THE INFLUENCE OF SOCIAL CLASS AND OTHER SELECTED VARIABLES UPON THE DENTAL ATTITUDES AND KNOWLEDGE OF PARENTS AND THE DENTAL CARIES EXPERIENCE OF THEIR CHILDREN

A Thesis

Presented To

the Faculty of Graduate Studies and Research

The University of Manitoba

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Richard Terry Israels

May, 1968

ACKNOWLEDGEMENTS

As with most research projects, the successful completion of this study depended on the cooperation and helpfulness of many different people. To all of these people who in some way, be it large or small, aided in the advancement of this study, I wish to acknowledge my sincere appreciation. However, it is with a special sense of obligation that I wish to make particular mention of the following groups and individuals to whom I am gratefully indebted.

Firstly, I wish to thank the Department of National Health and Welfare, Ottawa, for providing the Research Grant which made this study possible.

As well, I wish to acknowledge the kind assistance received from the different private and clinic dentists and dental hygienists who, in spite of their own busy schedules, found time to gather data specifically for this study. Special thanks are due Dr. L. Konyk, City of Winnipeg Dental Health Director, for his interest and advice.

Special acknowledgement is also to be given to Ken Carpenter, a Master's student at the University of Manitoba Computer Centre, who unselfishly gave of his time and efforts in order to prepare expertly designed statistical programs for computer use.

At this time, I would also like to express my

heartfelt gratitude to both my parents who inculcated within me the will to succeed, and to my wife Bette-Jane, who proved an invaluable aid to me in so many different ways.

Last, but certainly not least, I wish to thank the members of my committee, Dr. G. A. Kristjanson, Dr. J. J. Pear and most of all, my advisor Dr. D. L. Rennie, who fostered in me a feeling for Sociology and the academic world which resulted in this Thesis.

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ABSTRACT

THE INFLUENCE OF SOCIAL CLASS AND OTHER SELECTED VARIABLES UPON THE DENTAL ATTITUDES AND KNOWLEDGE OF PARENTS AND THE DENTAL CARIES EXPERIENCE OF THEIR CHILDREN

The objective of this study was twofold. The first objective was to investigate the relationship of the independent variables of social class, income, education, the social class of the mother before marriage, religion, rural or urban background, sex, and the number of children living at home to the attitudes and knowledge towards dental health of the parents of school children who utilize dental services. The second objective was to investigate the relationship between the preceding independent variables and the observed dental caries experience among school-age children who utilize dental services.

Data on caries experience for native Winnipeg children aged six to eight years and in grades one to three, who utilize dental services, were collected by dentists and dental hygienists from both private practice and school dental clinics between the months of September and December of 1967.

Data on the parents of these children were collected by means of a structured interview questionnaire administered to the parent who is the decision-maker regarding his child's dental health. Each set of parents were contacted, first

by a letter explaining the nature of the study, and then by an interviewer setting up an appointment.

The interview questionnaire was basically designed with a twofold purpose: (1) to measure the dental attitudes and knowledge of the parent (decision-maker) whose child utilizes dental services, and (2) to measure social class and other related variables.

By means of contingency tables all of the selected variables in the study were related to the attitudes and knowledge of the sample parents towards dental health. The Chi-square test of independence and the Phi coefficient were applied to each table and the .05 level of confidence was selected for determining significance. Since at least one of the expected cell frequencies in each contingency table proved to be small, Yates' correction factor for continuity was applied to each computed Chi-square. The region of rejection for this study was one-tailed as the hypotheses predicted the direction of the differences between the variables. Finally, one Spearman rank-order coefficient correlation was calculated.

The analysis of data indicated that social class, income, and education of the parents were all significantly related to the dental health attitudes and knowledge of the parents. All varied directly; that is, the higher the social class, the income, and the education of the parents, the higher or more positive were their dental health

attitudes and knowledge.

The social class of the mother before marriage, her religion, a rural or urban background, the child's sex, and the number of children living at home, all failed to relate significantly to dental health attitudes and knowledge.

In analyzing data on observed total caries experience of the sample children, it was found that by comparing the means by visual inspection, the higher the social class, the income, or the education of the parents, the lower were the children's d.e.f., D. M. F., and lower first permanent molar caries rate.

The difference in mean number of caries also indicated, with few exceptions, that Catholic children had the highest rate of dental caries, Protestants were mid-range, and Jewish children had the lowest rate of caries, and that boys had a lower rate of dental caries than girls. No observable differences were noted when comparing the mean rate of dental caries to the social class of the mother before marriage, a rural or urban background, or the number of children living at home.

Richard Terry Israels.

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CHAPTER I

INTRODUCTION

Background to the Study

Governments as well as individuals have become increasingly concerned in the last twenty years with the problem of providing adequate dental care for all people. To this end, numerous studies in the field of dental health have found that where dental services were not state supported, the utilization of dental services was directly proportional to the patients' ability to pay on a fee-for-service basis. For example, The Canadian Sickness Survey of 1950-1951 states that four times as many children in the high or upper income group received dental treatment as those in the lower income group.[1]

It was also found that both the percentage of persons who received dental care and the average number of dental visits were far higher for the upper and middle economic group than for the lower economic group. Interestingly, the greatest difference between upper and lower income groups was found in children under fifteen years of age.

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[1] The Dept. of National Health and Welfare and the Dominion Bureau of Statistics, Illness and Health Care in Canada: Canada Sickness Survey, 1950-51, Ottawa, Queen's Printer, 1960, p. 54.

In 1959 Szwejda conducted a pioneer study on the caries experience of children in Buffalo, New York. His Buffalo Dental Survey revealed that children who resided in high socio-economic areas of the city experienced fewer dental caries than children of the low socio-economic areas of the city.[2]

In general, studies are unanimous in finding that that the lack of dental care among low income groups was a direct result of financial incapacity. This finding is an especially unfortunate one for young children since their treatment is generally prophylactic and the lack of early preventive care of any underprivilged group could result in a greater need for both extractions and dentures at an early age.

To help combat this problem, the City of Winnipeg Health Department, Dental Services Branch, removed the financial barrier by instituting a program of free dental care to children of parents who are either on City of Winnipeg Welfare or who cannot afford the fee for private dentists' services. Thus, with the opportunity of free dental care provided by the government, all children, theoretically may avail themselves equally of dental services.

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[2] L. Szwejda, "Observed Differences of Total Caries Experience Among White Children of Various Socio-Economic Groups", Public Health Dentistry, Vol. 20, No. 3, p. 59-66.

Could it then be assumed that in a reasonable period of time all children in the City of Winnipeg who utilize dental services would have comparable dental health, and that their parents would have comparable dental attitudes regardless of their socio-economic status? It is precisely to test this kind of an egalitarian assumption so often common to the instituting of many such state health and welfare programs, that this exploratory study was proposed.

Objective of Study

The objective of this study was twofold. The first objective was to investigate the relationship of the independent variables of social class, income, education, the social class of the mother before marriage, religion, rural or urban background, sex and the number of children living at home, to the attitudes and knowledge towards dental health of the parents of school children who utilize dental services. The second objective was to investigate the relationship between the preceding independent variables and the observed dental caries experience among school-age children who utilize dental services.

Outline of Study

Chapter II will be concerned with presenting literature on both dental attitudes and knowledge and dental caries.

Chapter III will offer a sociological perspective and a theoretical argument leading to the hypotheses of the study. Also, the dental terms used in the study will be defined.

Chapter IV will be the chapter in which the methodological procedures employed in the study will be explained.

Chapter V will deal with the actual presentation of data with related discussions of the findings to the hypotheses being tested.

Chapter VI will offer a summary and conclusion of the study.

Chapter VII will present a brief epilogue to the study.

CHAPTER II

REVIEW OF THE LITERATURE

Although an increasing number of studies have been conducted on the relationship between socio-economic variables and dental health, all of the studies reflected an essentially similar perspective. That is, their approach in relating specific socio-economic variables such as social class, income or education to dental attitudes or dental caries experience has always been in terms of a third variable -- the demand for and utilization of dental services.

