear and anxiety in response to dental care. Spec Care Dentist 1997;17:82-7.
15. Malvania EA, Ajithkrishnan CG. Prevalence and socio-demographic correlates of dental anxiety among a group of adult patients attending a dental institution in Vadodara city, Gujarat, India. Indian J Dent Res 2011;22:179-80.
16. Rodriguez Vázquez LM, Rübíños López E, Varela Centelles A, Blanco Otero AI, Varela Otero F, Varela Centelles P. Stress amongst primary dental care patients. Med Oral Patol Oral Cir Bucal 2008;13:E253-6.
17. Marya CM, Grover S, Jnaneshwar A, Pruthi N. Dental anxiety among patients visiting a dental institute in Faridabad, India. West Indian Med J 2012;61:187-90.
18. Kakatkar G, Bhat N, Nagarajappa R, Prasad V, Sharda A, Asawa K, et al. Barriers to the utilization of dental services in Udaipur, India. J Dent (Tehran) 2011;8:81-9.