Predictors of Oral Hygiene Behavior And Expected Social Outcomes In Patients Attending Private Dental Institution In Muradnagar, Ghaziabad

Sunder Kote[1], Aruna D S[2], Avnish Singh[3], Mohit Dadu[4], Dimple Arora[4]

ABSTRACT

Background - The assessment of Predictors of oral hygiene behavior based on theory of planned behavior (TPB) plays important role in planning oral health care interventions for specific target population. **Aim -** To determine the role of predictors of oral hygiene behavior on expected social outcomes in patients attending private dental institution in Muradnagar, Ghaziabad. **Materials & Methods -** Cross sectional survey on 598 OPD patients was done at Private Dental Institution in Muradnagar, Ghaziabad. The ethical clearance for study protocol was obtained from the institution. Self administered pretested, validated, structured, closed ended questionnaire with 28 items based on Attitude, Social Norms (SN), Perceived Behavioral Control (PBC) and Expected Social Outcomes (ESO) were filled by investigator by interviewing patients who participated voluntarily. Responses were assessed on 5 point Likert scale. Pearson's correlation and linear regression was used to analyze the effect of predictors of oral hygiene behavior on ESO. **Results -** Regression analysis revealed that attitude, SN, and PBC accounted for 29% of the variance in ESO. **Conclusion -** Predictors of oral hygiene behavior emerged as important factors for ESO.

Key words: Oral Hygiene Behavior, Expected Social Outcome, Planned Behavior, Out-Patients.

INTRODUCTION

"To keep the body in good health is a duty, otherwise we shall not be able to keep our mind strong and clear." ---- Buddha.

Oral health is an important part of an individual's general health and is essential to quality of life (QoL).[1] Most oral diseases are not life threatening, although they may have negative effects on the QoL.Professionals in oral health care have recognized that oral self care and oral hygiene outcomes are of great importance for developing oral health care interventions.

'One size fits all' – approach for adequate oral hygiene behaviour may not be effective, as there are differences in lifestyles and risk factors that arise from environmental, economic, social and behavioural causes, such as poor living conditions and low education, as well as differences in traditions with regard to oral self care.

The identification and assessment of the psychological determinants of oral hygiene behaviour (OHB) within subgroups are therefore of great importance for the development of oral health care interventions that effectively target the determinants in population subgroups.[2]

The theory of planned behaviour is used as a

Corresponding Author: Dr. Sunder Kote, Room No. 5, Department of Public Health Dentistry, I.T.S Centre for Dental Studies and Research, Delhi-Meerut Road, Muradnagar, Ghaziabad - 201 206, Uttar Pradesh, India.
Email: sunder_kote2000@yahoo.com, (M) 0091 9242212722

1 Reader, Department of Public Health Dentistry, I.T.S - Centre for Dental Studies and Research, Ghaziabad.
2 Professor & HOD, Department of Public Health Dentistry, I.T.S - Centre for Dental Studies and Research, Ghaziabad.
3 Senior Lecturer, Department of Public Health Dentistry, I.T.S - Centre for Dental Studies and Research, Ghaziabad.
4 Post Graduate Student, Department of Public Health Dentistry, I.T.S - Centre for Dental Studies and Research, Ghaziabad.

basis for understanding the psychology of OHB: one would expect that OHB is determined by an individual's attitude (ATT) towards OHB, social norms (SNs) and perceived behavioural control (PBC).[3]

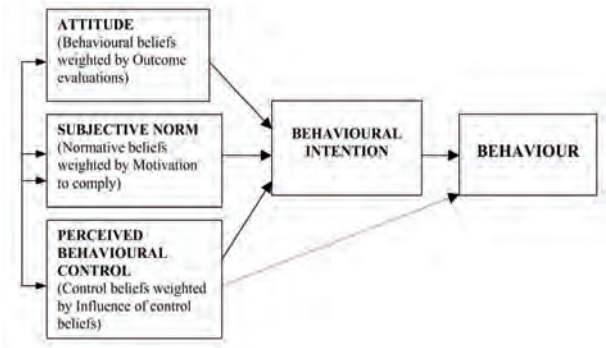

Fig 1: Model of Theory of Planned Behavior

Health-related concerns are not the only motive for oral self-care. Social outcomes also play a potential role for specific health behaviour.[4]

Therefore, we assessed the psychological determinants of oral hygiene behaviour and also the perceived social consequences, i.e., how healthy teeth might affect a person's interpersonal interactions by conducting a study to determine the impact of predictors of oral hygiene behavior on expected social outcomes in patients attending private dental institution in Muradnagar, Ghaziabad.

