

Peoples' Perception on Dental Flossing: A Quantitative Study

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Abstract

Flossing is essential in maintaining good oral health but its importance is undervalued among general population despite efforts made by dental community. Literature review confirms prevalence of caries and periodontal diseases some of which could be reduced or eliminated through good oral hygiene practices especially flossing. The purpose of this quantitative study is to understand what people think of flossing including their awareness level, knowledge level and attitude. A group of fifty (50) study participants were recruited through convenient sampling method and a survey questionnaire with eight (8) questions were given to them which included an exhibit with some pictures. A total of forty-eight (48) valid responses was analyzed to comprehend their perception of flossing. As the survey respondents were a health-conscious group (visit YMCA regularly), their awareness (100%) and knowledge level (96%) was very high and their attitude (100%) was very positive. However, the reasons for flossing (eliminate order or fresh feel 61%) suggests the probability of not practicing flossing regularly in the future is higher. A carefully designed awareness campaign to motivate 85% of those who floss regularly and continue this as a habit for the future and convert 15% of those who do not floss.

Keywords: *Flossing Perception; Flossing Study; Flossing Knowledge; Flossing Attitude; Dental Flossing*

Introduction

Oral health plays a vital role in peoples' lives to have a good quality of life since it acts as a gateway to general well-being. According to FDA, oral health is defined as multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex [1]. In order to maintain the good oral health and to prevent oral diseases, oral hygiene practices need to be followed on a daily routine basis. The ADA recommended three daily oral hygiene practices include brushing, flossing and using mouthwash. Although some people are aware that these three hygiene practices are important, they are not following all three practices every day [2]. So, this study ventures out to find what common people think on one of the important hygiene practices "Flossing" which is essential in keeping their mouth healthy and clean without any oral diseases.

Literature Review

Oral health is overall health but it is often ignored and undermined its importance in general health. In 2016 alone, 65.7 percent people visited dentists [3]. Albeit the fact that they visited dentists, it is difficult to conclude that they floss every day. Not flossing everyday could lead to getting more gum diseases and caries among people. This is evident from a report made by Center of Disease Control (CDC) which shows one out of every two American adults aged 30 and over has periodontal disease [4]. In another study done in 2009 and 2010, estimates that 47.2 percent, or 64.7 million American adults, have mild, moderate or severe periodontitis, the more advanced form of periodontal disease [4]. This percent is even higher about 70% among people who are 65 and older as per a study published in the journal of dental research [4]. Although it was not specified in the literature about the prevalence of interproximal caries, it is noted that approximately over approximately 91% of U.S. adults aged 20 - 64 had dental caries in permanent teeth in 2011-2012 [5]. This percentage is even higher about 96% among older adults aged 65 and above [5]. According to 2015 NCHS data brief, forty-eight percent of adults aged 20 - 64 had a full set of permanent teeth (excluding third molars) [5] and this could indicate that missing tooth or teeth among people is high. All these data underscore the significance of maintaining good oral health and one of ways is having the habit of flossing every day.

Methods

A total of 50 people was recruited from a YMCA (Young Men’s Christian Association) in Greenfield, MA after getting permission from this Y. Convenient random sampling method was followed to recruit study participants. Once it was done, all participants were given a simple survey to fill out and they could take as much as time they want to answer the survey questions and then the answered survey was collected on the same day by the principal investigator in- person. Some of the survey questions include; how often they floss? Do you know that flossing will prevent caries in between the teeth? If you don’t floss, what prevents you from flossing? etc. After collecting the survey, the data was entered in to excel for an analysis and the analysis was done using descriptive statistics and t test etc. Of the 50 data, 2 data were eliminated based on exclusion criteria. The exclusion criteria for this study includes; people who are unable to read and write English, people with complete dentures as they don’t need to floss.

