

Original Article

Interaction between psychological characteristics and family situations on child-oral hygienic behavior of mothers of preschool children

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Abstract

Major objective of this study was to find interaction between psychological characteristics and family situations on child - oral hygienic behavior of mothers of preschool children. This was a correlational - comparative study based on the interactionism model of behavior analysis. In this study 843 mothers were asked to respond to questionnaires and 843 (5 years old) children were examined the oral health status. T- test, Three-way, two-way and also one-way Analyses of Variance were performed on the total sample as well as the subsamples identified by biosocial and background characteristics of mothers. Furthermore, the Stepwise Multiple Regression Analyses were carried out as well. Two important findings were : Firstly, mothers whose children had poorer dental health were 1) Mothers who had low income and did not have occupation. 2) Mothers who had lower child-oral-hygienic behavior. Secondly, the health behavior model (K-A-P) was necessary but inadequate for dental health care behavior of these mothers. Belief in internal locus of control concerning health should be added. Therefore, it can be recommended that low income, non-working and less knowledgeable mothers should be trained and an evaluation study should be carried out.

Key words : *Interaction, Psychological characteristics, Family situations, Child-oral hygienic behavior, Mothers of preschool children*

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Introduction

From the sixth National Oral Health Survey of Thailand in 2008, 80.64 % of preschool children (5 years old) had dental caries and 78.75 % of these decayed teeth have not been treated (Dental health Division, 2008). Usually most of preschool children must be controlled from mothers who were the most important persons in changing health behavior of families.

Not too long ago a widespread use of K-A-P Model (Knowledge-Attitude leads to Practice of appropriate behavior) came in use, first in promoting health behavior, and later in many other areas. By the year 1980, There were then about 20 experimental and correlational studies. They pointed to the fact that there are 8 important psychological traits and states which can differentiate Thai people on the magnitudes of a certain desirable behavior, such as work, moral, or health behaviors. These comparisons were made among people who have the same environment or background, or who were in the same or similar situation. Thus, this model which is obtained from the better half of the society can give a more realistic objective for improving the behaviors of the other half. This new model, depicted as a big tree with 3 strong roots, locating 3 basic psychological traits, namely, mental health, social perspective or empathy, and general intelligence. At the tree trunk, there are 5 groups of psychological characteristics,

which are, future orientation and self control, need for achievement, belief in internal locus of control, moral reasoning ability, and the behavior-related attitudes, values, and virtues. The fruits and flowers on the tree signify the totality of good and efficient behaviors of a person. (Fig. 1) This theory has generates more than a hundred empirical studies which yields 3 types of products : (1) the indicators and measures of psychological, situational and behavioral characteristics which can be used for diagnostic purpose ; (2) new training modules and packages for the trait(s) and or behavior ; (3) the information of cause-effect relationships for policy formation and social orientation. This new model has been nationally supported and widely used in research and development, not only for improving work performance but also for making better the quality of life of the Thai people. (Bhanthumnavin, 1980; 1988; 1990 and 1995).

Thus, this is very interesting in studying the relationship between psychological characteristics and dental health care behavior of mothers by using “Psychological Theory of Moral and Work Behaviors” and “Interactionism model”. Furthermore, the empirical results should be use to improve dental health care of mothers and finally to decrease dental health diseases of preschoolers.