Studies such as those stated in the Background to the Study in Chapter I, consistently arrive at the following conclusions:

(1) the higher the socio-economic status of the person, the greater will be the demand for and utilization of dental services,

(2) the greater the demand for and utilization of dental services, the more positive will be the attitudes regarding dental health,

(3) the greater the demand for and utilization of dental services, the lower will be the corresponding dental caries experience.

In sum then, dental research has found that the greatest demand for and utilization of dental services come

from the upper class, who, as a result, possess the most positive attitudes towards dental health and the lowest rate of dental caries experience.

The review of the literature for this study was necessarily limited due to the fact that few, if any, studies to date have concerned themselves directly with the objectives stated in this study. However, in analyzing previous studies the researcher was able to extract certain relevant material.

Literature on Dental Attitudes and Knowledge

In "A Motivational Study of Dental Care" conducted for the American Dental Association by Social Research, Inc. it was observed:

> "that people have many attitudes toward their teeth and their associated behaviors are complexly motivated ...Teeth are a bodily part considered important in all types of social situations and relations. People readily see teeth as symbolizing a person's character and values, his style of life and his socio-economic class, and attitudes toward dental care involve these interpersonal factors. They also refer to the fact that dental care is something that is taught in both direct and indirect ways: parents, peers, teachers, and dentists serve as instructors and models in this area of body care, and how people feel about and relate to these different figures are of consequence in determining the type of care they give to their teeth. For from these sources people come to have many beliefs, opinions, superstitions, rationales, and fantasies about teeth and dental care, and in these social situations they learn many of the problems, rewards, and disadvantages associated with caring for or neglecting their teeth."[1]

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[1] Bureau of Economic Research and Statistics, "A Motivational Study of Dental Care", J. A. D. A., Vol. 56, p. 434-5.

One finding common to most studies is that the public as a whole is simply not impressed with the importance of proper dental care.[2] However, it is often found that even where a desire to maintain optimum oral hygiene does exist, ignorance or simply a lack of proper hygienic procedures can often result in neglect of the teeth.[3]

Morpurgo in his article entitled "A Sociological View of Dental Health" treats the subject of dental attitudes in the following manner. He states:

> Attitudes of the general public to dental health and treatment are of obvious importance in their influence on oral hygiene, on the training in oral hygiene given by parents to children, and on the pattern of visits to the dentist. Social and economic factors are likely to play an important role in deciding who becomes a patient and how frequently he attends for check-up and treatment. Different sections of the population are likely to regard dental health as having different importance and to accept varying degrees of dental fitness as meeting their needs. We found no direct data on these matters.
>
> Some indication of the public's attitude to dental health is provided by demand for treatment. Of particular significance was the undoubted increase in this demand upon the introduction of the National Health Service. When charges to the patient were introduced in 1951-2 that demand was reduced.....[4]

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[2] C. Gross, "A Survey Study of Public Opinion and Education Concerning Dentistry", Oregon State Dental Journal, Vol. 25, No. 1, Sept. 1955, 2-9.

[3] B. Hollingshead, The Survey of Dentistry. Washington: American Council on Education, 1961.

[4] P. Morpurgo, "A Sociological View of Dental Health," Proceedings of the Royal Society of Medicine, Vol. 56, p. 350.

As the attitude studies already cited indicate, the actions that an individual may take to maintain good dental health habits will be the result of the interplay of many different variables upon him.

By far, the socio-economic variables of social class, education, and income prove to be of paramount importance in the understanding of different types of dental care attitudes and practices.

Studies in general in attempting to differentiate between the values, beliefs, attitudes and knowledge of the different classes, usually characterize the upper class people as valuing their teeth quite highly, and of being genuinely interested and concerned about preventive dentistry. They believe tooth decay can be partially controlled and hope that they can preserve their own teeth for as long as possible. They generally visit the family dentist at least once every year.

In contrast to this, the lower classes are usually characterized as having little or no concern about whether they care for or neglect their teeth. Many do not even brush their teeth let alone receive other types of dental care. They consider both tooth decay and loss as inevitable -- not at an old age, but often for people thirty years of age or younger. Some are said to believe that there are definite advantages in wearing dentures over having natural

teeth. Few if any have a regular dentist.[5]

Koos' sociological study of attitudes toward illness, entitled The Health of Regionville substantiates the above generalizations. He found that 52 per cent of the individuals in class I (business and professional people) sought dental care for the purpose of prophylaxis and examination as compared to only 14 per cent of the individuals in class III (unskilled workers). Conversely, 57 per cent of the individuals in class III claimed that they sought dental care only to have teeth extracted. No one in class I gave this as their only reason for going to the dentist. Finally, 95 per cent of the families in class I reported that they had a family dentist in comparison to only 12.5 per cent of the class III families.[6]

Along with such fact finding studies as The Canadian Sickness Survey of 1950-1951 and Dental Manpower in Canada, survey studies such as The Public Looks at Dental Care by Freidson and Feldman and Socio-Economic Status and the Utilization of Dentists' Services by Kriesberg and Treiman confirm that persons of higher socio-economic status, as measured by income, education or occupation visit the dentist on a more frequent basis than do persons of lower

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[5]Bureau of Economic Research, "A Motivational Study", J.A.D.A., p. 556.

[6]E. L. Koos, The Health of Regionville. New York: Columbia University Press, 1954, 118-125.

socio-economic status.

The actual findings from Freidson and Feldman's study indicate that:

> (Firstly) seeing the dentist varies with occupation: 56 per cent of those in families whose main earner was in business or the professions, and in clerical or sales work, see the dentist at least once a year, but only 27 per cent of those in families whose main earner was an unskilled, semi-skilled or domestic worker, and 22 per cent of those in families whose main earner was a farmer, see him regularly. (Secondly) seeing the dentist increases with income: 56 per cent of those in families earning $7,500 a year or more see the dentist at least once a year. Only 17 per cent of those in families earning under $2,000 a year do so. And finally, as education increases, the proportion of those seeing a dentist regularly increases: Whereas 65 per cent of those who have attended college reported seeing a dentist at least once a year, only 18 per cent of those who have had eight years or less of schooling did so.[7]

Findings arrived at by the U. S. National Health Survey are almost synonymous with those of Freidson and Feldman's study. Moreover, the U. S. study

> .....indicated that family income and the education of the family head were related independently to the frequency with which dental care was sought. In other words, when income was held constant, the utilization of dental service varied in proportion to the amount of education attained by the family head. When education of the family head was the constant, a correlation was still found between income and the frequency with which dental treatment was sought."[8]

One may hypothesize that the introduction of a dental health education program would result in better

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[7] E. Freidson and J. Feldman, "The Public Looks at Dental Care", Health Information Foundation (Research Series), Sept. 1958, p. 6-7.

[8] Hollingshead, Survey of Dentistry, p. 23-24.

dental attitudes with greater utilization of dental services. However, a discrepancy may exist between dental knowledge and actual practice.

> "People may possess quite accurate knowledge about a specific health practice, the adoption of which should, in the view of the health professions, result in optimum health. But people who know what is recommended may or may not be sufficiently convinced of the desirability of the procedure for that knowledge to be translated into actual practice."[9]

For example, people can give the right answer about how frequently they should brush their teeth, but when privately asked for their opinion, many would say quite honestly that they really do not believe it.

Discrepancies such as this tend to vary from one class of people to another with the major reason for variation being one of economic differences. That is, it must be understood that some people simply cannot afford to put their dental knowledge into practice.[10] However, a dentist in Alberta, after completing a study entitled "Utilization of Dental Services by Welfare Recipients in a Private Dental Office" concluded that "Government subsidization of dental care by itself does not necessarily encourage or result in more comprehensive dental care of people who

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[9] R. Goodacre et. al., "Survey of Community Knowledge, Attitudes and Habits in Regard to Four Dental Health Practices as They Apply to Children", J.C.D.A., Vol. 32, No. 7, July, 1966, p. 418.