MATERIAL & METHOD

A Cross sectional survey was conducted in I.T.S – Centre for Dental Studies and Research, Ghaziabad on 598 OPD patients to determine the impact of predictors of oral hygiene behavior on expected social outcomes in patients attending private dental institution in Muradnagar, Ghaziabad.

Study Setting

The study area was private dental institution in Muradnagar, Ghaziabad. Ghaziabad was declared as a district on 14th November 1976. It is 19 km east of Delhi and 46 km southwest of Meerut. It is a planned industrial city in the Indian state of Uttar Pradesh with a population of around 4,661,452 as per 2011 census.

Study Population

Survey was conducted among patients attending private dental institution. There are several private dental institutes in the district. Out of which one private dental institute (I.T.S – Dental College, Ghaziabad) are involved in the study.

(A) Organization of the survey-

Preparation of protocol

A written protocol was prepared for the survey. The protocol contained information like objective and the purpose of the study, description and the type of information to be collected, sampling methods and Statistical methods to analyze the data.

Details of the Pilot study:

Pilot study was carried out on 60 (10%) subjects in the month of june 2012 before starting the main study to check feasibility of proforma and validity of questionnaire. The data of the pilot study were not included in the main study and the necessary modifications were made in the final proforma.

Ethical Clearance:

Before starting the study, ethical clearance was obtained from the ethical committee of ITS-CDSR Muradnagar, Ghaziabad.

Informed Consent:

Voluntary written consent was taken from the patients before their participation in the study in order to avoid any inconvenience and to ensure full cooperation.

Scheduling:

Prior scheduling was done before conducting the survey and the data was collected during the month of July & August 2012.

Proforma:

The data was recorded on a self made proforma, having questionnaire[5] which was based on Variables of Theory of Planned Behavior: For **Attitude** (a person's positive or negative feelings about a given behavior, for example, 'I hate brushing my teeth twice a day, and cleaning interdentally at least once a day') – 8 Questions were asked. For **Social (Subjective) Norm** (the belief that specific important persons think that one should or should not perform a given behavior, for example, 'My parents think that I should brush my teeth twice a day, and use interdental aids at least once a day') – 4 Questions were asked. For **Perceived behavioral control** (a person's perception of his/her capabilities to perform a behavior, for example, 'I think I will be able to brush my teeth twice a day, and use interdental aids at least once a day') – 3 Questions were asked. **Expected social outcomes** of having healthy teeth included 6 questions. Responses of all questions were assessed on 5 point **Likert scale**.

Training and Calibration of the examiner:

Before starting the survey, the faculty members and guide calibrated the investigator for interviewing in the Department of Public Health Dentistry. A group of subjects were re-interviewed on successive days using same questionnaire. Later the results obtained were subjected to Kappa variability test. The mean Kappa co-efficient values for intra-examiner reliability with respect to Kappa co-efficient of the indices used was 0.88.

Sampling Methodology:

Sample size determination:

The sample size was determined based on the results of the pilot study using the formula –

$$Z^2 P (1-P) / d^2$$

Where, P = Prevalence rate which was estimated to be 75% after the pilot study.

Z = Z statistic for a level of confidence (For the level of confidence of 95%, which is conventional, Z value is 1.96).

d = Precision (Least permissible error which was taken at 4.0%).

Using the above formula, the sample size was estimated to be 469. To increase the validity of results 25% more subjects were decided to be included in the study, making the sample size to be 469 + 25% of 469 = 469 + 118 = **587**.

Sampling

Study participants were selected by convenient random sampling for interview out of all the patients came for treatment or consultancy at I.T.S – CDSR on the days of survey.