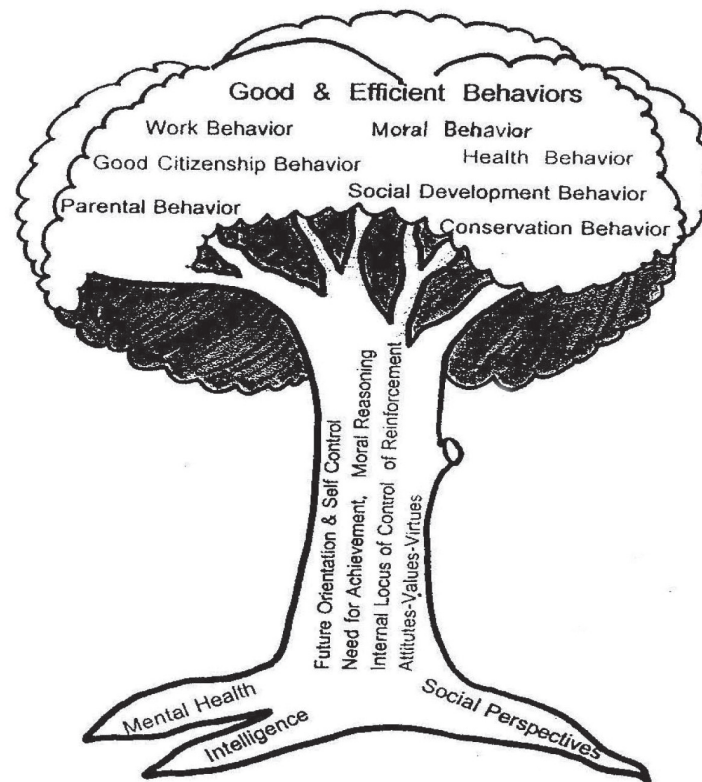


Fig. 1 Psychological Theory of Moral and Work Behaviors (Bhanthumnavin, 1983; 1997)

Purpose of the study

The four major research objectives are :

1. To find the relationship between family situations on child - oral hygienic behavior of mothers of preschoolers.
2. To find the relationship between psychological characteristics and former maternal behavior on child - oral hygienic behavior in different types of mothers of preschoolers.
3. To find the interaction between the psychological characteristics and family situations on child - oral hygienic behavior of mothers of preschoolers.

4. To find the influence of psychological characteristics, former maternal behavior, psychological states and child - oral hygienic behavior of mothers of preschoolers in different family situation.

Major Research Hypotheses

Hypothesis 1 Mothers who are high scorers on three psychosocial characteristics (husband's support on maternal child health care, dental health knowledge and attitude towards the child) have more child-oral hygienic behavior than their opposites.