[10] Freidson and Feldman, "Public Looks at Dental Care", p. 13.

may receive such benefits."[11]

Thus, in order to successfully increase the utilization of dental services as well as to inculcate more positive attitudes and knowledge regarding dental health, a subsidized or free dental care program such as is presently available for children in the City of Winnipeg must be coupled with a well-planned and thorough educational program for the children and their parents.

Literature on Dental Caries

Dental caries is the most common disease to affect the mouth. It is suspected that on the average, fewer than five people out of 100 will ever escape its attack. This small proportion of the population is termed "Caries Immune". However, for the rest of the population, that is the other 95 per cent, the Survey of Dentistry in the United States found that:

> "The primary teeth may start to decay before the third birthday, and the total 'd.e.f.' (decayed, indicated for extraction, filled) rate increases until the time when the process of exfoliation begins to reduce the average number of teeth in the mouth, generally at about six or seven years of age. At this period the total d.e.f. ranges from three to eight teeth affected,

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[11] A. Bodnarchuk, "Utilization of Dental Services by Welfare Recipients in a Private Dental Office", Journal of the Canadian Dental Association, Vol. 33, No. 3, Mar. 1967, p. 128.

> depending primarily on the amount of fluorides in the water supply. In most population groups the number of filled primary teeth represents only a fraction of those affected by decay, and, as a consequence, the number of teeth missing or indicated for extraction is high. As the number of primary teeth remaining in the mouth drops, the total d.e.f. count declines. Considered in terms of the number of teeth present, however, caries activity continues to increase as long as primary teeth are present.[12]

In children from about the ages of five to twelve, such as the 6, 7 and 8 year old sample children in this study, both the deciduous and permanent teeth are under caries attack. As the Survey of Dentistry points out,

> "during this period some of the most serious consequences of neglected primary teeth become evident. All too frequently the premature loss of primary molars, due to neglected carious lesions, results in a shifting and malpositioning of the erupting permanent teeth."[13]

The Survey reports that caries continue regularly and relentlessly to attack the permanent teeth of the individual. In referring to the relationship between caries and permanent teeth, the Survey states that "once they have come into the mouth, they are continuously subject to attack until the individual has run out of teeth or out of time itself."[14]

While endless dental research is being carried out on the problem of caries, and steady progress is being made, nothing has yet been discovered which can completely prevent dental caries. However, to this end, there is no

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[12] Hollingshead, Survey of Dentistry, p. 14.

[13] Ibid., p. 15.

[14] Ibid., p. 15.

doubt that the control methods recommended today are of considerable value in this respect.

In an extremely informative book entitled Dental Health, Professor H. H. Stones discusses the first measure in attempting to control dental caries. He points out the importance of the diet of expectant mothers, since the development of the child's teeth begins during early pregnancy. Thus, through scientific studies it has been concluded that the expectant mother's diet should contain such things as proteins, fats, calcium, phosphorus, and vitamins as well as sugars and starches, in order to ensure healthy development of the child's teeth.

Another factor that has been found to be important in the control of dental caries is the person's own diet, or what Stones calls the "Regulation of Refined Carbohydrate Consumption." Stones claims that:

> For the initiation and development of dental caries it is necessary that fermentable carbohydrates should be present in the mouth. Thus, the diet has an importance related to its local, as well as its general or systemic effect. The aim, therefore, is to prevent bacteria of the mouth obtaining their main source of food, namely fermentable carbohydrates, so preventing the formation of the enzymes and acids which destroy tooth structure. This objective is aided by adopting the following regime:-
>
> (1) Meals should be taken at regular times.
> (2) Snacks such as bread, confectionery and sweets should not be taken between meals.
> (3) Fibrous food such as a slice of apple should be taken at the end of the meal.[15]

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[15] H. Stones, Dental Health. London: Dental Board of the U. K., p. 59.

A third factor is that of proper oral hygiene practices. As Stones puts it:

> The aim of oral hygiene, as carried out by the individual, is to remove all particles of food from the mouth after eating and drinking. In addition, the action of toothbrushing gives tone to the gums and keeps them firm and healthy.
>
> Since bacteria can begin to act on food particles within 1½ minutes of eating, oral hygiene, to be effective must be undertaken at once. Delay is dangerous to dental health. As a minimum the teeth should be brushed after breakfast, after lunch and most important of all, after the last food or drink at night.[16]

The regular utilization of dental services is a fourth factor by which dental caries can be controlled. Regular dental care is one of the most essential aspects with regard to the prevention of dental disease. Expert examination at regular intervals by a dentist is necessarily required for the detection of early dental caries. The use of x-rays by the dentist can even help to reveal caries which cannot be detected by the naked eye. As well, the use of prophylactic fillings may help to prevent certain susceptible areas of the teeth from dental caries. Through the free school dental clinics established by the Government, all children in the sample of this study, regardless of their parents' income, were theoretically equally able to utilize dental services on a regular basis.

Fluoridation of our drinking water is the fifth

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[16] Ibid.

and final factor for controlling dental caries. "A Dental Caries Study" which compared the dental health of children after 5 years of fluoridation with children who received no fluoride, found that children in the 6 to 8 year age group who were receiving fluoride in their water supply, had better teeth than the children who were being deprived of this health measure.[17]

It was also found that as the groups studied advanced in age, little or no difference was found between those who received fluoride and those who did not. This is simply because their permanent teeth had already developed. However, other studies prove that as fluoridation continues, the teeth of older children and even of adults, will benefit.

A study entitled "Caries Experience among Children in Two Fluoridated Communities where the Fluoride Concentration Was Adequately Maintained In Only One" found that in comparing d.e.f. and D.M.F. rates of caries experience, those children who received fluoridation had better dental health.

Finally, in 1966 the City of Winnipeg School Dental Examinations found that, since 1956 when fluoridation was introduced into the domestic water supply, D.M.F. caries

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[17] J. Chrietzberg et. al., "A Dental Caries Study", Journal of the Georgia Dental Association, Vol. 30, No. 4, Apr. 1957, p. 83.

rates in children have dropped to between 1/2 to 1/3 their previous rate.[18]

One of the first studies on children's dental caries experience which had sociological implications, was conducted in the year 1936. In this study entitled "A Statistical Study of Caries in the Deciduous and Permanent Teeth of Children", Joseph T. Cohen, a Minneapolis dentist, found that "children who come from families of the higher socio-economic groups have better deciduous teeth."[19] Although his arbitrary class divisions based on occupation were somewhat weak, the study seemed to open the doors to an extremely important aspect of dental health, which to all intents and purposes had previously been overlooked.

However, according to Louis F. Szwejda, who was in charge of "The 1959 Buffalo Dental Survey", his was the first study in almost twenty years to show that differences exist in the caries experience of white children of various socio-economic groups. In justification of this he states:

> Since the studies of Klein and Palmer (1940) it has been believed that there was no difference in the prevalence of dental caries in children of diverse socio-economic classes, but that the lower socio-economic groups had greater unmet dental needs. Hagan in Georgia (1947), and McCauley and Frazier

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[18] City of Winnipeg Health Department, 1966 Annual Report.

[19] J. Cohen, "A Statistical Study of Caries in the Deciduous and Permanent Teeth of Children", J.A.D.A., Vol. 23, No. 2 Feb. 1936, p. 325.

> in Baltimore (1955) found no less dental caries experience in children of more fortunate socio-economic circumstances than those children of more indigent areas.[20]

An independent study in 1965 entitled "Economic Level, Dental Health, Interest Response to a Poliomyelitis Vaccination Programme and Voting Behavior in a Fluoridation Plebiscite" by MacRae and Zacherl substantiates Szwejda's findings. The authors agree that "until the 1959 Buffalo Dental Survey it was assumed that the prevalence of dental caries did not vary significantly among children of various socio-economic areas of the city."[21]

Szwejda's study began by having school children in various areas of the city examined for dental caries. These children were then ranked socio-economically as being "high", "average", or "low" according to housing characteristics derived from the 1950 U. S. Census of Housing.

