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Effectiveness of a health education delivered by a dentist and a peer-led in improvement of oral health status among a transgender population in Chennai city, India – An interventional study

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Introduction

In India, eunuchs are also called as 'Hijra', which actually refers to third gender or 'male to female' transgender people, and most see themselves as neither men nor women.[1] According to census 2011 report, India has an estimated 5 million eunuchs.[2] However this could be a gross underestimation as this population is a marginalized and secretive community in India.[3]Many Hijras comes from an ambiguous backgrounds - they may be born intersex, born male or female and fail to develop fully at puberty or be males who choose to live as hijra without ever undergoing the castration procedure.[4,5] They generally live together by forming a group called as 'Gharana' (familial house to which they owe allegiance), which is headed by a Guru (most senior member) and other members are as 'Chelas' (followers).[7] They are a special group of population where stress, alcoholism, gutka like pernicious habits, sexual risk behaviors are involved. The main occupations of transgenders of India are performing at marriage and birth celebrations and sex workers.[10] Unlike in other parts of the world, the attitude towards a Transgender in

Indian society is discriminatory and biased in general. They are denied general and oral health assistance and accessibility. Hence their awareness about general and oral health is very less.[1] A study done by Saravanan et al found that periodontal status of Transgender population from Chennai was relatively poor and 83% of them had periodontal problems. Most of the population required comprehensive oral health management and education. [10] In order to promote their oral health, educating them about various oral diseases and its prevention are very essential. However, health information given by a health educator may pose barriers related to communication and acceptability of information. There is a belief that, conveying the information through their Guru will create a greater impact among transgenders. A Study conducted by Parwej S et al showed that Peer-led health education was also comparatively better in creating awareness than conventional health education programs found to be more cost-effective.[11] As peer-led intervention are based on the assumption that behavior is socially influenced and that behavioral norms are developed through interaction, this form of intervention can be advocated to promote more positive health behavior amongst this group.[12]

Since there exist a vacuum in the literature reporting the effectiveness of oral health education delivery and its associated outcomes for this population, a study was designed to compare the effectiveness of a health education delivered by a dentist to that of a peer-led among the transgender population of Chennai city.

Keywords: Dentist, Health education, Oral health, Peer led, Transgender.

Methods

Trial design and study participants : This study was an interventional study with two parallel arms conducted over a period of 3 months. This study involved health education given to two groups, one group being led by a dental surgeon and another group led by a peer group leader (Guru).

Ethical Approval

The ethical approval for the trial was obtained from the Institutional Review Board of the institution. Permission was sought from the authorities of the Sagotharan Organization, an organization working for the welfare of Transgenders in Tamilnadu, India.

Sample Size And Sample Selection

Two areas were randomly selected (lottery method) from the areas where the transgenders predominantly live in Chennai city. Group A was led by a Dental Professional (Bijivin Raj) who had been calibrated to deliver oral health education to them and the Group B was led by a Peer educator (Guru). One of the areas was randomly assigned to Group A and the other to Group B. The required number of study subjects in each group was estimated to be about fifty in each arm based on a convenience sampling method. Transgenders who could not understand Tamil language (local dialect) were excluded from the study since the health education was imparted in Tamil. An informed consent was obtained from all the study participants.

Selection and training of peer educator

In Group B, the senior most member among the study participants (Guru) was assigned the responsibility of delivering oral health education to the group. The selected peer was trained to deliver oral health education by the dentist before the start of the study using audio visual aids and preparatory materials. The understanding of the peer led about oral health education training was assessed by evaluating the response to questions for 4 consecutive weeks. The training also included a demonstration of tooth brushing technique using toothbrush and oral cavity models. Baseline examination

of oral health status and oral health knowledge using WHO Oral health status recording proforma and WHO Oral health knowledge questionnaire, Oral health education was delivered to group A by the dentist and Group B by the peer who had undergone prior training by researcher respectively.[13]

Oral health education intervention

Oral health education comprising of 30 minutes lecture, five minutes of tooth brushing demonstration using models and five minutes of Question-and-Answer session. Contents covered in the Oral health education were etiology of dental diseases, their consequences, prevention and treatment.

Data collection methods and analysis

The data collected were compiled using MS-Office Excel and was subjected to Statistical analysis using IBM corp. SPSS Statistics for windows, version 20.0 (Armonk, NY) Statistical significance was set at $P < 0.05$. Descriptive and inferential statistics were used to analyze the data. Mc nemar test was used to analyse the results. Chi Square test was used to compare the percentage of bleeding sites and oral health questionnaire of the two groups after 3 month.

Results

A total of 100 transgenders were examined in which each group consist of 50 subjects. The mean ages of the participants were 30.1 years. Mean DMFT value were 2.7 and 100 % of them had periodontal problem. 7 % of them had oral lesions and 21 % had dental erosions.