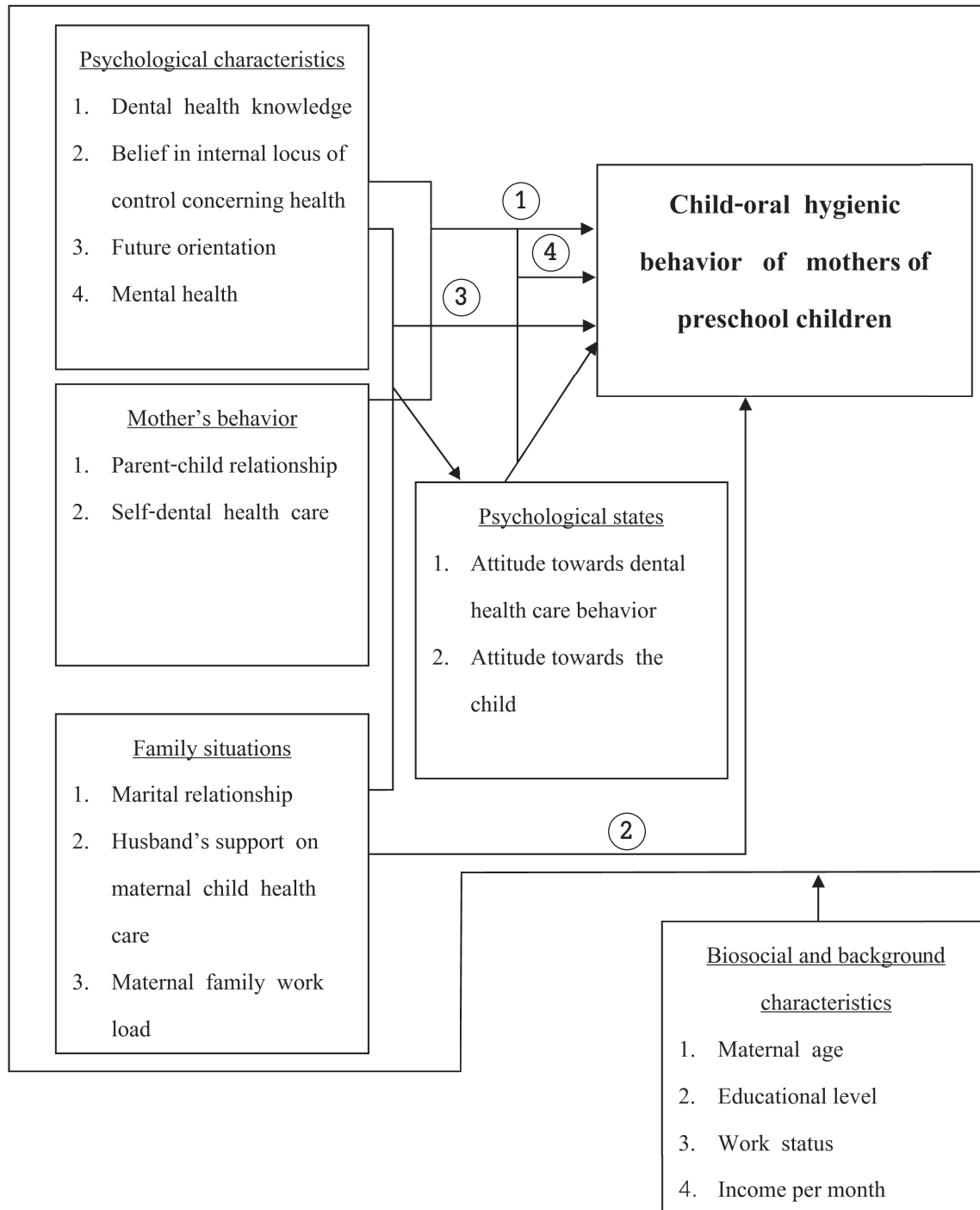


Fig. 2 Relationships among variables in the study

Hypothesis 2 Both groups of 4 psychological characteristics (dental health knowledge, belief in internal locus of control concerning health, future orientation and mental health) and 3 family situations (marital relationship, husband's support on maternal child health care and maternal family work load) together can account for more variance of child-oral hygienic behavior of mothers than either group alone.

Materials and Methods

Sample

843 mothers of preschoolers from 4 provinces : Nonthaburi, Nakornratchaseema, Nakorn pathom and Patumtani were asked to respond to 15 sets of questionnaires compiled into a booklet and 843 (5 years old) children who were their children were examined the oral health by dentists. These mothers were administered the questionnaires when they were in the school meeting rooms. Their age ranged between 19-50 with the average of 33.67 years old.

Measures

All measures were written in Thai Language. Each questionnaire booklet was arranged in one of the four ordering

patterns. There were 6 groups of variables being assessed in this study. 1) Biosocial and background characteristics : maternal age, educational level, work status and income per month were the first 4 variables to be assessed by checking the true answers or filling in the blanks. 2) Four psychological characteristics : dental health knowledge was answered by choosing 2 steps: the first step was to choose true or false and the second step was to choose sure or not sure. The other three characteristics were belief in internal locus of control concerning health, future orientation and mental health. 3) Two mother's behavior : parent-child relationship and self-dental health care. 4) Three family situations : marital relationship, husband's support of maternal child-health care and maternal family work load. 5) Two psychological states : attitude towards dental health care behavior and attitude towards the child. 6) Child-oral hygienic behavior. Most of questionnaires in this study were in terms of summated rating scale, except dental health knowledge test, were assessed by 10-20 items each with 6 point Likert scale to be chosen from "very true" to "not at all true" .

Table 1 Important variables : definition and test's quality, employing Summated Ratings Method

Variable and number of items	Definition	t-ratio Range	r-item-total Range	Reliability (α coefficient)
Child-oral hygienic behavior (15 items each with 6 unit-rating scale)	Mother's report of cleaning the child's mouth correctly and regularly as well as training the child.	4.78 to 9.06	.36 to .62	.82
Husband's support of maternal child-health care (15 items each with 6 unit-rating scale)	Mother's report of husband's interest and assistance in her caring of the child's health	3.79 to 10.52	.18 to .75	.89
Dental health knowledge of mother (10 items with true or false question)	Mother's report of dental health knowledge	3.55 to 20.99	.14 to .87	.89
Self-dental health care (10 items each with 6 unit-rating scale)	Mother's report of self interest and appropriate dental health actions	4.62 to 5.93	.26 to .65	.79
Attitude towards child dental health care behavior of mother (10 items each with 6 unit-rating scale)	Favorable and unfavorable expressions of child dental health care of mother	5.00 to 8.54	.32 to .63	.79

Two hypotheses were tested in this study by carrying out various types of statistical analyses of the data. T- test, Three-way, two-way and also one-way Analyses of Variance were performed on the total sample as well as the subsamples identified by biosocial and background characteristics of mothers. Furthermore, the Stepwise Multiple Regression Analyses were carried out as well.