Dental caries experience in both the primary and permanent dentitions were compared and with remarkable consistency he observed that:

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[20] L. Szwejda, "Observed Differences of Total Caries Experience Among White Children of Various Socio-Economic Groups", Public Health Dentistry, Vol. 20, No. 3, Fall 1960, p. 59.

[21] P. MacRae and W. Zacherl, "Economic Level, Dental Health, Interest Response to a Poliomyelitis Vaccination Program and Voting Behavior in a Fluoridation Plebiscite", J.C.D.A., Vol. 31, No. 11, Nov. 1965, p. 707.

> Children residing in the high economic areas of Buffalo showed the lowest dental caries experience and, conversely, children of low housing tracts exhibited the highest D.M.F. rates. Dental caries experience of children for the average economic level of Buffalo fluctuated generally between the rates of the low and high socio-economic classes.[22]

Important as these findings were, Szwejda could not prove any direct cause and effect relationship between total caries experience and type of housing because he had not controlled for utilization of dental services. As a matter of fact, the study ends with the following remark regarding dental care. "Greatest unmet needs were present in the children of the low socio-economic strata."[23]

Due to a notable lack of further research into this specific area, the Review of the Literature with respect to Dental Caries will conclude with the recent and important findings of Dr. S. Baumrind in his article "Heredity or Environment" Considerations in the Etiology of Dental Disease."

The purpose of his study was to prove whether or not the fatalistic attitudes which some people and even some dentists hold with regard to bad teeth, were justified. Baumrind explains that:

> Almost any day in almost any dental office a patient will be heard to say, "My father lost his teeth before he was forty so I guess I will too," or "I get my soft teeth from my mother's side of

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[22] Szwejda, "Observed Differences" P. 61-62.

[23] Ibid., p. 62.

> the family." All too often the dentist will accept or even concur in such formulations. Perhaps it is appropriate that we dentists take another look at the nature of heredity and examine its influence on dental disease in the light of current knowledge.[24]

After an involved report on biochemistry and genetics, the author was able to conclude that:

> A patient may inherit a high genetic potential for decay. His teeth will non-the-less remain caries free if we eliminate the environmental substrate for decay -- fermentable carbohydrates.....
>
> Thus we may affirm that dental treatment based on control and alteration of the local oral environment is both rational and effective. Dentistry succeeds because the limiting factors in the treatment of most oral pathology are not hereditary ones but are rather local environmental phenomena subject to the control of dentist and patient.[25]

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[24] S. Baumrind, "Heredity or Environment? Considerations in the Etiology of Dental Disease", California Dental Assoc. Journal, Vol. 41, No. 5, Oct. 1965, p. 429.

[25] Ibid., p. 430-431.

CHAPTER III

STATEMENT OF THE PROBLEM

I. SOCIOLOGICAL PERSPECTIVES OF THE PROBLEM

Chapters I and II show that with regard to the utilization of dental services gross differences exist between people of different socio-economic statuses. From a sociological perspective these findings were not surprising for even in a country such as Canada with its avowed equalitarian ideology, a "de facto" system of social stratification exists.

Of fundamental sociological importance are the several socio-economic variables by which people in an open-class system of stratification are differentially graded into a hierarchy of ranks or classes. The first of these is the economic dimension which serves to stratify people according to their amount and source of income. Second, there is the variable of occupation, usually resulting in the main source of income. Status and differentiation of prestige are often associated with occupation. Finally, there is the variable of education which can function as a main determinant in achieving a higher class position.

Therefore, most scales designed to measure class, will in some way take into account these three major socio-economic variables by which people may be objectively ranked.

Blishen's Scale, the instrument used to measure social class in this study was based on this exact principle.

Classes then for this study are aggregates of people who enjoy similar occupational status, with a comparable level of income and educational level of attainment.

Sociological studies have found that members of the same social class

> "have similar chances to obtain certain values and opportunities which are of primary importance for life and survival. Everything from the chance to stay alive during the first year after birth to the chance to view fine arts, the chance to remain healthy and grow tall, and if sick to get well again quickly, the chance to avoid becoming a juvenile delinquent -- and very crucially, the chance to complete an intermediary or higher educational grade -- all these 'life-chances' are crucially influenced by one's position in the ..... class structure."[1]

As a result, each class generally speaking, comes to possess its own way of life, each with its respective system of class values, made up of such things as ideals, beliefs, attitudes, and knowledge. Several thorough sociological studies of American communities, such as Middletown and Middletown in Transition, both by Robert and Helen Lynd, the Yankee City Series by W. Lloyd Warner, Plainville U.S.A. by James West, and Elmtown's Youth by August B. Hollingshead, all found distinct variations between the different social classes in terms of almost every dimension studied.

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[1] K. Mayer, Class and Society. New York: Random House, 1964, p. 23.

One of the most basic and important factors related to social class which to this point has not been mentioned, is the socialization process. In his book Social Stratification, Bernard Barber states that "It is an essential feature of human behavior that social norms, ideas and emotions are not innate but have to be learned by participation in society."[2] Thus, he refers to the newlyborn as

> "barbarians.....socially shapeless but plastic infants who must be trained to everything that is socially most fundamental. At first they present to society nothing but the biological 'potentiality' of becoming humanly capable of taking their various places in the many different roles and ranks of society."[3]

Therefore, since so great a part of human behavior is learned, there exists in all societies various structures and processes for training or socializing children. To this end Barber writes:

> "In every society, the family is the first social influence on the child. It is the family that lays down the basic and most general ideas, norms, and emotions that he will live by throughout the rest of his life. Everything that happens to the individual later has to be seen in the context of this first, informally organized but very intensive socialization by the family group of parents and siblings."[4]

Although the family cannot absolutely determine all that is to follow, the socialization, which the child has experienced as a result of his parents' training will

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[2] B. Barber, Social Stratification. New York: Harcourt, Brace and World, 1957, p. 264.

[3] Ibid., p. 265.

[4] Ibid., p. 267.

nevertheless almost always exert a predominant influence upon him. In this way, the infant usually "becomes an approximation of the model his parents have at least implicitly had in mind for him as an adult."[5]

In recent years, sociologists have conducted many illuminating studies into the child-rearing practices of parents in the different social classes. Two of the more notable sociological studies proving a direct correlation between social class and socialization were conducted by such people as Martha Ericson, and Davis and Havighurst. Martha Ericson's study was researched in Chicago in the early 1940's. In comparing middle and lower class mothers as to their child-rearing practices, her interview data showed that in middle class families, children are generally taught to establish cleanliness habits earlier, are toilet-trained earlier, are trained to control aggression earlier, and are trained to assume responsibility for their own activities earlier than are lower class children. While confirming Ericson's findings, Davis and Havighurst also discovered several more refined differences between the middle and lower classes. For example they found that middle class fathers spend more time with their children and give them more education than do working class fathers.

Finally, in a 1954 study of child-rearing practices in the metropolitan area of Boston, Maccoby and Gibbs found

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[5]Ibid., p. 265.

that lower class parents employed physical punishment, deprivation of privileges, and ridicule as means of controlling their children more often than did upper or middle class parents.[6]

No sociological studies were found to have specifically investigated the relationship between child-rearing practices with regard to dental health and the different social classes of the parents. However, similar findings to those cited above would be expected. That is, it would be expected that parents in different social classes would socialize their children differently in regard to dental health practices.

