

EVALUATION OF AWARENESS, KNOWLEDGE AND ATTITUDE OF CLINICAL NURSES TOWARDS PRIMARY ORAL HEALTH CARE OF CHILDREN.

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ABSTRACT :

Background & objectives: Most of the toddlers and early childhood children in developing and under developing countries do not visit dental clinics for oral examinations earlier than three years of age though they often visit primary health care providers for regular medical checkups. Health care providers like nurses are easily available and are in frequent contact with expecting mothers and children for routine check ups. This provides an opportunity to join in oral health promotion and care into health care. Nurses play a major as well as prominent role in providing health services, along with the general physicians. Yet, the nurses can be efficiently employed to promote oral health awareness among the community level. The oral health should have greater importance in the nurse for identification and diagnosis of dental and oral diseases. The aim of this study was to study the awareness, knowledge and attitude towards primary oral health care of children among clinical nurses.

Methods: A total of 200 clinical nurses received a questionnaire that included demographic data, questions to assess the oral knowledge, oral awareness and attitude towards primary oral health care of the children. Data was collected, tabulated and statistically analysed.

Results: The result showed that most nursing students (80%) are unaware about primary oral health care disease and the importance of primary teeth are also not known by both the private and government college nursing students.

Interpretation & conclusion: Primary health care nurses lack knowledge and awareness in oral and dental health care. Nurses have positive attitude and willingness to obtain more information for appropriate oral health care. Training and encouragement for the nurses helps to promote oral health and prevent dental diseases in children.

KEYWORDS: Attitude, Awareness, Knowledge, Nurses, Oral Health Care.

INTRODUCTION:

Healthy mouth is a priceless and unique treasure. Maintaining a good oral health is regarded as a good overall general health¹. Oral health is a significant characteristic of general health in infants and children and influences the quality of life and health outcomes². Early childhood caries (ECC) is an important major public health problem which develops in children as early as ten months of age³. ECC needs implementation of preventive practices to decrease a child risk of further progression. Risk factors of ECC is multifactorial which include the low economic status,

lack of parent education, fewer dental visits, inadequate oral hygiene, high cariogenic diet and absence of oral health knowledge⁴.

Nursing is a significant paramedical course which is also considered as an essential supplementary branch of medicine. Nurses play an important as well as prominent role in providing health services, along with the general physicians⁵. Mother being the primary educator of the child should be aware of such problems to create awareness. Nurses play an important role in such situations by shaping and changing the community, Such an attitude and knowledge is very important as they are in frequent contact with expectant mothers and new mothers. This is one such way of creating awareness on oral hygiene and health as mouth is the mirror of the body.

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According to the American Academy of Pediatric Dentistry (AAPD), all health professionals are encouraged to participate in preventing ECC by providing services that includes risk assessment, health promotion, care coordination, oral screening, nutritional counseling, preventive interventions, fluoride varnish application, and referral for pediatric dental care⁶. The primary aim of dentist is to impart positive oral health knowledge, awareness, attitude and behavior towards an individual along with society and creating an environment friendly relationship to shift the responsibility of public oral health from the shoulders of health professionals to the individual's own hand for an overall good general health⁷.

Clinical nurses are easily reachable and are in regular contact with expectant mothers and children who visit hospitals for routine checkups and this provides an eye-opener to integrate oral health promotion and care into health care.⁸ There is a study that reveals pediatricians and general doctors aren't advising parents to see a dentist by one year of child's age, this point tells the need for increasing education about this topic in the medical groups⁹. According to Yousef Al-Matalan et al training of nurses and physicians in oral health has been limited, which is most probably related to the poorly focused education on oral health issues¹⁰. So, the purpose of our study was to evaluate the knowledge, attitude and practice of nurses towards primary oral health care of children.

MATERIALS AND METHODS:

Study design and study sample

The study was a cross sectional questionnaire survey. The study population covered clinical nurses working in the institutional hospital of government and private sector, who provided care for pediatric patients, new mothers and pregnant mothers. The survey was voluntary and the responses were kept anonymous. The survey was conducted among 200 participants. The questionnaire was distributed and collected from 100 nurses in government hospital and 100 nurses in private hospital.

Criteria of selection

The inclusion criteria included those who were willing to participate with free of constraints, completed questionnaire, practicing nurses available at the time of data collection. Nurses with minimum experience of 3 years and above in the study were included.

The exclusion criteria comprised incomplete questionnaire, nurses who were not willing to participate and nurses with less than 3 years of experiences.