Inclusion criteria:

- Patient with minimum age of 18 years.
- Those patients, who gave their consent for participating in the study.

Exclusion criteria:

- Patient less than 18 years of age.
- Those Patients, who did not give their consent for participating in the study.
- Those patients, who were mentally or physically handicapped.
- Those patients who had medical problems and were undergoing any medication.

Data Collection:

A total of 598 patients aged more than 18 years was included in the study who fulfilled inclusion criteria. Data was collected by Interview method. Single calibrated interviewer filled pretested, validated, structured, closed ended questionnaire. Before interview, patients were instructed to choose only one answer for each question asked.

Collection and Storage of Survey forms:

The forms were arranged in serial number and stacked together. The bundles were labelled with ID numbers and date of recording so as to make them ready for data entry. The data entry was made on the same day so that if any discrepancy was seen it could be rectified easily.

Inspection, Scrutiny and clarifications:

The survey forms were rechecked to assess any missing information.

STATISTICALANALYSIS:

The statistical procedure was carried out in 2 steps.

1. Data compilation and presentation

2. Statistical analysis

Data compilation and presentation:

The data obtained was compiled systematically, transformed from a pre-coded proforma to a computer and a master table was prepared. The total data was distributed meaningfully and presented as individual tables along with graphs.

Statistical analysis:

Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ±SD (Min-Max) and results on categorical measurements are presented in Numbers (%). Pearson Correlation and Regression Analysis test were performed keeping P-value < 0.05 at 95% confidence level.

Significant Figures

Not significance (p value: p >0.05), Significant (p value: 0.01< P≤ 0.05), Highly significant (p value: p≤0.01)

Statistical Software:

The statistical software namely SPSS 18.0 was used to analysis of the data and Microsoft excel have been used to generate graphs, tables, etc.

RESULTS

A total of 598 OPD patients participated in the study with a mean age of 30.26 years (SD = 11.91 years). 54.80% (328) patients were males and 45.2% (270) were females.

(Graph-1)

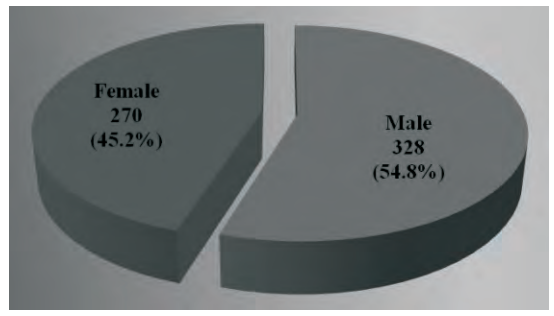

Figure 1: Gender Wise Distribution of Study Population.

Among 598 participants majority 38.10% (228) were in the age group of 18 – 24 years followed by 31.10% (186) in the age group 25 – 34 years, 18.60% (111) in the age group 35 – 44 years and 12.20% (73) in the age group ≥ 45 years. (Graph 2)

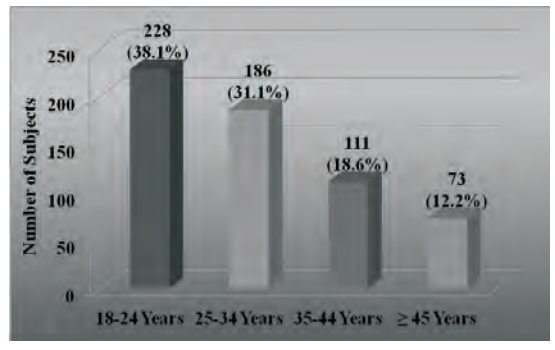

Figure 2: Age Wise Distribution of Study Population

Education level varied among the patients with majority having medium level (42.7%) and high level (34.6%) of education. On the other hand few patients were having low level education (19.9%) and 2.8% were illiterate. (Graph 3)