II. THEORETICAL STATUS OF THE PROBLEM

On the basis of many past studies of a dental nature, attitude towards dental health has been measured by the demand for and utilization of dental services. From this point of view, although this study is not directly concerned with utilization of dental services, it could be assumed that all of the children in the sample already possess positive attitudes toward dental health due to the fact that they all attend the private dentist or the dental clinics on a regular basis. As well, this would seem to indicate that the parents of these children possess positive

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[6] Ibid., p. 273.

attitudes and knowledge regarding dental health since the actions of children who are only six to eight years of age can hardly be assumed to be independent of their parents' wishes. That is, all of the parents in the sample are obviously concerned enough with the problem of dental care to send their children to the dentist, and this in itself lifts them above the indifferent attitude of parents who do not motivate their children enough to utilize dental services.

Nevertheless, it is obvious that differences will be found within the sample parents in regard to the socio-economic variables of social class, education, and/or income. In view of the sociological findings presented in the foregoing discussion, these differences can be expected to result in differences in the attitudes and knowledge of the parents in regard to dental health as measured by Section I of this study's questionnaire.[7]

From a sociological perspective, it could then be assumed that the differences in the attitudes and knowledge of the sample parents in regard to dental health, will most

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[7]The researcher felt that both attitudes and knowledge regarding dental health were so closely related that they were considered as a single dimension in this study. While many past studies of a dental nature refer only to the "attitudes" regarding dental health, the researcher felt that "knowledge regarding dental health" was equally as important since most people's professed statements about dental health are based to a large extent on their knowledge of what constitutes good oral hygiene. Moreover, most of the questions in the questionnaire such as "bleeding gums are commonplace and can easily be cured by not brushing the teeth for a few days" involve both dental attitudes and dental knowledge.

certainly result in differential socialization patterns of their children in terms of their dental care and practice.

Let us follow this hypothetical reasoning through one more step to its logical conclusion taking into account the following two very important factors. Firstly, it must be remembered that all of the sample children have availed themselves equally of dental services so that no differences in caries experience of the sample children can be explained in terms of the utilization of dental services. Secondly, since Baumrind's recently published findings which are discussed in the Review of the Literature concluded that oral defects of a so-called genetic nature can be minimized, differences in the caries experience of the sample children can be most meaningfully explained in terms of environmental rather than hereditary factors. It follows therefore, that if any observed differences are found to exist in the total caries experience of the sample children, they would necessarily be related to the different patterns of socialization and child-rearing practices with regard to dental health. However, both the child-rearing practices of the parents with regard to dental health, and the actual dental attitudes and knowledge of the parents are merely functions of the

all important differences in specific socio-economic variables of the parents. Therefore, in the final analysis, any observed differences in the total caries experience of the sample children would be the result of the differences in the socio-economic variables of their respective parents.

In brief, the argument considered in this study is as follows:

(1) Differences in the socio-economic variables of social class, occupation, and income. ⟶ (2) Differences in dental attitudes and knowledge

(2) Differences in dental attitudes and knowledge ⟶ (3) Differences in socialization patterns and child-rearing practices with regard to dental health.

(3) Differences in socialization and child-rearing ⟶ (4) Differences in caries experience

However, since both (2) and (3) are basically functions of (1), then (1) ⟶ (4).

III. HYPOTHESES

For the purposes of this study, the following hypotheses were formulated and tested:

Hypotheses Concerned with Social Class

(1) The higher the social class of the parents, the more positive will be their attitude and knowledge regarding dental health.

(2) The higher the social class of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with social class.

Hypotheses Concerned with Income

(3) The greater the income of the parents, the more positive will be their attitude and knowledge regarding dental health.

(4) The higher the income of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with income.

Hypotheses Concerned with Education

(5) The higher the education of the parents, the more positive will be their attitude and knowledge regarding dental health.

(6) The higher the education of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with education.

Hypotheses Concerned with the Social Class of the Child's Mother Before Marriage

(7) The higher the social class of the mother before marriage, the more positive will be

her attitude and knowledge regarding dental health.

(8) The higher the social class of the mother before marriage, the lower will be the total observed caries experience of the child; that is, dental health will vary directly with the social class of the mother before marriage.

Hypotheses Concerned with Religion

(9) There is a relationship between the religion of the parents and their attitude and knowledge regarding dental health.

(10) There is a relationship between the religion of the parents and the total observed caries experience of their children.

Hypotheses Concerned with the Rural-Urban Background of Parents

(11) There is a relationship between the rural-urban background of the parents and their attitude and knowledge regarding dental health.

(12) There is a relationship between the rural-urban background of the parents and the total observed caries experience of their children.

Hypotheses Concerned with the Child's Sex

(13) There is a relationship between the child's

sex and his parents' attitude and knowledge regarding dental health.

(14) There is a relationship between the child's sex and his total observed caries experience.

Hypotheses Concerned with the Number of Children Living at Home

(15) There is a relationship between the number of children living at home and their parents' attitude and knowledge regarding dental health.

(16) There is a relationship between the number of children living at home and the total observed caries experience of the child.

IV. DEFINITIONS OF DENTAL TERMS

Clear and concise definitions of the dental terms used in this study were necessary in order to ensure that each dentist did in fact measure dental caries experience in a like manner. The "Service Manual for the Dental Division of the City of Winnipeg Health Department" provided the researcher with definitions that were used as standards for the interpreting and recording of caries.

Prematurely Lost: Indicates the number of deciduous and permanent teeth which have been prematurely extracted excluding traumatic loss. Deciduous teeth will

be considered prematurely lost if the extraction has been obviously a year or more ahead of the normal shedding time or when the gum is healed over with no sign of the eruption of the permanent replacement.

Crowns Destroyed: The number of deciduous and permanent teeth which have less than one third of their crown remaining or which are abscessed. This excludes traumatic loss.

Other Caries: Indicates the number of deciduous teeth and permanent teeth needing restoration. An open cavity will include one in which the explorer point sticks and resists withdrawal, or in which softness is palpable. Interproximal edges or roughness capable of holding the explorer point are to be recorded as caries but hard stained enamel surfaces and developmental enamel imprefection are not considered as caries. Where there is recurrent decay in a previously restored tooth it is considered as decayed only.

Completely Restored: Indicates the number of deciduous and permanent teeth completely restored (e.g. a tooth with both a restoration and a cavity is considered as decayed only.)

d.e.f.: (decayed, extracted, filled). This is the total deciduous caries experience.

D. M.F. (decayed, missing, filled). This is the total of the permanent tooth caries.

Lower First Permanent Molars:

(1) Examine: This is the number of lower first permanent molars examined (e.g. 0 means no first permanent teeth present, 1 means one present, 2 means two present.)

(2) Occlusal: This is the number of lower first permanent molars having caries on the biting surface.

(3) Buccal Pit: This is the number of lower first permanent molars having caries in the cheek surface.

(4) Mesial: This is the number of lower first permanent molars having caries on the surface of the tooth closestto the midline of the mouth.

(5) Lost: This is the number of permanent molars prematurely extracted.

Fluorosis: Indicates any apparent mottling effect on the teeth, as a result of native born exposure to one part per million of fluoride in the Winnipeg water supply.

CHAPTER IV

METHODOLOGICAL PROCEDURES

Sample

The sample included 111 children and their parents. The first 111 children who presented themselves for a dental examination and fulfilled the following requirements were chosen as sample subjects by the dentists: (1) The child must be between the ages of six and eight years old. (2) The child must be a native of the City of Winnipeg. (3) The child must be in Grades One to Three. (4) The child must have visited his dentist for at least one year. (5) The child must not have been absent from the City of Winnipeg for longer than a three-month period.

The first requirement was necessary because this is the specific age group which qualifies for free dental care in the school clinics in the City. As well, this age group was selected because it is in this age period that children will have both deciduous and permanent teeth. Also, they are at an age in which their actions are directly influenced by the attitudes and knowledge of their parents.

The second requirement or control was necessary since the absence of fluoride in another city's water supply could affect the child's caries experience. This same reasoning explains the fifth requirement of the sample.