Results

From Three-way Analyses of Variance, the findings from Table 2 and Fig. 3 could be concluded as follows :

1. Mothers whose children had poorer dental health were
 - 1.1 Mothers who had low income and did not have occupation.
 - 1.2 Mothers who had low child-oral-hygienic behavior.

2. Mothers who had **lower** child-oral-hygienic behavior were
 - 2.1 Mothers who had low income and low educational level.
 - 2.2 Mothers who had more maternal family work load.
 - 2.3 Mother with less husband's support of maternal child-health care and mothers who had less dental health knowledge.

Mothers in
No.1 and No.2
should be trained

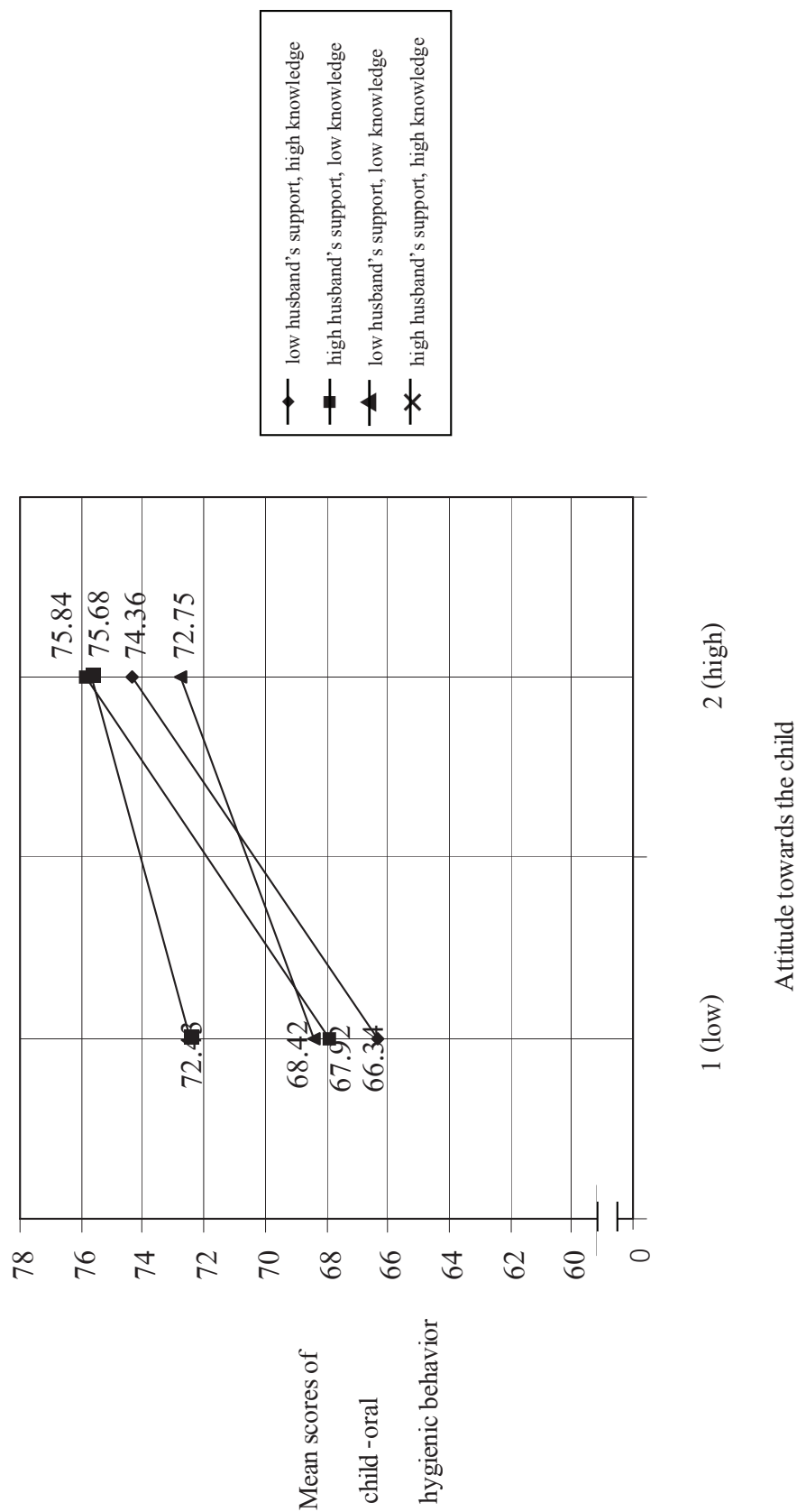


Fig. 3 Three - way interaction effect of husband's support on maternal child health care, dental health knowledge and attitude towards the child on scores of child-oral hygienic behavior of low economic group of mothers of preschool children