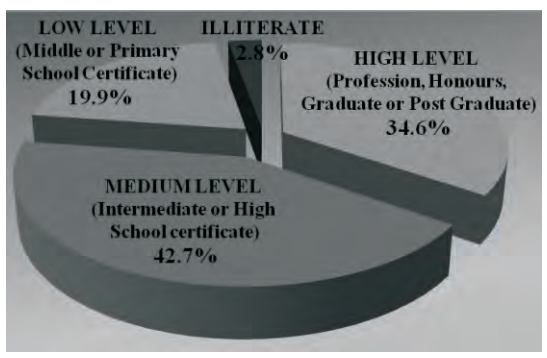

Figure 3: Education Wise Distribution of Study Population

Among 598 participants interviewed 59.50% (356) were married and 40.5% (242) were not married (Graph-4).

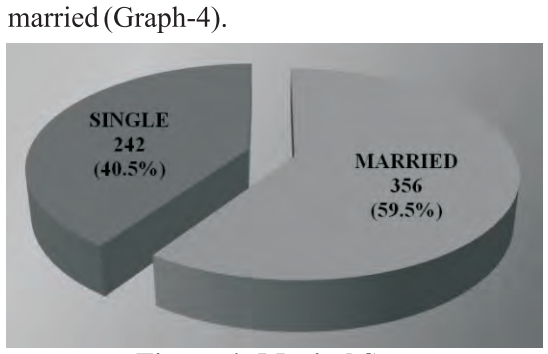

Figure 4: Marital Status

It was found that 49% (293) of patients had never visited dentist in their life time before and 51% (305) of them had past dental visits for dental treatments and their problems. (Graph-5)

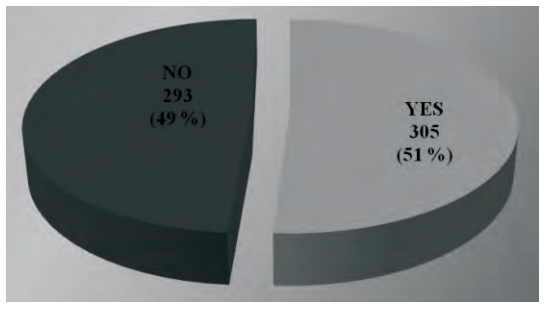

Figure 5: Past Dental Care Received

The mean scores with standard deviation and the range values of the main variables, i.e. ATT, SN, PCB and ESO for the whole sample are presented in Table 1. It can be seen that participant's attitude toward the OHB was quite positive. Participants reported high pressure from their social environment to perform this behaviour and felt they had considerable control over carrying out the oral hygiene self-care practices. Participants also attached much value to positive social outcomes of having healthy teeth.

Table 1: Range, Mean and Standard Deviations (SD) of the variables of Theory of Planned Behavior (TPB) & Expected Social Outcomes.

VARIABLE	MEAN (SD)	RANGE
Attitude	30.89 (5.61)	8 – 40
Social Norm	16.58 (3.51)	4 – 20
Perceived behavioral Control	12.64 (2.01)	3 – 15
Expected Social Outcomes	27.49 (3.55)	6 – 30

SD – Standard Deviation

In addition, correlation analyses were carried out to establish the direction and magnitude of the associations between the variables (Table 2). ESO was found to correlate positively and significantly with TPB variables: ATT, SN and PBC. According to the TPB, all relations were found to be in the expected directions.

Finally, linear regression analysis was performed to examine the multivariate relationships of the TPB variables with expected social outcomes (Table 3). This model proved to be significant and accounted for 29.40% of the variance in ESO. The TPB variables and emerged as significant predictors of ESO of having healthy teeth.

Table 2: Correlations between the Theory of Planned Behavior (TPB) variables and Expected Social Outcomes

Variables	Attitude	Social norms	Percieved behavior control	Expected social outcomes
Attitude	-	0.411**	0.419**	0.418**
Social norms	0.411**	-	.322**	.318**
Percieved behavior control	0.419**	.322**	-	.475**
Expected social outcomes	0.418**	.318**	.475**	- ** P < 0.001

Table 3: Linear regression of Expected Social Outcomes on the Theory of Planned Behavior (TPB) variables

TPB Variables	Expected Social Outcomes
Attitude	0.144*
Social Norms	0.115**
Percieved Behavior Control	0.607*

TPB – Theory of Planned Behavior,
* P < 0.001, ** P = 0.003, F = 82.614, R^2 = 0.294

DISCUSSION

The present study was attempted to determine the impact of predictors of oral hygiene behavior on expected social outcomes in patients attending private dental institution.