Results

The demographics of the survey participants is summarized in table 1. The mean age of the survey participants (n = 48) was 42.6 years and over 95% of the participants were White Caucasians. The gender distribution among the participants was 65% female and 35% male. 74% of participants had a college degree or higher, 26% had at least a high school degree. The family income split followed the same split as education with 74% earning above \$50k and 26% below \$50k.

Demographic Variables	Count (n)	Percentage (%)
Sex		
Male	16	35%
Female	30	65%
Race		
White	46	96%
African American	2	4%
Hispanic/Asian/Other	0	0%
Education		
No formal education	0	0%
High School	12	26%
College Degree or greater	34	74%
Family Income		
Below S50k	9	26%
Above S50k	37	74%

Table 1: Summary of Demographics of Survey Participants (n:48).

Flossing awareness and knowledge

There were two questions in the questionnaire that specifically tested the flossing awareness level of the participants. The first one assessed the general awareness if they heard about flossing for which 100% said they have heard about it. The second question was designed to understand if they have seen some of the most recent flossing aids available in the market. The participants were shown a sample picture of three that are available in the market as shown in figure 1. Only one out of the 48 participants who responded said they haven’t seen these new flossing aids.

The knowledge level of the participants was tested through a question “Do you know that Flossing once a day is necessary and do so will prevent carries and gum diseases?” Of the 48 who responded, 83% said they know the benefits of flossing and 17% said they did not know. When the knowledge was analyzed as a function of age which revealed interesting trend of 83% of adults who are 45 years and above were knowledgeable compared to only 61% who were less than 45 years old.



Figure 1: Newer more convenient methods of flossing.

