



Difference between Motivational Counseling versus Traditional Dental Education of Oral Health Knowledge among the Public-School Children of Rawalpindi

Nadia Rehman Alvi¹, Amjad Chaudhry¹, Mudassir Abbasi¹, Sahar Shah¹, Naveen Farooq¹

¹Health Services Academy

Corresponding Author:

Nadia Rehman Alvi

Email:

naadya.waqas@gmail.com

Abstract

Background: Among many other health issues around the globe oral disease is one of the emerging health problems in the domain of non-communicable diseases. The objective of the study was to compare the difference between motivational counseling (MC) and traditional dental education (TDE).

Methods: Intervention study in which two groups were made, each from a different randomly selected Federal Government School. One school for MC technique and the other for TDE. The sample size was 250 in which 147 were for MC and 103 for the TDE. A pre-test baseline was taken with the help of a pre-structured questionnaire to identify the knowledge, attitude and practices of mid-level standard students. Later on post-test was conducted in both the groups after 15 days interval, in which a refreshing session on the seventh day was given to the intervention group only.

Results: The MC group showed increase in knowledge about oral hygiene, gums, tooth cleaning material and dental care practices. TDE group showed significant increase only in knowledge about oral hygiene.

Conclusion: Schools provide the most suitable platform for promoting oral health. So, it is necessary to have an effective method of education for developing self-driven attitude through MC.

Keywords: Motivational counseling, oral health promotion, oral health education, oral health intervention

Introduction

Mouth is the window into the health of a person's body. Oral health is one of the most important areas demanding meticulous care, but is often taken for granted. Oral health conditions are amongst the most important public health issues (1), as they greatly diminish the quality

of life for those undergoing pain and discomfort due to acute and chronic infections caused by dental caries (2-4). These infectious states may impair physical, social and psychological wellbeing of an individual (5). According to the report of global burden of oral diseases 2010, oral health has affected 3.9 billion people. Carious lesion which is not treated in permanent dentition is the main prevalent condition

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for the whole Global Burden of Diseases (6). This all affects children's studies due to disturbance in daily routine/ missing school, thereby influencing their mental and social wellbeing at school (7). Therefore, eradicating children's tooth ache in any carious process or infection can bring back child to his normal routine. This is necessary for his growth and better development so that he / she can properly eat, sleep and work actively (8). Each year, more than 49 million hours of school students are wasted around the world, because of oral issues (9). From childhood to adolescence a deep rooted behavior of oral wellbeing should be created through oral health education at schools. Schools are the most appropriate place to impart this information about oral health and its significance (10). Promoting oral health at community level is an integral part of public health in preventing dental health problems (11). School children are the most suitable target for promoting the oral health. (12) They can easily get a collective knowledge and idea about new topics. So, motivational counselling in young children of age 12 and 15 is most suitable, as they have complete permanent dentition except the third molar. Moreover, they are in pre-adolescent phase in which they should have an appropriate understanding of the consequences related to bad oral hygiene (13). Many preliminary researches have been done that give a basic idea for promoting oral health at community level. The purpose of this exploration is to gather profound evidences and indications to give a dependable pattern for the execution and monitoring of oral health (14).

Methodology

This is a pre and post intervention study design. In this study, motivational counselling and traditional dental education techniques are applied on two different groups. Knowledge retention is then gauged between the two samples after comprehensive and ardent comparison of their post intervention standing. Results are drawn after careful articulation from both samples.

Sample Size Calculation

Sample size was 103 for Traditional Dental Education group and 147 for Motivational Counselling group. First a pre-test was conducted for both the study groups by giving them self-administered questionnaires which were filled by mid-level students of two different Federal Government Schools

in Rawalpindi, having similar environments and students of similar socio-economic backgrounds.

Intervention Motivational Counseling

In the first Federal Government School, the motivational counselling was given to 150 students in 10 sessions of 15 students each. Sample size of this school was kept larger than the other school which was administered TDE, as overall strength of this school was also larger. Dental education in this school was given with the help of info graphics showed on computer screen. All the oral cleaning materials and tooth brushing models were demonstrated to the students. An interactive session of 35- 40 minutes was given by the author herself based on principles of motivational counselling. Written handouts were provided to all the participants. At the seventh day a refreshing session was conducted on the same pattern. After the completion of 15 days a post test was conducted among the selected groups and was given the same questionnaire. The participants who were absent during refresher session were excluded from the post test. Overall the sample size did not undergo any significant reduction in post-test.

Traditional Dental Education Group

The second Federal Government School was administered TDE. TDE was given to 130 students of this school in 4 sessions of 30-35 students each. Sample size of this school was kept smaller than the other school which was administered MC, as overall strength of this school was also less. Dental education was delivered to these students in the form of traditional lecture. First of all a pre-test was conducted with the help of pre structured questionnaire. Then a traditional lecture was given in a class room for 35 minutes. Information was delivered with the help of posters. Tooth cleaning materials along with tooth brush model and written handouts (brochures) were also provided to the participants. Post test data was collected after 15 days with the help of the same questionnaire. In TDE group school a lot of absentees were observed in the post test as it was conducted after mock exams at the start of the month of Ramadan, only a few days before the summer break. Study duration was from April 2018 - June 2018. Primary data source was school registry and questionnaire.