Questionnaire details

A structured questionnaire was formulated with 20 questions in English and then the questionnaire was given to the nurses who were practising in different colleges and hospitals. The questionnaire was given to each nurse directly and explaining the purpose of the study. Subsequently the students were asked to fill the questionnaire.

Questionnaire included four sections parts A, part B, part C and part D

Part A included sociodemographic information was also collected that included age, gender, educational qualification, professional experience and working sector (Private/ Government).

Further 3 parts includes 20 questions based on

- Questions (1 to 10) are related to knowledge which include information acquired by the nurses through experience or education. [Part B]

- Questions (11 to 15) involves awareness relate to the actual responsiveness of the participants. [Part C]

- Questions (16 to 20) related to attitude involved awareness predilection to certain ideas and information. [Part D]

Since there were equal participants in government and private sector, the awareness, knowledge and attitude were also compared between the groups.

QUESTIONNAIRE

A. PARTICIPANTS DEMOGRAPHY

Name:

Age:

Sex:



Educational qualification:

Professional experience:

Working sector (Government/Private):

B. ORAL HEALTH KNOWLEDGE

1. The first baby tooth appears in the child's mouth by six months
a. True b. False c. Don't know
2. Natal teeth are teeth that are present at child's birth.
a. True b. False c. Don't know
3. A child should be seen by a Dentist by one year of age
a. True b. False c. Don't know
4. First sign of dental decay includes white chalky patches on the teeth
a. True b. False c. Don't know
5. Good oral health is important of good overall well-being of child.
a. True b. False c. Don't know
6. Dental caries can be transmitted from mother to child.
a. True b. False c. Don't know
7. Cleaning baby's mouth after each food should begin even before tooth erupts
a. True b. False c. Don't know
8. Putting child to sleep immediately after giving milk increases risk of caries
a. True b. False c. Don't know
9. Fluoride in tooth is important for tooth decay.
a. True b. False c. Don't know
10. Consuming sugar containing foods can causes tooth decay.
a. True b. False c. Don't know

C. ORAL HEALTH AWARENESS

11. Dental caries can be prevented
a. Agree b. Disagree c. Neither agree nor disagree
12. Oral health care delivered by nurses is inefficient
a. Agree b. Disagree c. Neither agree nor disagree
13. Nurses can examine the oral cavity of every child.
a. Agree b. Disagree c. Neither agree nor disagree
14. Educating parents about natal tooth/teeth is/are the responsibility of nurse.
a. Agree b. Disagree c. Neither agree nor disagree

- a. Agree b. Disagree c. Neither agree nor disagree

15. Milk teeth does not require care because they will fall out.

- a. Agree b. Disagree c. Neither agree nor disagree

D. ORAL HEALTH ATTITUDE

16. Do you recommended pregnant mother for dental visit.
a. Always b. Sometimes c. Never
17. Do you enquires about mother's dental health.
a. Always b. Sometimes c. Never
18. Do you encourage breast feeding or bottle feeding for babies during sleep
a. Always b. Sometimes c. Never
19. Do you counsel the patient about importance of tooth brushing
a. Always b. Sometimes c. Never
20. If natal tooth/teeth is/are present do you clean the oral cavity of child
a. Always b. Sometimes c. Never

Statistical analysis:

Descriptive statistics was used. Chi square test was used to find significance. Frequency distribution was done based on number and percentage was calculated.

RESULTS:

200 questionnaires were distributed, collected back from the participants and statistically analysed. Table 1 shows that females participated more than males in the study. Table 2 shows professional experience among the nurses, which has a statistical difference. Questions number 1, 3, 5, 6 and 8 shows statistical difference among the private and government hospitals working nurses (table 3 and 4). In awareness related questions (table 5), questions 11 and 12 got the significant difference values among the responses given by the nurses. Table 6 shows the attitude related questionnaire in which 16th and 17th questions has significant difference in the responses.



Table: 1 - Gender comparison among nurses participated

Nursing College	Gender		Total	Sig. (2-sided)
	Male	Female		
Private	25	75	100	.498#
Government	20	80	100	
Total	45	155	200	

#Non-significant ($p > 0.05$)

Table: 2 - Professional experience association with nursing college

Nursing College	Professional experience		Total	Sig. (2-sided)
	3 Year Experience	5 Year Experience		
Private	70	30	100	.000**
Government	35	65	100	
Total	105	95	200	

**Highly Significant ($p < 0.01$), *Significant ($p < 0.05$)

Table: 3 - Knowledge related questionnaire (Part A)