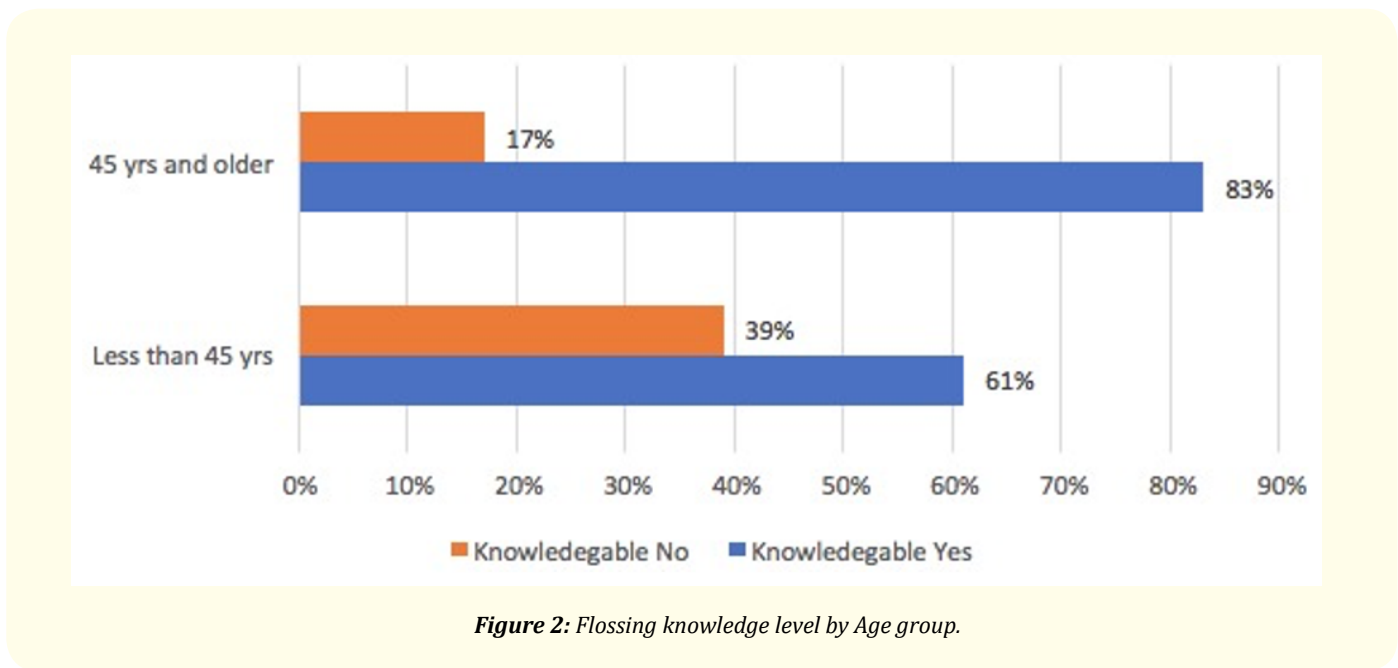


Figure 2: Flossing knowledge level by Age group.

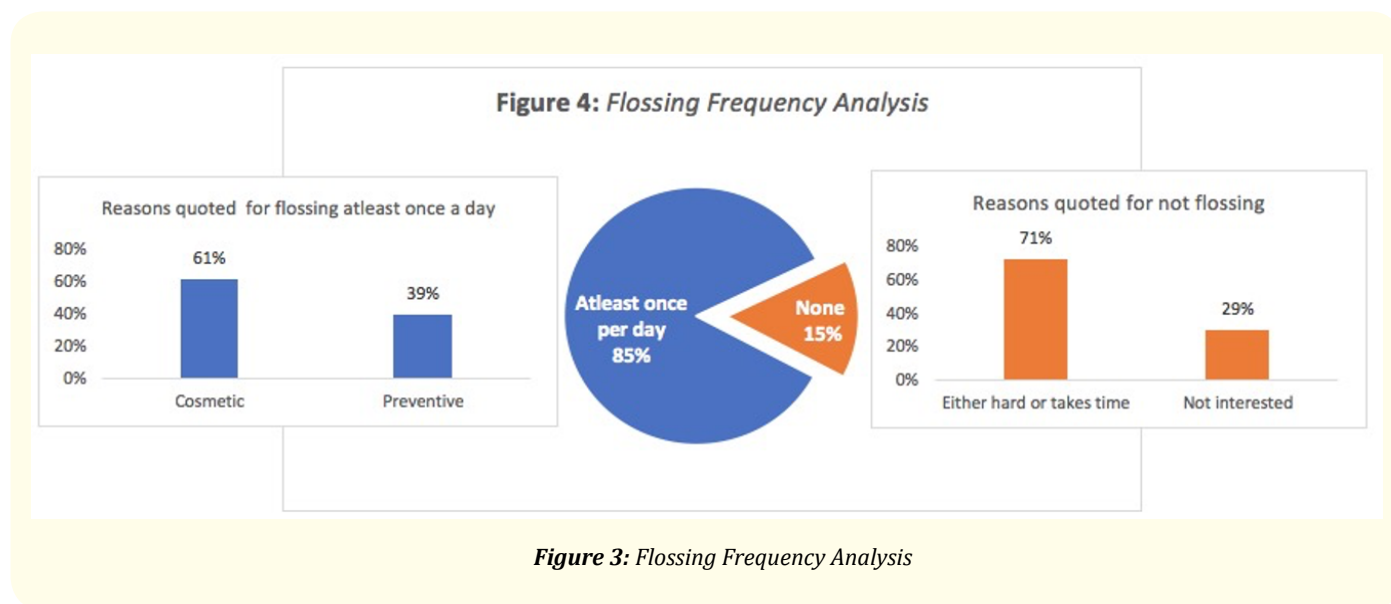
Flossing frequency analysis

The purpose of flossing frequency analysis is to ascertain how many of the participants flossed at least once a day as recommended by American Dental Association (ADA) and the reasons quoted for flossing (among those who floss) and not flossing. As shown in figure 3, 85% of the participants flossed at least once per day and 15% do not floss regularly or never floss at all.