Sampling Technique

For the collection of data, school records were used to identify the total number of children studying in mid-level standard. Consecutive sampling technique was

used for studying the population. All students of middle level standard from two secondary federal public schools formed part of inclusion criteria for this research. Furthermore, students with any oral discrepancies or diseases, students having orthodontic treatments (Braces, retainers etc.) formed exclusion criteria and were not part of this study.

Pretest or Pilot Study

The questionnaire used in this study was taken from the study already done in District Rahim Yar Khan Punjab. However, a small pilot study was done with 15 participants. During the pilot testing, shortcomings in data collection were identified and edited as required for the final collection of data. The questionnaire was in English language and required 5 to 10 minutes to solve. The tool contained twenty five questions divided into four main constructs. The four main constructs comprised knowledge about oral hygiene, gums, diet and tooth cleaning material / dental care practices. Four to six questions were included under each of these constructs.

Ethical Considerations

Approval of the study was taken from Institutional Review Board of Health Services Academy Islamabad. For ethical considerations, prior consent was sought from concerned school authorities. Written consent was taken from participants and confidentiality was maintained by keeping the information strictly restricted to the researcher. Data was used solely for the purpose of this study. There was no monetary compensation to the study participants.

Results

Table 1. Socio-Demographic Variables

| | Motivational counselling | Traditional dental education |
|----------------------------|--------------------------|------------------------------|
| Mean age | 13.75 | 13.68 |
| Standard deviation for age | +-. .950 | +-. .757 |

As mentioned before four major variables are evaluated in this examination; knowledge about oral hygiene, gums health, diet & oral health, tooth cleaning materials & dental care practices. Results were scored on these four main categories under which variables are explained briefly in tables and charts given below. Descriptive and inferential data analysis are given under those four constructs

according to the study objectives to draw some insightful deductions.

Table 2 & 3 show inferential results depicting the difference between MC and TDE groups. The four basic categories of variables, their mean differences and their respective P-values are showing the significance. MC group has shown increase in knowledge about oral hygiene, gums and tooth cleaning material and dental care practices. TDE group has shown significant increase of knowledge only in oral hygiene.

Table 2. Motivational counselling group

| VARIABLES | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|--|--------------------|----------------|-----------------|---|---------|--------|-----|-----------------|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| Knowledge about oral hygiene | 1.86395 | .34402 | .02837 | 1.80787 | 1.92002 | 65.692 | 146 | .000 |
| Knowledge about gums health | .19048 | 2.26448 | .18677 | -.17865 | .55960 | 1.020 | 146 | .309 |
| Knowledge about diet and oral health | 3.46897 | 3.10702 | .25802 | 2.95896 | 3.97897 | 13.444 | 144 | .000 |
| Knowledge about tooth cleaning materials & Dental care practices | 1.80690 | 2.66744 | .22152 | 1.36905 | 2.24474 | 8.157 | 144 | .000 |

Table 3. Traditional dental education group

| VARIABLES | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|--|--------------------|----------------|-----------------|---|---------|--------|-----|-----------------|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| Knowledge about oral hygiene | 1.85437 | .35446 | .03493 | 1.78501 | 1.92364 | 53.094 | 102 | .000 |
| Knowledge about gums health | .60784 | 2.23011 | .22081 | -.16981 | 1.0458 | 2.753 | 101 | .007 |
| Knowledge about diet and oral health | .66019 | 3.21624 | .31691 | -.03161 | 1.28877 | 2.083 | 102 | .040 |
| Knowledge about tooth cleaning materials & Dental care practices | .60194 | 2.98145 | .29377 | -.01925 | 1.18463 | 2.049 | 102 | .043 |

Discussion

The sample size of 250 school children of mid-level standard of Federal government schools were administered with the research methodology. Once

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the tests were conducted, the pre- and post-knowledge levels were paralleled. Motivational counselling technique was given to one school, where as traditional dental education method was given to another federal public school randomly. Before we dive into the results of the study lets first re examine the two perspectives under the light of existing narratives.

Motivational Counselling is an emerging trend initially utilized for the behavior change therapy (15) for drug addicts by Miller and Rollnick. Later on, that method was adopted for other different issues such as to change the life styles of hypertensive, diabetic and smoking patients (16). Additionally, that method is now being utilized for improving the oral health as well among the preschool children's care givers, parents, and teachers (17). In recent studies this method was also used for oral health improvement among young students of schools and colleges. (18) (19, 20).