Table 1 shows the comparison of oral health knowledge and percentage of bleeding sites among dentist led group (group A) and peer-led group (group B) before and after intervention. Amongst the study population, the percentage of gingival bleeding sites were 21% and 25% respectively from those who were led by the dentist and their peer. After the three month duration a significant reduction was seen in percentage of bleeding sites in both the groups. However the improvement in oral health were more pronounced in the group where health education was provided by the dentist compared to that of a peer.

Discussion

Transgenders belong to special group of population who are socioeconomically disadvantaged, which limits their access to health care. According to the results of study conducted by Byarakele C et al in Bhopal, 99% of the transgenders were unskilled workers and hence their earnings for daily life was minimal.[13] According to the census 2011, literacy levels of transgenders were 56%, considerably lesser than the national average.[2]The lesser literacy rate, coupled with gender discrimination, contribute to the inaccessibility of health care and limited knowledge about oral health and general health, as reported by Arjun TN et al in his study.[3] Saravanan et al reported a prevalence of 83% periodontal disease among transgenders in Chennai city,[10] higher than one reported by Shakthi et al in 2011 among male and female population of Chennai city which was around 65% .[14] Study conducted by Hongal et al observed that 54.6% of transgenders indulged in chewing products such as Gutka (Dry tobacco with lime slakes) betel nut, betel quid, gutka etc. Though a variety of prevention strategies have been advocated, health education is the most cost-effective method of bringing a change in their health status.[12] It has been well-documented in dentistry and other health areas that correct health information or knowledge alone does not necessarily led to desirable health behaviours. However knowledge gained may serve as a tool to empower population groups with accurate information about health and health care technologies, enabling them to take action to protect their health.[15] The goal of oral health education is to

improve knowledge, which may lead to adoption of favourable oral health behaviours that contribute to better oral health. Health education providers can be a dentist, dental hygienist, peer led, teachers, parents etc.[15] Every individual mode of health education has its own merits, drawbacks as well as their own sphere of effectiveness. It has been observed that different educational methods may be specially suitable for different groups of people depending upon their age, sex, educational qualification, background and nature of job.[16]

Oral health education has largely been imparted by dentist and dental hygienist. Few dental auxiliaries are also given responsibility to deliver oral health education in their domains and to the society. Study conducted by Haleem et al found that the group educated by a dentist was reported being encouraged to practice better oral health than teachers led method.[17] The gingival bleeding reduction was 5.5% among the dentist led group and 0.08% among self-learning group. [15] These findings correlate with the present study as the gingival bleeding sites reduced from 25% to 19% among the dentist group. Srivatsava R et al found that dentist-led group showed lower PLAQUE INDEX and ORAL HYGIENE INDEX -SIMPLIFIED scores as compared to the teacher-led group. In our study though both the groups showed statistically significant improvement in knowledge, the dentist led group showed better improvement in oral health practice over the study period.[18] Study by John B et al also found that school children who received health education from the oral health professional showed improvement in oral hygiene maintenance.[19]

Peer led health education strategies have been recognized as a popular and effective method of providing health education. According to Mellanby et al, peer-led strategy is more effective than the adult-led strategy in improving health related behaviour.[20] Meta-analysis by Cuijpers et al showed that the peer-led drug prevention programs were more effective than the one led by the experts.[21] Study results of Haleem A et al concluded that that the peer-led strategy reduced 10.7% of gingival bleeding sites, which was higher than the dentist-led strategy and comparatively more effective than the teacher-led and self- learning strategies of oral health educational strategies in improving preventive oral health behaviour of adolescents. [15] In our study a reduction of 6% in gingival bleeding sites was observed in the peer-led group. However aspects related to ‘Poor oral hygiene causing gingivitis’ and ‘consumption of betel-nut containing products’ has been shown to be strongly influenced in the peer group pressures. This finding assumes significance as peer-led group could be used to tailor certain aspects of health education.

The following could be seen as certain limitations of our study. The lack of scientific method for sample size calculation could have contributed to error in the present study. Further this study was restricted to Tamil speaking transgenders and hence the extrapolation of this study to the general population is questionable.

Conclusion

The results of the present study showed that through health education provided by the dentist and peer-led produced a statistically significant improvement in oral health knowledge of the transgenders, the group led by dentist exhibited better oral health status than their counterparts. The findings of this study ascertain the factor that health care professionals are seen as better advocates of health in this population.

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Table 1: Comparisons of oral health knowledge and bleeding sites among groups before and after intervention.

Variables	Group A		Group B		P value
	Before	After	Before	After	
Oral hygiene practice	96 %	100 %	94 %	98 %	0.000*
Knowledge	0 %	47 %	0 %	18 %	0.000*
Tobacoo	67 %	49 %	67 %	42 %	0.000*
Alcohol	12 %	9 %	13.3 %	7 %	0.322
Bleeding sites	21 %	13 %	25 %	19 %	0.000*

Mc nemer test *p value <0.05.