Among the 85% who said they floss regularly, the motivation behind 61% of the respondents was either to get a fresh feel or eliminate odor (cosmetic) and 39% flossed to prevent gum diseases or caries (preventive). Likewise, 15% of those who do not floss regularly quoted either it is hard or takes time (71%) and not interested (29%).

Reasons for flossing and education level

Among high school graduates who flossed regularly, 55% gave fresh feel or prevent bad odors as reasons for flossing. Similar data for college graduates was 64% leading to an inference that there is no significant difference between education levels and reason quoted for flossing.



Discussion

Based on the descriptive statistics it can be inferred that this is a predominantly White Caucasians, highly educated and high income group with more female. The awareness level of flossing is extremely high among this group as everyone heard of flossing have come across new flossing aids. This could be because this group is a very health conscious group as they regularly visit YMCA and this could also mean that they regularly visit dentist. With such a highly aware and informed group, only one-third of the them flossed for preventive reasons such as preventing caries and gum diseases and clear majority of them did it for just to get a fresh feel and eliminate bad odors. This means two-thirds of the respondents who quoted non-preventive reasons for flossing could quit flossing at any time as they don't know the importance of flossing every day. So, the dental community needs to emphasize the right cause and effect awareness associated with flossing like flossing will prevent caries which will in turn reduce the spread of infection in the body. One of the ways such awareness can be created is during the dental visits the preventive benefits of flossing shall be reinforced. On the other hand, 15% of the respondents do not regularly floss stated that it is very hard to floss or it takes time or they are not interested at all. To motivate this group to floss regularly, a slightly different tact can be employed. One of them is that they could be encouraged to use easier and more convenient flossing aids available in the market as most of them have seen or come across such products. This encouragement must be supplemented with a self-empowerment approach through education on the overall health benefits of flossing.

Additionally, the results also suggest that the older group of participants in general have a higher level of knowledge about flossing (83%) compared to only 61% of those who were less than 45 years old. One of the reasons for such a difference in data could be because as people get older they might get oral problems which might be a driving force to visit dentist regularly and dental visits exposes them to elevated level of knowledge associated with flossing. This means when people who are under 45 years get older, they might follow suit. As mentioned above, to intervene this group of under 45 years, general awareness about oral health and the importance of diligently following oral hygiene practices regularly must be provided.

Limitations and Future Implications

This group of 48 respondents were YMCA members implying that they are highly health conscious. The results cannot be concluded for a general population. In addition, large population study needs to be done to validate the findings of this study. The demographics of this group were weighted more towards female (65%) and White Caucasians (96%) which has an impact on how the perception of flossing can vary from this group to a more broader population. Massachusetts being the healthiest state in the US might have skewed the data

towards more ideal responses received from the respondents [6]. When deriving inferences from study future authors must note that a convenient sampling method was used for this study while a random sampling could have been a better choice to extrapolate population conclusions. This study provides a baseline for future researchers who would like to understand the people's perception of flossing either through quantitative or qualitative approach. This study gives key inputs regarding demographics of target audience for the public health officials focusing on improving population level oral health.

Conclusion

Flossing, in addition to brushing and mouth wash use, is one of three key hygiene practices recommended by ADA. While flossing as a hygiene practice is reinforced in dental offices, people often tend to ignore instructions. This was the motivation behind this study to assess people's knowledge, awareness and attitude towards flossing. As described above, this study group participants showed a very good level of knowledge towards flossing and have a positive attitude towards making flossing as a habit in the future. Although this health-conscious group exhibited positive attitude, this might not be translated to flossing regularly as the reasons given for either flossing or not flossing is weak and could be reversed causing the participants to quit or not be interested in flossing at all. For instance, most of the respondents who floss regularly gave fresh feel and prevent bad odor as the reason while people who do not floss stated that either it is hard or it takes time or that they are not interested at all. In order to maintain the habit and convert people who do not floss regularly, awareness should be created by the dental community and other health promotions organizations like YMCA. This awareness program must focus on clear cause-and-effect association of flossing regularly.

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