Requirement (3) reflects the policy of restriction followed by the School Dental Clinic. That is, only children in these grades are eligible for free dental care.

The fourth requirement was that the child had been a patient of his particular dentist for at least one year prior to the time of this study. Only children who utilized dental services were chosen for the sample because the researcher was trying to keep utilization constant.

A sample of twenty children was originally requested from each dentist. The two City Staff dentists easily provided the researcher with the information on 42 children who attended the school dental clinics, most of whom by definition were lower class. However, the original four private dentists found this quota very hard to fill as the controls created extreme difficulty for the obtaining of a sample size of any magnitude. Therefore the help of extra private dentists was enlisted to obtain the desired sample size. However, the researcher found that some of the dentists' professed interest in research of this kind seemed still to be at the reading level rather than the actual level of participation. So that finally, at the end of four months, and with the help of three dental hygienists working for private dentists, a sample of 71 children who utilize private dental services was collected. Thus the total sample size was 113. However, when two parents refused to be interviewed, the sample size was necessarily dropped to 111.

The children were selected on a quota rather than random basis; the sample reflects a selected portion of the population, and it may not be representative of the population as a whole. Thus the 111 children do not constitute a random sample, because random procedure was not invclved.

The parental sample was made up exclusively of the parents of the children in the sample. To qualify in this study, the parents were simply to be living with the child.

The Questionnaire

Data on the dental attitudes and knowledge of the parents of these children were collected by means of a structured interview questionnaire administered to the parent who claimed to be the decision-maker regarding the child's dental health. Each set of parents was contacted, first by a letter explaining the nature of the study (see Appendix B) and then by an interviewer setting up an appointment.

The interview questionnairewas basically designed with a twofold purpose: (1) to measure the dental attitudes and knowledge of the parent (decision-maker) whose child utilizes dental services, and (2) to measure social class and other related variables. As well, the questionnaire was constructed in a manner that facilitated the easy transfer of data to I.B.M. cards. (The questionnaire can be found in Appendix D).

The type of scale used for studying the attitudes and knowledge of the parents towards dental health followed the pattern devised by Likert, and is referred to as a Likert-type scale. It was a summated scale of the "fixed-alternative" or "closed" type requiring the respondent to answer in terms of a certain degree of agreement or disagreement (i.e. strongly agree, agree, undecided, disagree, and strongly disagree) with the proposition presented. (The instruction sheets given to the respondents by the interviewers can be found in Appendix C).

Section I of the questionnaire consisted of fifty statements with regard to dental health attitudes and knowledge. These statements were compiled from different sources such as books on dental health education, dental journals, dental care pamphlets, and dentists themselves. This part of the questionnaire was pretested on four City of Winnipeg dentists, who are well acquainted with research in the dental field. With the help of their critical comments, modifications and changes were made in the questionnaire. All four dentists, in answering the final draft of the questionnaire, scored extremely high. Therefore, making the assumption that dentists possess the most positive attitudes and knowledge regarding dental health, it followed that Section I of the questionnaire did indeed measure what it purported to. That is, a high score on the questionnaire indicated a positive attitude and knowledge

regarding dental health, and a low score indicated the opposite.

A Chi-square test of independence between the total number of questions in the questionnaire and the responses of the entire sample to those questions showed that no significant difference existed in the nature of the responses to each of the 50 questions in the questionnaire. That is, the nature of the response given to each of the questions was consistently the same. Thus, the internal consistency of the questionnaire was verified.

In terms of the second half of the questionnaire, with the exception of social class, all independent variables were recorded by the interviewers under the appropriate fixed alternative method. Occupation was recorded as stated by the respondent, and was later translated into social class standing by Blishen's Scale.

Data on Caries Experience

Data on caries experience for native Winnipeg children aged six to eight years, in grades 1 to 3, who had been patients of the dentist for at least a year, were collected by dentists and dental hygienists from both private practice and school dental clinics between the months of September and December of 1967. With the exception of one private dentist's practice, all of the children

who had visited their dentist within the above-mentioned four month period were submitted to a brief mouth mirror and explorer type of dental examination designed to reveal the oral hygiene of each child.

Evidence of dental caries was recorded on specially provided City of Winnipeg Dental Survey forms under the following headings for both deciduous and permanent teeth: prematurely lost, crowns destroyed, other caries, completely restored, and a d.e.f. and a D.M.F. count respectively. As well, examination results of the child's lower first permanent molars were recorded under the following headings: examined, occlusal, buccal pit, mesial, and lost. Finally, the child was inspected for the condition of Fluorosis. (A copy of the original form can be found in Appendix A).

In the one exception of the previously mentioned private dentist's practice, data on the child's dental health were transferred from the dentist's own private record charts to the Dental Survey forms by a dental hygienist. Thorough dental charts employing the International Nomenclature for the symbolic designation of teeth facilitated the easy transfer of caries experience by the hygienist, with no known detrimental effect on the reliability of the study.

In all cases, the child's name, address, telephone number, sex, age, and father's occupation were recorded. As well, the following information was also requested:

a. the number of failed appointments the child had during the last year.

b. the number of cancelled appointments the child had during the last year.

c. the total number of professional visits to the dentist in the last year.

However, the data on appointments proved impossible to obtain, as private dentists did not keep as thorough records on this aspect as did clinic dentists.

A homogeneous group of dentists were originally chosen to collect the data on caries experience. All were young dentists who worked at least part time for the City of Winnipeg School dental clinics, as well as in private practice. This was an attempt to control for such unfounded statements as "clinic dentists might not be as capable as private dentists". However, this control was necessarily abandoned due to the limited number of children in the dentists' private practices. Therefore, in order to obtain an adequate sample size it was necessary to select twenty-five children from private dentists who were in no way connected with the School Dental Clinics.

Measurement of the Variables

The Questionnaire - Section I. This section of the interview questionnaire contained 50 statements to which the respondent could answer in terms of five degrees of

agreement to disagreement. Each respondent's answers were recorded by the interviewers opposite the appropriate question on the line provided.

The correct or best answer for the statements which indicated a positive attitude and knowledge towards dental health was "strongly agree" while the correct or best answer for the statements which indicated a negative attitude and knowledge towards dental health was "strongly disagree." Each response was given a numerical score. The correct response was always given a numerical score of 5, while an incorrect response was given a score of between 4 and 1, depending on its degree of incorrectness. For example, where the correct response to a question was "strongly agree" the scoring was as follows:

strongly agree -- 5; agree -- 4; undecided -- 3;
disagree -- 2; strongly disagree -- 1

All transferring of the respondent's answers to coded numerical scores was done and checked by the researcher upon the completion of all interviews. The scores were entered in the specially designed boxes on the questionnaire. The summation of the scores of each of the respondent's answers to all of the items, constituted a total score for each questionnaire. A perfect score on the fifty statements in Section I indicated ideally positive dental attitudes and knowledge by the parent. The minimum score possible on the questionnaire, corresponding to the

most negative attitudes in regard to dental health, was fifty.

The researcher found that upon placing all of the attitude scores along a continuum, all scores fell between 175 and 250. Therefore, for purposes of analysis in this study, all scores were divided into three equal intervals (except for one Spearman rank-order correlation coefficient). Those who scored between 250 and 226 were said to have high positive attitudes and knowledge regarding dental health; those who scored between 225 and 201 were said to have medium attitude and knowledge, and those who scored between 200 and 175 were said to have low attitude and knowledge regarding dental health. A high score was coded as 1, a medium score was coded as 2, and a low score was coded as 3.

The Questionnaire - Section II

Education: Both father's education (No. 56 in the questionnaire) and mother's education (No. 62) were measured in the questionnaire by one of six fixed alternatives. These were: (1) University and/or Professional degree

(2) Some University

(3) Grades 10 - 12

(4) Grades 7 - 9

(5) Grades 1 - 6

(6) No formal education.

