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Factors influencing consumers' choices of oral hygiene products: A cross-sectional study

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Abstract

Background: Environment, peer-groups, and salespersons influence consumers' purchasing decisions regarding oral hygiene products. Other influences include various cultural, social, demographic, and socioeconomic factors. This study was designed to determine factors motivating and influencing consumers while choosing oral hygiene aids. **Methods:** 410 patients (age, 10–70 years), who visited the outpatient department of Sheikh Zayed Medical Complex, Lahore, Pakistan, were subjected to a close-ended questionnaire survey. Factors investigated included cost, packaging, media advertisement, perceptions, and previous experiences. **Results:** The cost of oral-hygiene products (82%) were the biggest influence. Advertisements influenced 55% of consumers in their purchase decisions regarding oral hygiene products. Reason for product use was disease prevention (58.7%) and freshness of breath (31%). Logistically, females were significantly 0.66 times less likely to be affected by media advertisements. Low income and occupations were 2.27 times more likely to be influenced by advertisements. Price was not significant meaning all categories were influenced by price equally. **Conclusion:** Consumers' choices of oral hygiene products were influenced by information available through mass media and the products' cost-effectiveness. Dentists should be aware of these influences and should accordingly advise their patients considering their needs and influencing factors.

Keywords: advertisements, behavior, oral hygiene

Introduction

Environment, family, and salespersons influence consumers' decisions regarding their oral hygiene care.¹ In addition, several cultural, social, personal, and psychological factors also influence consumers' purchasing decisions regarding oral hygiene products.² Perceptions regarding the available oral hygiene products develop due to the above mentioned factors.³ Consumer behavior depends on the process of deciding why, when, and how to purchase a required product from a variety of available choices.⁴ The more a person believes to have subjective knowledge about a product, the more confident they would be in their buying decisions.⁵

Oral health varies based on socioeconomic inequalities globally and depends on factors such as occupation, social-class, income, and education.^{5,6} A higher income results in increased acquisition of hygiene aids and a higher education is correlated with better knowledge of healthy behavior and better access to healthcare resources.⁷ Thus, inequalities may be related to making poor choices regarding oral hygiene.

In Pakistan, the dentist-to-population ratio is 1:16,426, which is critically low.⁸ This ultimately results in poor knowledge, attitude, and practices regarding oral hygiene.⁷ Most people in Pakistan still use traditional products such as neem twigs, ash, and salt or other herbal products for cleaning their teeth.⁹ Favorable oral health depends on continuous and appropriate oral hygiene practices.^{10,11} The most abundantly available oral hygiene products are toothbrushes and toothpastes. Other tools include dental floss, miswak (wooden stick), and interproximal brushes. A consumer's choice regarding the appropriate tool may be influenced by personal motives or advice from community workers.¹² Media advertisements usually portray that certain products work like miracles and claim that such products completely cure oral diseases such as toothache and sore or bleeding gums. Such claims presumably influence consumers' purchasing decisions regarding oral hygiene products.¹³ In addition to advertisements, physical properties of products, such as their taste, flavor, color, and appearance are also influencing factors.¹⁴ From a consumer's perspective, self-noted improvement in oral hygiene, brand, credibility of the company manufacturing the product, ingredients, and availability of product

information are some other factors which influence a consumer's choice of a toothpaste.¹⁵

This study aimed to examine the different factors influencing consumers' purchasing decisions regarding oral hygiene products by conducting a structured close-ended questionnaire. The study findings will enable dentists and manufacturers to understand what urges consumers to purchase oral hygiene products. The study findings will eventually help companies to design and provide better oral hygiene products and enable dentists to prescribe oral hygiene products according to their patients' status, needs, influences, and beliefs.

Methods

A close-ended questionnaire-based survey was carried out among the patients visiting the outpatient department of Sheikh Zayed Medical Center, Lahore, Pakistan. This was a cross-sectional study on participants attending the World Oral Health Day camp in March, 2016. It was a convenient sample survey of all participants attending the camp. All the doctors from oral health department volunteered to conduct the survey. Due to the high number of respondents, they were calibrated against a gold standard role-model interviewer for elimination of inter-examiner error (Kappa score 0.9). The questionnaire was designed in English, translated to Urdu, and finally back translated to check its validity. After complete validation, it was applied for the study. Participants aged 10–70 years and with no mental disorders were included, and those who did not provide consent were excluded.