Table 2 Analysis of variance of child - oral hygienic behavior of mothers of preschool children by husband's support on maternal child health care, dental health knowledge and attitude towards the child in total group and six subgroups

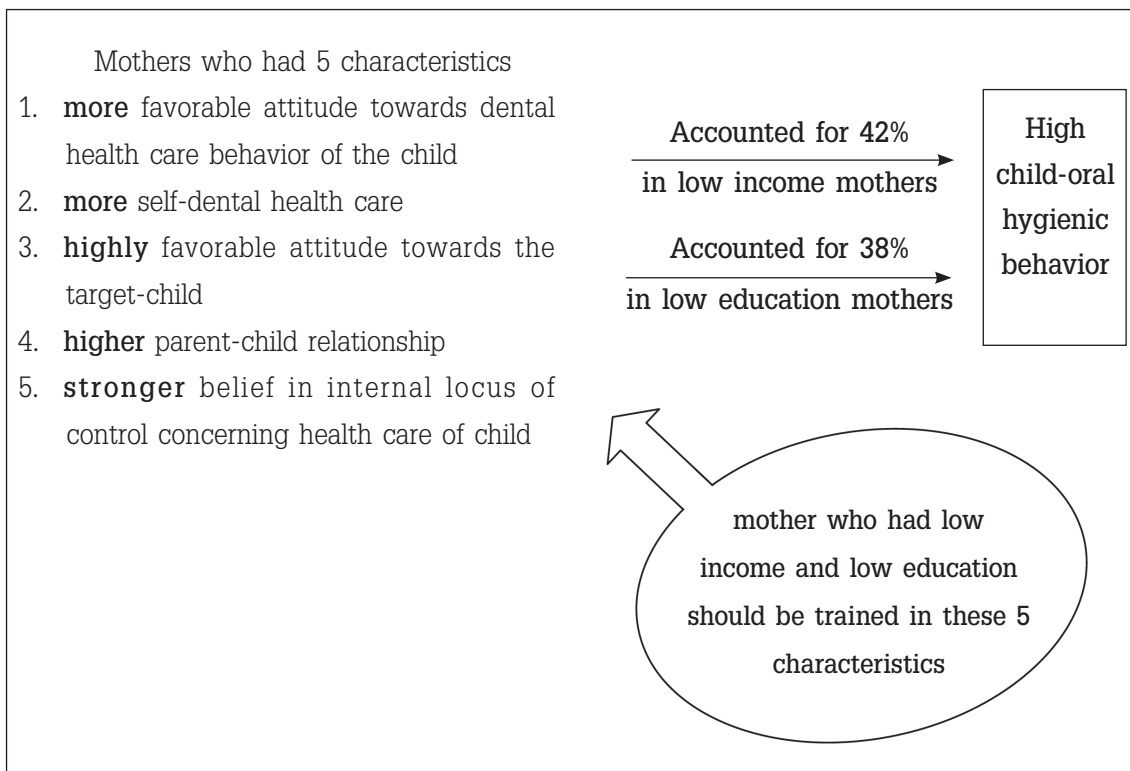
Group	Number	F			F			%	
		Husband's support	Knowledge	Attitude	AxB	AxC	BxC		
		(A)	(B)	(C)				AxBxC	Predicted (total)
Total group	843	22.65***	10.44***	94.52***	1.69	<1	1.07	2.45	16
Young age group	425	11.06***	8.96**	45.68***	<1	<1	1.61	<1	17
Old age group	418	11.52***	2.24	48.82***	6.43*	<1	<1	1.11	16
Low education	342	1.10	1.53	34.02***	1.78	<1	<1	1.74	11
High education	501	28.83***	6.21*	54.48***	<1	<1	2.27	1.09	19
Low economic	427	6.24*	1.15	49.32***	2.91	<1	<1	6.43*	13
High economic	416	18.48***	8.64**	38.70***	<1	<1	1.12	<1	17