For this study, so finite a classification did not prove necessary. Therefore, for purposes of analysis, (1) and (2) were combined to form (1) a University education; (3) simply became (2) and indicated a high school education; while (4) (5) and (6) were combined to form (3) indicating a grade school education.

Social Class: In order to measure social class by occupation, Blishen's Occupational Class Scale (1961), which is a Canadian scale based on combined standard scores for income and years of schooling, was employed. By means of a regression analysis, Blishen arrived at a socio-economic index for 320 occupations in the 1961 Census of Canada. The upper limit of the index was 76.69, while its lower limit was 25.36. Except for one Spearman rank-order correlation analysis the index was subdivided by the researcher into three equal intervals or classes with a common difference of 17.11. Thus, a respondent was considered upper class with a code number of 1 if his occupation earned him an index rating of between 76.69 and 59.58; middle class, or code number 2, if between 59.58 and 42.47; and lower class, or code number 3, if between 42.47 and 25.36. This same procedure was applied to (No. 57) father's occupation, (No. 58) the father's father's occupation, (No. 63) mother's occupation, and (No. 64) the mother's father's occupation.

Religion: The following fixed alternatives appeared on the questionnaire for both father's religion (No. 59) and mother's religion (No. 65.):

(1) Catholic

(2) Protestant

(3) Jew

(4) Other (Specify) ----------

(5) No religion

(6) Refuse to say.

Results on the questionnaire indicated that of the sample size of 111 parents, only one was an agnostic, while the remaining 110 were either Catholic, Protestant, or Jew. Therefore, for purposes of analysis the sample size for religion was 110, encompassing only the three previously mentioned major religions with corresponding code numbers of 1, 2 and 3.

Income: Six fixed alternatives were open to the respondent under the question of income. These were:

(1) Over $16,000

(2) $16,000 - $12,000

(3) $12,000 - $8,000

(4) $8,000 - $4,000

(5) $4,000 - $2,000

(6) Under $2,000

Again, the researcher decided that such a finite

classification of income was unnecessary for a study of this scope. Thus, categories of income were combined in the following way: (1) and (2) became "high income", and was coded 1; (3) and (4) became "medium income" and was coded as 2; and (5) and (6) became "lower income" and was coded 3. This transfer procedure was carried out for (No. 61) father's annual income, (No. 67) mother's annual income, and (No. 68) the total combined income, if both parents are working.

The Size of the Family: For this variable in the questionnaire, (No. 73), the number of children living at home was recorded by the interviewers. The researcher then coded all families with between 1 and 4 children as 1, a small size family, and families with between 5 to 9 children as 2, a large family.

Other Variables: All other variables in the questionnaire were coded in exact relation to the fixed alternatives presented in the questionnaire.

Processing of Data

After the questionnaires and the dental survey forms had been collected, they were matched to each other by previously recorded coded respondent numbers. All final coding procedures employed were stated in the section entitled Measurement of the Variables, and were performed

by the researcher. As previously mentioned, the questionnaire was designed to facilitate easy transfer of data onto IBM cards. However, it did prove necessary to transfer the data on caries experience from the original dental survey forms to larger recording forms in order to simplify the reading of the data by a key punch operator.

A key punch operator at the University of Manitoba Computer Centre transferred the data onto IBM cards. As an insurance procedure to check that the data were correctly punched onto the cards, each card was verified.

The computer programmer for this study was a Master's student in Computer Science. Working in close contact with the researcher, this student personally designed a program in Fortran language which he punched onto IBM cards. Numerous checks for any invalid input data were written into the program. Finally, the programme was prepared in such a way as to enable all statistical calculations to be performed by the Computer Centre's IBM 360.

Statistical Procedures

By means of contingency tables all of the selected variables in the study were related to the attitudes and knowledge scores of the sample parents. All contingency tables were designed specifically to show not only frequencies but also percentages. As well, the contribution of each cell to the total value of Chi-square appeared in

parentheses.[1]

The Chi-square test of independence and the Phi coefficient were applied to each table and the .05 level of confidence was selected for determining significance. However, since at least one of the expected cell frequencies in each contingency table proved to be small, Yates' correction factor for continuity was applied to each computed Chi-square. Thus, throughout the study, the term "adjusted Chi-square" referred to this correction procedure.

As well, one Spearman rank-order coefficient correlation was calculated in this study.

Data on the total observed caries experience of children in the sample were depicted on three types of tables. Each selected variable in the study was related to each of the three types of caries experience. As well as an empirical caries count, each table contained a mean measure of the number of caries per dental classification per variable.[2]

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[1] The contribution of any one cell to X^2 is $\frac{(fo - fe)^2}{fe}$ where "fo" is the observed frequency for that cell and "fe" is the expected frequency.

[2] Hypotheses concerned with the total observed caries experience of children were tested by visual inspection of the means. The form of the data on caries experience was such that it lent itself to a procedure of this type, yielding results that were considered accurate for the purposes of this study.

CHAPTER V

PRESENTATION OF DATA AND RELATED DISCUSSION

Analyses and discussions of the hypotheses formulated for this study are presented in this Chapter in the order in which they appeared in Chapter III.

I HYPOTHESES CONCERNED WITH SOCIAL CLASS.

II HYPOTHESES CONCERNED WITH INCOME.

III HYPOTHESES CONCERNED WITH EDUCATION

IV HYPOTHESES CONCERNED WITH THE SOCIAL CLASS OF THE CHILD'S MOTHER BEFORE MARRIAGE.

V HYPOTHESES CONCERNED WITH RELIGION.

VI HYPOTHESES CONCERNED WITH THE RURAL-URBAN BACKGROUND OF THE PARENTS.

VII HYPOTHESES CONCERNED WITH THE CHILD'S SEX.

VIII HYPOTHESES CONCERNED WITH THE NUMBER OF CHILDREN LIVING AT HOME.

I. HYPOTHESES CONCERNED WITH SOCIAL CLASS

Hypothesis One: The higher the social class of the parents, the more positive will be their attitude and knowledge regarding dental health.

TABLE I

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND DENTAL ATTITUDE AND KNOWLEDGE

Social Class	Dental Attitude and Knowledge: High		Medium		Low		Total	
Upper	9. (4.87)	29%	17. (0.01)	54%	5. (1.35)	16%	31.	100%
Middle	4. (0.00)	14%	16. (0.00)	59%	7. (0.01)	25%	27.	100%
Lower	1. (3.76)	2%	29. (0.00)	59%	19 (1.30)	38%	49.	100%

N = 107*

Adjusted X^2 = 11.312 d.f. = 4 P < .05 Phi = 0.325

*Both social class and income were measured with respect to the father of the household. Two fathers in the sample of 111 were deceased, while two more were separated from their wives. This necessarily decreased the sample size to 107 in terms of these two variables.

An examination of Table I revealed that 29 per cent of the upper class parents had high positive attitude and knowledge regarding dental health in comparison to only 2 per cent of the lower class. As well, it should be

noted that these are the two cells which most contributed to the total value of the adjusted Chi-square for this Table. Data also revealed that 16% of the upper class people had low attitude and knowledge regarding dental health as compared to the 38 per cent for the lower class. Middle class attitudes were generally found to be medium, almost centrally dispersed between the upper and lower classes.

When the Chi-square test with the Yates' correction for continuity was applied between the variables, it was found that the observed differences between the dental health attitude ratings of the different social classes, were statistically significant. A Phi coefficient measured the strength of the relationship at 0.325.

As well, as was mentioned in Chapter IV, one Spearman rank-order coefficient of correlation was calculated for attitude scores versus Blishen index scores. This was the only area in the study in which such a statistical technique could be applied.

As this provided data in ranks for one variable and scores for the other, the scores were used as a basis for setting up ranks for the latter and computing Rho. The calculated Rho measured the strength of relationship between these two variables as 0.438. With 109 degrees of freedom, the approximate t value of 5.093 was significant at the .001 level.