In addition to the questions regarding the patient's demographic profile including age, gender, education, occupation there were 15 questions regarding the mode of teeth cleaning and factors that influence them to purchase oral hygiene products. The first question asked whether they cleaned their teeth and how many times they cleaned their teeth. This was followed by questions regarding their brushing aids (tooth paste, tooth powder, dantun, miswak) and tools used (tooth brush, miswaak, dantun). These questions were followed by those regarding influences (advertisements, packaging, price). Participants were also asked about switching of brands, reasons underlying the switch, and self-reported improvement in oral conditions after switching.

Ethical permission was obtained from the Executive Committee of Sheikh Zayed Hospital. Verbal consent was obtained from all participants. For participants <18 years, consent was obtained from a parent or guardian during an interview with them before the questionnaire was completed.

After gathering all the completed questionnaires, total responses for each item were tabulated. Data was

entered and analyzed using SPSS version 20.0, IBM Corporation. Age was presented as mean with standard deviation. Other variables were presented as frequency and percentages. Logistic regression was used to analyze the association between variables.

Results

In total, 410 individuals were included in the study (mean age, 28 years). The study sample comprised more males (66.1%) than females, and 31.5% had manual labor jobs. Demographic and oral hygiene habits data are shown in Table 1. Of the 410 participants, 11 (2.7%) reported that they did not clean their teeth, and 206 (50.2%) reported that they clean their teeth at least once a day. Toothpaste was found to be the preferred method for cleaning teeth, and a toothbrush was found to be used the most. Different people have different perceptions on the basis of which they take care of their oral hygiene. Of all the participants, 139 responded that they care about their oral hygiene based on the advice of

Table 1. Sociodemographic characteristics, oral hygiene habits, purchasing influence and brand switching

Variables	N (%)
Gender	
Male	271 (66.1%)
Female	139 (33.9%)
Age	
10–40	284 (69.2%)
41–70	126 (30.7%)
Education	
Basic	99 (24.1%)
Primary	141 (34.4%)
Secondary	100 (24.4%)
Tertiary	70 (17.1%)
Occupation	
Manager	8 (1.9%)
Employed	102 (24.8%)
Manual labour	129 (31.4%)
Unemployed	171 (41.7%)
Teeth cleaning	
Yes	399 (97.3%)
No	11 (2.7%)
Cleaning times	
Once a day	206 (50.2%)
Twice a day	146 (35.6%)
After every meal	18 (4.4%)
Seldom	40 (9.7%)
Cleaning aid	
Toothpaste	367 (89.5%)
Toothpowder	10 (2.4%)
Miswaak	31 (7.6%)
Dantun	2 (0.5%)
Cleaning tool	
Toothbrush	368 (89.8%)
Miswaak	16 (3.9%)
Dantun	21 (5.1%)
Others	5 (1.2%)

Table 1. Continued

Variables	N (%)
Religious influence	
Yes	69 (16.8%)
No	341 (83.1%)
Media influence	
Yes	227 (55.4%)
No	183 (44.6%)
Packaging influence	
Yes	54 (13.2%)
No	356 (86.8%)
Parent/child/doctor influence	
Yes	139 (33.9%)
No	271 (66.1%)
Fresh breath influence	
Yes	127 (31.0%)
No	283 (69.0%)
Healthy teeth & gums influence	
Yes	241 (58.7%)
No	169 (41.2%)
Price influence	
Yes	339 (82.6%)
No	71 (17.3%)
Brand switching	
Yes	243 (59.3%)
No	148 (40.7%)
Reason for brand switching	
Advice	113 (27.5%)
Price	66 (16.0%)
Advertisements	231 (56.4%)
Self-observed improvement	
Yes	259 (63.1%)
No	151 (36.8%)

others (parent, child, doctor). Their choice of oral hygiene products was predominantly influenced by its price. Healthy teeth and long-lasting freshness were the most prevalent reasons underlying the need for oral hygiene. Most individuals considered advertisements an important factor in deciding which toothpaste to purchase was its cost 59.3% of participants admitted to switching toothpaste brands. The major reason underlying the switch was advertisements, as reported by 56.3% of participants. One third of the participants reported that they did not see any improvement by changing their toothpaste's brand, whereas 36.8% reported self-observed improvements. Logistic regression was significant for media influences, price and brand switching (Table 2).

Females were 0.66 times less likely to be influenced by media advertisements when compared to males. Low income occupations were 2.27 (95% CI 1.76–3.10) times more likely to be influenced by media. Age and education were not significantly related to influence of advertisements. Females were 1.22 (95% CI 1.08–2.34) times more likely to switch brands. Younger age group 1.48 (95% CI 1.18–3.42) times more likely to switch brands.