The results obtained from the study showed the higher significance for the Motivational Counselling group as compared to Traditional Dental Education group. An overall improvement regarding oral health knowledge, attitudes and practices was observed in both of the groups. (21, 22). The Post-tests related to the first construct i.e., Knowledge about the oral hygiene of both groups (MC and TDE) have shown significant results. Basically, this main construct included the knowledge about the daily routine of the oral hygiene maintenance. The questions which were asked from the participants were very easy and all related to it so, they learned and managed to retain all the related information very well. The participants initially didn't know the correct answer about the consequences of not cleaning teeth daily. These results were quite familiar with the research done in District Rahim Yar Khan of Pakistan. Study revealed that knowledge improved in both cases and control groups after the intervention (23). In that particular construct they were also asked about the importance of fluoride in toothpaste. In addition, they were not familiar with that knowledge. But, after the intervention and lectures they knew the importance of using the fluoride tooth paste (24). The TDE group has showed significant outcome in knowledge about the oral hygiene only. Similarity is observed in a quasi-experimental study which was done in Srilanka (25).

Second construct of the study was Knowledge about gums health, which did not show any worthwhile

results. Some of the questions related to this construct have shown some improvement in knowledge, but overall, both the groups (MC and TDE) did not show any substantial change. The reason for only slight improvements would be; people generally have a perception to only clean the teeth and usually don't know the importance of gums health. That's why students have no idea about purpose of using mouth wash and being unaware about the importance of dental floss (26). They didn't know the importance of inter dental cleaning as well. The idea of using mouth wash and dental floss was almost new for them and also a bit harder to retain for a longer duration. Due to this reason no noteworthy change was seen in intervention group as well.

Now coming over to the third construct, which was Knowledge about diet and oral health. Diet plays a fundamental part in causing dental decay, as intake of sugar related products can damage the oral and systemic health simultaneously (27). For this construct, MC group has shown substantial results as compared to the TDE group. The young participants were asked about the effect of sugary diet, soft drinks and snacks on oral health. While doing the interventions and interactive sessions of motivational counseling, it was discovered that the participants considered sugar, sweets and candies products were the most effective food items in causing the dental decay. The similarity of this result can be seen in the study done in Greece, where experience-based learning was compared with traditional method for promoting the oral health among the school children aged 10. For this Greek study, post test results were statistically significant in the intervention group only (28). As that construct was diet oriented so, this part also included in asking the difference of junk food and healthy diet. The participants of both groups were quite aware about the difference. Initially the students were not aware that how the snacks and junk food can damage the oral health, and later they gained knowledge about it and MC group learnt better. The results resemble with the study done in Tanzania (29)

The fourth and the final construct of the study was Knowledge about tooth cleaning materials and dental care practices. In that construct the frequency of brushing teeth, frequency of dental visits yearly, taking snack per day and few other questions were asked. Initially both of the group participants opted to brush once daily. After intervention in both the student groups, frequency of cleaning teeth increased

from once to twice on daily basis. However, statistically the results were more significant in MC group as compared to TDE. The results are quite similar to a school based study an educational program done in Gujrat, India (30). Regarding the frequency and importance of visiting the dentist regularly, participants were not sure and mostly denied visiting the dental clinic. In the pre test results the general perspective behind visiting dental clinic was pain and this was the most common reason of not going to regular dental visits among the participants. The current study results were consistent with the study done in Egypt university students (31). After giving intervention, the importance of visiting dentist regularly was significantly increased in MC group as compared to TDE.

Conclusion

In this day and age, multiple expedient methods and strategies are available to promote oral health. The study results suggested that better knowledge was imparted using school based oral health education, which figures out as the most favorable platform to achieve desired oral health outcomes. The retention levels of both groups also suggested that school based oral health education coupled with motivational counseling is a better way to be used in future. This study was based on implementation of oral disease prevention programs in schools, where knowledge and awareness regarding oral health can be spread easily. This method of oral health promotion supplemented by motivational counseling was ideal for improving or changing the behavior. Traditional dental education in comparison is less effective as explaining oral hygiene in detail to young students in a formal class environment isn't that effective. In comparison interactive sessions with smaller groups achieve greater effectiveness as they not only demonstrate but also communicate, interact and develop self-driven attitude in individuals to adopt a healthy lifestyle consciously.

Recommendations

The study should be conducted on a large scale sample to validate and to better generalize the findings.

- Oral hygiene related training programs should be conducted for school teachers.
- Regular dental check-ups may be conducted for school children especially in government sector.

- School syllabus should include topics related to dental hygiene.
- Children should be educated regarding dental hygiene with special focus on rural / remote area schools.
- Motivational interviewing principles should be included in an ongoing program of dental education.
- Dental professional teams should be created and specifically assigned for dental education programs and tasks.

Limitations of the study

The main limitation of the study was shortage of time between the Pre and Post tests, which ideally should be minimum one month for a significant outcome. However, the entire data collection effort was completed within a month due to the approaching summer vacations in subject schools. This short duration also resulted in weaker evidence for the study.

There is a slight margin of self-reporting in the data related to oral health knowledge, attitude and practices.

As the researcher has conducted all the interventions and data analysis so there is a chance of researcher bias present in the current study.

Acknowledgements

I am thoroughly grateful to my supervisor Dr. Amjad Chaudhry for his guidance, as he rendered his supervision throughout my research. I wish to record my immense debt to the learned faculty of HSA, who were always ready for providing me with much needed guidance. I am also thankful to the allied staff who have always been there for help throughout.

Conflicts of interest

No potential conflict of interest declared.

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