S.No	Questions	Nursing College	Response			Sig.(2-sided)
			True	False	Don't Know	
1	The first baby tooth appears in the child's mouth by six months	Private	6	90	04	0.00**
		Government	92	6	02	
		Total	98	96	06	
2	Natal teeth are teeth that present at child's birth	Private	18	66	16	0.70#
		Government	20	68	12	
		Total	38	134	28	
3	A child should be seen by a Dentist by one year of age	Private	32	6	62	0.00**
		Government	30	64	06	
		Total	62	70	68	
4	First sign of dental decay includes white chalky patches on the teeth	Private	62	20	18	0.10#
		Government	72	20	08	
		Total	134	40	26	
5	Good oral health is important of good overall well-being of child.	Private	52	44	04	0.01*
		Government	40	42	18	
		Total	92	86	22	

Table: 4 - Knowledge related questionnaire (Part B)

S.No	Questions	Nursing College	Response			Sig.(2-sided)
			True	False	Don't Know	
6	Dental caries can be transmitted from mother to child	Private	20	50	30	0.00**
		Government	36	54	10	
		Total	56	104	40	
7	Cleaning the baby's mouth after each food should begin even before tooth erupts.	Private	44	40	16	0.33#
		Government	52	30	18	
		Total	96	70	34	
8	Putting child to sleep immediately after giving milk increases the risk of caries	Private	20	36	44	0.00**
		Government	44	40	16	
		Total	64	76	60	
9	Fluoride in tooth is important for tooth decay	Private	38	42	20	0.93#
		Government	38	44	18	
		Total	76	86	38	



10	Consuming sugar containing foods can causes tooth decay	Private	72	20	08	0.43#
		Government	72	24	04	
		Total	144	44	12	

**Highly Significant (p<0.01), *Significant (p<0.05), #non-significant (p>0.05)

Table: 5 - Awareness related questionnaire

S.No	Questions	Nursing College	Response			Sig.(2-sided)
			True	False	Neither agree nor disagree	
11	Dental caries can be prevented	Private	48	14	38	.001*
		Government	68	18	14	
		Total	116	32	52	
12	Oral health care delivered by nurses is inefficient	Private	44	22	34	.008*
		Government	62	22	16	
		Total	106	44	50	
13	Nurses can examine the oral cavity of every child	Private	26	116	58	.932#
		Government	18	58	24	
		Total	38	114	48	
14	Educating parents about natal tooth/teeth is/are responsibility of the nurses	Private	10	50	40	.836#
		Government	10	46	44	
		Total	20	96	84	
15	Milk teeth does not required care because they will fall out	Private	08	58	34	.062#
		Government	18	58	24	
		Total				

**Highly Significant (p<0.01), *Significant (p<0.05), #non-significant (p>0.05)

Table: 6 - Attitude related questionnaire

S.No	Questions	Nursing College	Response			Sig.(2-sided)
			True	False	Never	
16	Do you recommend pregnant mother for dental visit	Private	32	62	06	0.041*
		Government	22	62	16	
		Total	54	124	22	
17	Do you enquire about mother's dental health	Private	22	54	24	0.940#
		Government	22	56	22	
		Total	44	110	46	
18	Do you encourage breast feeding or bottle feeding for babies during sleep	Private	44	50	06	0.143#
		Government	44	42	14	
		Total	88	90	20	
19	Do you counsel the patient on importance about tooth brushing	Private	36	26	38	0.987#
		Government	37	26	37	
		Total	73	52	73	
20	If natal tooth/teeth is/are present, do you clean the oral cavity of child	Private	40	20	40	0.009*
		Government	22	18	60	
		Total	62	38	100	

**Highly Significant (p<0.01), *Significant (p<0.05), #non-significant (p>0.05)

DISCUSSION:

Profession with frequent contact with the expecting mothers, new mother and new born are the nurses.

The key aspect is that nurse is change leaders. Clinical nurse is in the best situation to identify needed change and determine potential improvements. Engaging



them and performing the work each day will have the greatest improved outcome. Oral disease is one of the major public health problems, since nursing staff and students reach out to many unreserved areas of the country, they are expected to have positive behavior towards oral health and its disease.

Health promotion in developing country like India is limited due to the factors like economic, social, geographic and political leading to inadequate health care resources. Collection of such data's help us in carrying out various planes and train some important group of manpower and utilize their service in the field of oral health⁷. According to Tetuan et al and Spielman et al oral health assessment should be a part of nursing curriculum^{11,12}. An oral health promotion module for primary health care nursing course can enhance nurse about skill, awareness and knowledge about oral health¹³. Formicola et al quoted that oral health care would require dental school in collaboration with the health care team so the quality of life of an individual can be improved by improving the oral health in terms of general health¹⁴. A literature by Gallagher et al stated that the role of community nurse is to improve the oral health in the society, particularly among the less likely access area of the dental service¹⁵.