*significance at .05 level

** significance at .01 level

*** significance at .001 level

From the Stepwise Multiple Regression Analyses, the 5 important predictors were attitude towards dental health care behavior, self dental health care, attitude towards the child, parent-child relationship and belief in internal locus of control concerning health could be accounted for Child-oral hygienic behavior (42% in low income mothers and 38% in low education mothers) as follows :



Discussion

This study examined the correlates of child-oral hygienic behavior of mothers of preschoolers. The results revealed that belief in internal locus of control concerning health were considerable predictors for child-oral hygienic behavior of mothers of preschoolers apart from dental health knowledge. Child-oral hygienic behavior was found to be significant and supported the hypothesis but in more detail of child-oral hygienic behavior, the most important behavior of mothers is brushing their children teeth. As early childhood caries starts on surfaces that can be easily accessed by routine toothbrushing, poor oral hygiene levels may be associated with caries risk. Increased frequency and better oral hygiene levels are associated with lower caries levels in preschool children. Several studies show that increased toothbrushing frequency and parental involvement decreased carious lesions on smooth surfaces. (Schroder, U. & Granath, L., 1983., Persson, L.A., Holm, A.K., Arvidsson, S. & Samuelson, G. 1985., Paunio, P., Rautava ,P., Sillanpaa, M. and Kaleva, O.1993., Lill-Kari Wendt., Anna-Lena Hallonsten., Goran Koch and Dowen Birkhed.1994., Pine, C.M., Adair P.M., Petersen, P.E., Douglass, Ch., Burnside, G. and Nicoll, A., et al. 2004., Petersen, P.E. 2005., Annerosa Borutta., Maik Wagner. and Susanne Kneist.2010.)

Recommendations for future study

Three important recommendations based on the result of this study are prompted here for planning and future practice. Firstly, mothers who were inappropriate in child-oral hygienic behavior should be trained about 4 characteristics : 1) favorable attitude towards dental health care behavior. 2) increase the experience in dental health care. 3) develop belief in internal locus of control concerning health. 4) develop husbands to have more support of maternal child-health care. Secondly, the health behavior model (K-A-P) was necessary but inadequate for child-oral hygienic behavior of these mothers. Belief in internal locus of control concerning health should be added. Thirdly, the experimental study should be conducted to study about the details in what and how to develop these mothers especially in 2 risk groups : low income and low educational level.

Acknowledgements

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References

- Annerosa Borutta., Maik Wagner. and Susanne Kneist. Early Childhood Caries : A Multi-Factorial Disease. Oral Health and Dental Management in the Black Sea Countries ; Vol. IX, No. 1 - March, 2010.
- Bhanthumnavin D. Theory of moral behavior : Research and individual development : Advanced textbook in psychology and behavioral science. 2nd edition. National Institute of Development Administration. Bangkok, Thailand. 1995.
- Bhanthumnavin D. A new psychological theory for the behavioral development of Thai youth. In the proceeding of the 6th Asian Workshop on Child and Adolescent Development (pp. 430-432). Behavioral Science Research Institute, Srinakharinwirot University, Bangkok, Thailand. 1990.
- Bhanthumnavin D. Theory of morality for Thai people : Research and applications. Special Monograph for the 33rd anniversary of Behavioral Science Research Institute. Srinakharinwirot University. Bangkok, Thailand. 1988.
- Bhanthumnavin D. Review of studies on favorable psychological traits in Thai youth and adults. Thai Journal of Educational Research. 1980 ; 10(2), 29-47.
- Dental Health Division, Department of Health. The Report of The Sixth National Oral Health Survey. 1st edition, Bangkok, Thailand. 2008.
- Lill-Kari Wendt., Anna-Lena Hallonsten., Goran Koch and Dowen Birkhed. Oral hygiene in relation to caries development and immigrant status in infants and toddlers. Scandinavian Journal of Dental Research. 1994 ; 102, 269-273.
- Paunio P., Rautava P., Sillanpaa M. and Kaleva O. Dental health habits of 3-year-old Finnish children, 1993 ; volume 21, issue 1: 4-7.
- Petersen P.E. Sociobehavioural risk factors in dental caries: international perspectives. Community Dentistry and Oral Epidemiology. 2005 ; 33 : 274-279.
- Persson L.A., Holm A.K., Arvidsson S. & Samuelson G. Infant feeding and dental caries - a longitudinal of Swedish children. Swedish Dental Journal. 1985 ; 9, 201-206.
- Pine C.M., Adair P.M., Petersen P.E., Douglass Ch., Burnside G., Nicoll A. et al. Developing explanatory models of health inequalities in childhood dental caries. Community Dental Health. 2004 ; 21: 86-95.
- Schroder U. & Granath L. Dietary habits and oral hygiene as predictors of