It can be seen that participant's attitude toward oral hygiene behaviour was quite positive. It was in accordance to various studies done by Buunk-Werkhoven YAB et al[5,6,7].

Participants reported high pressure from their social environment to perform this behaviour. It was also found in studies done bu Buunk-Werkhoven YAB et al. in Nepal[8] and Dominician Republic[9] population but was opposite in studies done in Uruguay[6], Dutch Army[7], Caribbean[8] and Dutch population[5].

Participants felt they have good control over carrying out the oral hygiene self-care practices. It was also there in studies done by Buunk-Werkhoven YAB et al[5,7].

Participants attached great value to the positive social outcomes of having healthy teeth; in particular, in social contacts, well maintained teeth and fresh breath were found to be important. It is in agreement to studies done by Buunk-Werkhoven YAB et al[5,6,7].

An expected social outcome was found to correlate positively and significantly with the TPB variables: ATT, SN and PBC. According to the TPB, all relations are in the expected directions like studies done by Buunk-Werkhoven YAB et al[5,6,7].

Regression analysis indicated that perceived behaviour control was the best predictor of expected social outcomes and together with attitude & social norms, explained 29.4% of the variance in expected social outcomes. It is in accordance to studies done by Buunk-Werkhoven YAB et al. in Dutch Army[6], Nepal[8] but results were not same in studies done in Caribbean[8] and Dominican Republic[9].

CONCLUSION

The findings of the study shows that Self-care practices in relation to oral hygiene are essential to promotion of oral health, and one of the significant reforms is to re-organize oral health services around people's needs, attitude and expectations, so as to make them more

socially relevant.

RECOMMENDATIONS

This research highlights the relative importance of the TPB constructs for behavioural intention and expected social outcomes, and these associations should be considered when designing practical recommendations for improving oral hygiene behaviour.

REFERENCES

1. Slade GD. Measuring Oral Health and Quality of Life. Chapel Hill: University of North Carolina, Dental Ecology 1997.
2. Armitage CJ, Conner M. Efficacy of the Theory of Planned Behaviour: A meta-analytic review. British Journal of Social Psychology 2001; 40: 471 – 99.
3. Ajzen I. The theory of planned behavior. Organ Behav Hum Dec 1991; 50: 179 – 211.
4. Brennan Ramirez LK, Baker EA, Metzler M. Promoting Health Equity: A Resource to Help Communities Address Social Determinants of Health. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2008.
5. Buunk-Werkhoven YAB, Dijkstra A, Van Der Schans CP. Determinants of oral hygiene behavior: a study based on the theory of planned behavior. Community Dent Oral Epidemiol 2011; 39: 250 – 59.
6. Buunk-Werkhoven YAB, Dijkstra A, van der Schans CP, Jaso ME, Acevedo S, Estellano GP. Evaluation and promotion of patients' oral hygiene behavior in the faculty of Odontology of the Catolic University in Uruguay. Acta Odontologica 2008; 5 (2), 13 – 20.
7. Buunk-Werkhoven YAB, Dijkstra A, van der Wal H, Basic N, Loomans SA, van der Schans CP, van der Meer R: Promoting Oral Hygiene Behavior in Recruits in the Dutch Army. Mil Med 2009; 174: 971 – 6.
8. Buunk-Werkhoven YAB, Dijkstra A, Bink P, Zanten SV, Van Der Schans CP. Determinants and promotion of oral hygiene behaviour in the Caribbean and Nepal. Int Dent J 2011; 61: 267 – 73.
9. Buunk-Werkhoven YAB, Burrekers SY, Jongboer A, Quant DFM, Maanen-Schakel NWD. Determinants of oral hygiene behavior in the Dominican Republic. Int Dent J 2011; 61: 328 – 33.