ECC is a significant problem among the primary dentition which is often ignored or not taken under care. ECC is preventable and treatable if untreated it leads to further problems like pain, alteration to growth and development, speech problems, tooth loss, aesthetic problems, negative effect on the proceeding successor, bacteremia, and lack of self-confidence. A small change in the day-to-day life can create a change in the health of oral cavity like encouraging the expecting parents and parents to visit the dentist for their own oral health thereby decreasing the mutant level in mothers may decrease the risk of child developing ECC, discouraging of liquid sugar intake at bedtime or naptime before bed, reduction of nocturnal breastfeeding after first tooth eruption, encouraging of cup drinking soon after first birthday, periodic

cleaning of tooth after every meal or medication and balanced diet intake for good nutrition.

Corbella et al completed meta-analysis in 17,053 subjects from 22 studies concluded that pre term and low birth weight are risk of women with periodontitis¹⁶. In a cross-sectional study with 1206 subject at post-partum follow up accounted that maternal periodontitis was responsible in decreased low and very low birth weight with decreased mean weight¹⁷. Maternal oral health has connection with dental caries in children this statement is supported by several authors.

Gestational diabetes mellitus (GDM) is in strong evidence with periodontitis which is the reason for maternal and fetal pregnancy complication.[18]. Surgeon general in America used 'silent epidemic' in a report on oral health to depict dental caries stating the dental caries is most prevalent and preventable disease in childhood¹⁹. Leong et al and his coworkers highlighted pregnancy and neonatal period are the time to identify children for high risk and early oral health examination in maternal have potential to reduce the likelihood early onset dental caries in children²⁰.

Boggers et al in 2008 supported the statement saying that oral health of the mother has significant effect on child oral health²¹. Pregnant and non pregnant women of childbearing age don't visit dentist which is multifactorial like financial barrier, socio demographic and perception²². Many public and private health plans do not include dental benefits along with lack of insurance are some factors which dental services are not in reach for pregnant and pregnancy planning women. Oliveira et al studied period of 10 years among dentists reported that reasons for not treating women during pregnancy were related to unsafe of x-rays, medications, administration of local anesthesia was also unsafe for treatments²³.

In a population-based survey done by Marchi et al in California for duration of five years among postpartum women specified that primary reason women reported not using dental care during



pregnancy was a lack of perceived need followed secondarily by financial barriers²⁴. Medications and anesthetics used in dental practices fall under Category B in FDA and have not been a risk to the fetus²⁵. Ismail et al concluded that prevention of ECC can be achieved by accomplishment of joining networks like health professional, community workers and national organizations serving children²⁶.

A successive prevention of ECC is by motivation of expecting mothers, mothers of infants and toddlers, care givers and health care providers²⁷. Improving the educational level sector, oral health policies, positive instruction of feeding practice among mothers and care givers might improve community to overcome the silent epidemic.

CONCLUSION:

This study contrasted the awareness, knowledge and attitude of medical nurses towards primary oral health care of children in private and government sector. Subsequently the oral health knowledge, awareness is not necessarily be implemented only by the dentist. Joining hands with such auxiliaries and training them in correct pathway can also be used to progress the knowledge and awareness to the public on oral health.

REFERENCES:

- Jin LJ, Lamster IB, Greenspan JS, Pitts NB, Scully C, Warnakulasuriya S. Global burden of oral diseases: emerging concepts, management and interplay with systemic health. *Oral Dis.* 2016;22(7):609-19.
- Brown A, Lowe E, Zimmerman B, Crall J, Foley M, Nehring M. Preventing early childhood caries: lessons from the field. *Pediatr Dent* 2006; 28:553-60.
- Maxey, H.L.; Farrell, C.; Gwozdek, A. Exploring Current and Future Roles of Non-Dental Professionals: Implications for Dental Hygiene Education. *J. Dent. Educ.* 2017, 81, eS53-eS58
- Mani SA, Aziz AA, John J, Ismail NM. Knowledge, attitude and practice of oral health promoting factors among caretakers of children attending day-care centers in Kubang Kerian, Malaysia: a preliminary study. *J Indian Soc Pedod Prev Dent.* 2010 Apr-Jun;28(2):78-83.
- Deogade SC, Suresan V. Knowledge and practices of oral health care in final year undergraduate nursing students: A cross sectional study. *Arch Med Health Sci* 2017; 5:161 6.
- American Academy of Pediatric Dentistry. Policy on Early Childhood Caries (ECC): Classifications, Consequences, and Preventive Strategies. *Pediatr Dent.* 2017, 39, 59-61.
- Bhattar ai R, Khanal S, Rao GN, Shrestha S. Oral health related knowledge, attitude and practice among nursing students of Kathmandu - a pilot study
- Raybould TP, Wrightson AS, Massey CS, Smith TA, Skelton J. Advanced general dentistry program directors' attitudes on physician involvement in pediatric oral health care. *Spec Care Dentist* 2009; 29:232-6.
- Brickhouse, T.H.; Unkel, J.H.; Kancitis, I.; Best, A.M.; Davis, R.D. Infant oral health care: A survey of general dentists, pediatric dentists, and pediatricians in Virginia. *Pediatr. Dent.* 2008, 30, 147-153.
- Al-Hatlani, W.Y.; Al-Haj Ali, S.N. Medical, Dental, and Nursing Students' Knowledge about Early Childhood Oral Health Care. *Children* 2019: 6-9
- Tetuan T. The role of the nurse in oral health. *Kans Nurse* 2004; 79:1-2.
- Spielman AI, Fulmer T, Eisenberg ES, Alfano MC. Dentistry, nursing, and medicine: A comparison of core competencies. *J Dent Educ* 2005; 69:1257-71.
- Ogunbodede EO, Rudolph MJ, Tsotsi NM, Lewis HA, Iloya JI. An oral health promotion module for the primary health care nursing course in Acornhoek, South Africa. *Public Health Nurs* 1999; 16:351-8.
- Formicola A, Valachovic RW, Chmar JE, Mouradian W, Bertolami CN, Tedesco L, et al. Curriculum and clinical training in oral health for physicians and dentists: Report of panel 2 of the Macy study. *J Dent Educ* 2008;72 2 Suppl:73-85.
- Gallagher J, Rowe J. Community nurses' contribution to oral health. *Br J Community Nurs* 2001; 6:526, 528-34.
- Corbella, S., Taschieri, M., Delfabbro, M., Francetti, L., Weinstein, R., & Ferrazzi, E. (2016). Adverse pregnancy outcomes and periodontitis: A systematic review of meta-analysis exploring potential association. *Quintessence International*, 47(3), 193-204.
- Guimarães, A. N., Silva-Mato, A., Siqueira, F. M., Cyrino, R. M., Cota, L. M., & Costa, determinants and malleability. *The Academy of Management Review*, 17(2), 183- 211
- Abariga, S. A., & Whitcomb, B. W. (2016). Periodontitis and gestational diabetes mellitus: A systematic review and meta-analysis of observational studies. *BMC Pregnancy and Childbirth*, 16(344), 1-13.
- U.S. Department of Health and Human Services. (2000). Oral health in America: A report of the Surgeon General (NIH Publication No. 00-4713).
- Leong, P. M., Gussy, M. G., Barrow, S. L., Silva-Sanigorski, A., & Waters, E. (2012, August 28). A systematic review of risk factors during first year of life for early childhood caries. *International Journal of Paediatric Dentistry*, 23(4), 235-250.
- Boggess, K. A. (2008). Maternal oral health in pregnancy. *Obstetrics & Gynecology*, 111 (4), 976-986.



22. Azofeifa, A., Yeung, L. F., Alverson, C. J., & Beltran-Aguilar, E. (2014). Oral health conditions and dental visits among pregnant and non pregnant women of child bearing age in the United States, National Health and Nutrition Examination Survey, 1999-2004..
23. Figuero, E., Carrillo-de-Albornoz, A., Mart'in, C., Tob'ias, A., & Herrera, D. (2013). Effect of pregnancy on gingival inflammation in systemically healthy women: A systematic review. *Journal of Clinical Periodontology*, 40(5), 457-473.
24. Marchi, K. S., Fisher-Owen, S. A., Weintraub, J. A., YU, Z., & Braveman, P. A. (2010). Most pregnant women in California do not receive dental care: Findings from a population-based study. *Public Health Reports*, 125(6), 831-842.
25. American College of Obstetricians and Gynecologists Women's Health Care Physicians Committee on Health Care for Underserved Women. (2013). Committee opinion no. 569: Oral health care during pregnancy and through the lifespan. *Obstetrics and Gynecology*, 122(2 Pt. 1), 417-422.
26. Ismail AI. The role of early dietary habits in dental caries development. *Spec Care Dentist* 18: 40--45, 1998.
27. Domoto P, Weinstein P, Leroux B, Koday M, Ogura S, Iatridi-Roberson I. White-spot caries in Mexican-American toddlers and parental preference for various strategies. *J Dent Child* 1994;61:342-6.

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