Table 2. Logistic regression for association between variables to media influence, price influence and brand switching: (N=410)

Variables	Odds Ratio	95% CI	p
Media Influence			
Gender	0.66	0.22–0.86	0.01
Age	1.57	0.78–3.56	0.25
Occupation	2.27	1.76–3.10	0.03
Education	1.22	0.50–4.85	0.36
Price Influence			
Gender	1.35	1.01–3.26	0.03
Age	0.74	0.52–5.69	0.43
Occupation	3.25	0.89–7.24	0.80
Education	2.36	0.44–3.74	0.74
Brand Switching			
Gender	1.22	1.08–2.34	0.04
Age	1.48	1.18–3.42	0.03
Occupation	0.89	0.14–1.97	0.08
Education	2.45	0.57–5.64	0.94

Occupation and education were not significant for brand switching. Logistically, price of hygiene aids tended to influence females 1.35 times more than males. Different categories of age, occupation and education were not significantly associated to price influence. The study did not aim to analyze the associations between gender, socioeconomic status, and brushing habits; therefore, analysis for them was not performed.

Discussion

The study findings revealed that consumers' choices of oral hygiene products were based on information available from advertisements and the products' cost. The present study reported that advertisements influence consumers' decisions while choosing toothpastes or toothbrushes.^{4,14,16} The findings are in contrast to those reported by previous studies that reported a higher influence by family or parents.^{4,14,17} A study reported that only 7% of the respondents in their study depended on a dentist's advice while choosing a toothbrush,¹⁶ whereas another research reported that 9.6% of their respondents followed their dentist's advice.¹⁴ In the present study, a higher percentage of people (33.9%) followed advice of others.

Oral hygiene practices in Pakistan are deeply based on tradition and culture and the use of indigenous substances is widely prevalent.⁹ Although toothbrushes and toothpastes were the main products used for the maintenance of oral hygiene among the participants, the percentage of toothbrush use (90%) was lesser than that in the educated group of people (97%) including police recruits in the study¹⁸ and that in the Anganwadi workers of Karnataka (98%) in a previous study.¹⁹ However, the percentage of toothpaste use (90.6%) was

greater than that in the police recruits (82%) and was lesser than that in the Anganwadi workers (98%).^{18,19}

Media is reportedly a main factor influencing the choice of oral hygiene products.²⁰ The use of medicated and steroidal toothpaste was quite prevalent, even if a person or household may not be benefitting or requiring it. However, advertisements claim that such toothpastes are preferable, and the prevalence of their use by our participants indicates that the choice of toothpaste is largely determined by other factors instead of its efficacy.¹⁴ Media was found to be a crucial influencing factor in our study. This suggests that oral healthcare workers must establish an effective relationship with the manufacturers to support the dissemination of useful information regarding oral hygiene products through the media.¹⁶ Manufacturers need to pay more attention on the quality of their products and should not only focus on advertisements to woo and retain a consumer.²¹ In addition, family influences on choices are evident in the fact that a single toothpaste prescribed by a dentist was used by the whole household.

Due to its cross-sectional nature, this study could not suitably evaluate causal relationships. There is no information regarding the timeline. As the questionnaires were self-reported, there is a chance of over-reporting of the results. This study fails to discuss regarding the consumers' psychographics, which include their inner feelings and attitudes. The varied demographic profile of the study sample with respect to education, income, and family size is also a limitation. In addition, the close-ended questionnaire limited the participants' responses.

In the present study, the frequency of people brushing at least twice daily (35.6%) was lower than the 58% in the study on police recruits¹⁸, 67% in the study on Chinese urban adolescents,²² and 62% in the study on Kuwaiti adults.²³ In the present study, only 10.5% of participants used oral hygiene products other than a toothbrush and toothpaste/tooth powder, whereas in another study 11.8% used other oral hygiene products like dantun and miswak.²³ This slight increase in the use of other oral hygiene products may be due to the ease in access to such modern products. Overall, the percentage of participants using other oral hygiene products was less (10.5%) and the selection of these products was mainly based on the dentist's advice. Thus, dentists should focus on educational methods to increase peoples' awareness regarding the different oral hygiene products available and to increase their knowledge regarding the proper selection and use of these products.

Conclusion

Information from mass media and a product's cost influence consumers' choices regarding oral hygiene products. Advertisements should include proper oral

hygiene care methods and instructions as they have a large following. Dentists should focus on educating and motivating people regarding maintenance of oral hygiene, proper brush selection, and use of oral hygiene products. They should also collaborate with the manufacturers to disseminate helpful information and facts regarding oral hygiene products. Dentists should advise their patients considering the external factors that influence patients' choices.

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Conflict of Interest Statement

Results for use of current brand of toothpaste was removed to prevent conflict and authors declare no conflict of interest in this research.

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