References

caries in 3-year-old children, Epidemiology. 1983 ; 11, 308-311.
Community Dentistry and Oral



ปฏิสัมพันธ์ระหว่างปัจจัยทางจิตลักษณะ และสถานการณ์ในครอบครัวที่เกี่ยวกับ พฤติกรรมมารดาในการดูแลรักษาความสะอาด ช่องปากบุตรก่อนวัยเรียน

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาปฏิสัมพันธ์ระหว่างปัจจัยทางจิตลักษณะและปัจจัยทางด้านสถานการณ์ในครอบครัวที่เกี่ยวกับพฤติกรรมมารดาในการดูแลรักษาความสะอาดช่องปากบุตรก่อนวัยเรียน การวิจัยนี้เป็นการวิจัยความสัมพันธ์เปรียบเทียบ (Correlational-Comparative study) และใช้รูปแบบปฏิสัมพันธ์นิยมเป็นหลัก กลุ่มตัวอย่างประกอบด้วยมารดาที่มีบุตรอายุ 5 ปี จำนวน 843 คน โดยให้กลุ่มตัวอย่างตอบแบบสอบถามและได้มีการตรวจทันตสุขภาพของบุตร จำนวน 843 คน สถิติที่ใช้ในการวิเคราะห์ข้อมูลมีหลายประเภท คือ สถิติค่าที่ การวิเคราะห์ความแปรปรวนแบบสามทาง สองทางและทางเดียว การวิเคราะห์ถดถอยพหุคูณแบบเป็นชั้น โดยวิเคราะห์ทั้งในกลุ่มรวมและกลุ่มย่อยที่แบ่งตามลักษณะชีวสังคมและภูมิหลังของมารดา ผลวิจัยที่สำคัญมี 2 ประการ คือ หนึ่ง พบว่า มารดาที่มีบุตรฟันเสียมาก ได้แก่ มารดาที่มีลักษณะดังนี้ 1.1) กลุ่มรวมที่มีระดับเศรษฐกิจต่ำ และไม่ทำงาน 1.2) มารดาที่มีพฤติกรรมในการดูแลรักษาความสะอาดช่องปากบุตรน้อย สอง รูปแบบ K-A-P ทางสาธารณสุขยังมีข้อจำกัดและไม่เพียงพอควรมีการพัฒนาจิตลักษณะทางจิตใจของมารดาด้านความเชื่ออำนาจภายในตนในการเลี้ยงบุตรให้มีสุขภาพดีโดยรวม สำหรับการวิจัยต่อไปควรทำการวิจัยเชิงทดลองประเมินผลต้นแบบพัฒนาจิตลักษณะและพฤติกรรมในการดูแลทันตสุขภาพบุตร โดยเฉพาะในมารดาในกลุ่มเสี่ยง 2 ประเภท คือ มารดาฐานะต่ำและไม่ทำงาน และมารดาการศึกษาต่ำ

คำสำคัญ : ปฏิสัมพันธ์ จิตลักษณะ สถานการณ์ในครอบครัว พฤติกรรมมารดาในการรักษาความสะอาดช่องปากบุตรก่อนวัยเรียน

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