Therefore, the hypothesis that the higher the social

class of the parents, the more positive will be their attitude and knowledge regarding dental health, is accepted.

Hypothesis Two: The higher the social class of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with social class.

Together, Tables II, III, and IV provide a picture of the total observed caries experience of the sample children with reference to social class. Table II depicts the caries experience specifically of the deciduous teeth. Comparing by inspection the mean for each caries classification by social class, it was apparent that differences did exist between the three classes. Although the data were somewhat inconsistent, the mean d.e.f. for the upper class children was 4.90 as compared with 5.74 for the middle class and 5.92 for the lower class.

TABLE II

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND THE DECIDUOUS CARIES EXPERIENCE

Social Class	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	d.e.f.
Upper	31	11. 0.35	0.0 0.0	45. 1.45	96. 3.10	152. 4.90 Mean
Middle	27	13. 0.48	1. 0.04	35. 1.30	106. 3.93	155. 5.74 Mean
Lower	49	64. 1.31	2. 0.04	59. 1.20	166. 3.39	290. 5.92 Mean

An observable relationship somewhat more consistent with the hypothesis was found in Tables III and IV.

In Table III, which depicts the caries experience for the permanent teeth, the mean caries was consistently observed to increase as the level of social class decreased. For example, the mean D. M. F. for the upper class children was 1.52; 1.70 for the middle class children and 1.80 for the lower class children.

TABLE III

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND THE PERMANENT CARIES EXPERIENCE

Social Class	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.
Upper	31	0.0 0.0	0.0 0.0	21. 0.68	26. 0.84	47. 1.52 Mean
Middle	27	0.0 0.0	0.0 0.0	22. 0.81	24. 0.89	46 1.70 Mean
Lower	49	0.0 0.0	0.0 0.0	41. 0.84	46. 0.94	88. 1.80 Mean

Table IV shows the incidence of caries for the lower first permanent molars. Again, a consistently observable difference in caries experience was noted. It is apparent from a comparison of the means that the higher the class of children, the lower will be the mean number of caries for that class.

TABLE IV

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

Social Class	No. of Persons	Examination	Occlusal	Buccal Pit	Mesial	Lost	
Upper	31	46. 1.48	11. 0.35	9. 0.29	0.0 0.0	0.0 0.0	Mean
Middle	27	45. 1.67	18. 0.67	6. 0.22	1. 0.04	0.0 0.0	Mean
Lower	49	92. 1.88	46. 0.94	21. 0.43	1. 0.02	0.0 0.0	Mean

Therefore, throughout Tables II, III, and IV, which together represent in the total caries experience by social class of the sample children, a definite and consistent pattern was observed. The pattern indicated that the children of the upper class enjoyed the best dental health in terms of their recording the lowest rate of caries experience. Moreover, as the class descended from upper class to lower class, a corresponding rise in the mean number of caries was evident.

Thus, on the basis of the visual inspection of the means, the hypothesis that the higher the social class of the parents, the lower will be the total observed caries experience of the children is accepted.

In terms of the condition of fluorosis it was found that none of the children in the sample suffered from this affliction, and it was thus abandoned as a

variable in the study.

Finally, in order to determine where specifically the significance existed in the relationship between social class and the total dental attitude and knowledge score, a separate analysis was conducted on each question in the questionnaire. In conducting this analysis, it was generally noted that the respondents, especially those in the lower class, had a tendency not to answer in such strong and definitive ways as either to "stongly agree" or "strongly disagree". As a result, the expected frequencies were extremely small in several cells. Therefore, the categories of "strongly agree" and "agree" were combined and also those in the two "disagree" categories were combined, leaving the third category still as "undecided". Finally, the Chi-square test with the Yates' correction factor was applied and a Phi coefficient was calculated for each question. The following four questions in the questionnaire were found to be significantly related to social class.

A negative response was the correct answer to this question. 59 per cent of both the middle and lower classes answered this question correctly as compared to 93 per cent of the upper class. Also, whereas 39 per cent of the middle class and 28 per cent of the lower class answered this question incorrectly, none of the upper class made an incorrect response to this question, and this is what observably contributed most highly to the significant

TABLE V

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND TOOTHBRUSHING*

Social Class	Disagree	Undecided	Agree	Total
Upper	29. 93% (2.33)	2. 6% (0.15)	0.0 0% (5.41)	31. 100%
Middle	16. 59% (0.25)	3. 11% (0.03)	8. 29% (0.68)	27. 100%
Lower	29. 59% (0.57)	6. 12% (0.04)	14. 28% (1.16)	49. 100%

N = 107

Adjusted X^2 = 10.626 d.f. = 4 P $<$ .05 Phi = 0.315

*The question asked was "Toothbrushing is most important just before breakfast when you get up in the morning."

value of the adjusted Chi-square at the .05 level. In this question then, the upper class parents had the most positive dental attitude and knowledge.

TABLE VI

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND DENTAL PROPHYLAXIS*

Social Class	Disagree	Undecided	Agree	Total
Upper	31. 100% (2.76)	0.0 0% (1.15)	0.0 0% (5.41)	31 100%
Middle	19. 70% (0.00)	0.0 0% (0.91)	8. 29% (0.68)	27 100%
Lower	28 57% (1.46)	7. 14% (3.39)	14. 28% (1.16)	49 100%

N = 107

Adjusted X^2 = 16.930 d.f. = 4 P $<$ .01 Phi = 0.398

*The question asked was "Brushing your teeth yourself has the

same value as dental prophylaxis or cleaning of the teeth by a dentist."

A negative response was again the answer which would indicate the most positive dental attitude and knowledge. As Table VI indicates, 100 per cent of the upper class responded correctly to this question, as compared to 70 per cent of the middle class and 57 per cent of the lower class. With one exception, it was found that the higher the class, the more positive was their dental attitude and knowledge.

TABLE VII

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND VALUE ATTACHED TO VITAMINS*

Social Class	Disagree		Undecided		Agree		Total	
Upper	9. (0.34)	29%	10. (2.90)	32%	12. (1.97)	38%	31.	100%
Middle	8. (0.34)	29%	7. (0.61)	25%	12. (0.82)	44%	27.	100%
Lower	7. (1.11)	14%	2. (4.42)	4%	40. (3.54)	81%	49.	100%

N = 107

Adjusted X^2 = 16.060 d.f. = 4 P $<$ .01 Phi = 0.387

*The question asked was "Extra vitamins and minerals in a normal diet will help reduce tooth decay."

The correct response to this question was "disagree". Data for Table VII show an inconsistent pattern between the

upper and middle classes with only 28 per cent of both classes answering the question correctly. In comparison however, only 14 per cent of the lower class scored the correct answer on the question. Conversely, 38 per cent of the upper class answered the question incorrectly as compared to 44 per cent of the middle class and 81 per cent of the lower class. Many of the upper and middle class parents were quite undecided on this question as is evidenced by the fact that 32 per cent and 25 per cent respectively answered in this way, whereas only 4 per cent of the lower class were "undecided".

TABLE VIII

THE RELATIONSHIP BETWEEN SOCIAL CLASS AND ORTHODONTURE*

Social Class	Agree		Undecided		Disagree		Total	
Upper	28. (3.67)	90%	2. (6.58)	6%	1. (0.16)	3%	31.	100%
Middle	18 (0.04)	66%	8. (0.12)	29%	1. (0.09)	3%	27.	100%
Lower	20 (3.13)	40%	28. (5.86)	57%	1. (0.01)	2%	49.	100%
							N = 107	
Adjusted X^2 = 19.659			d.f. = 4		P $\angle$ .001		Phi = 0.429	

*The question asked was "An 'orthodontist' is a dentist who specializes in straightening teeth."

The correct response to this question was "agree". As Table VIII indicates, the percentage of parents in the

sample who scored more positively on this question is related to their particular social class. 90 per cent of the upper class parents scored correctly on this question as compared with 66 per cent of the middle class parents, and 40 per cent of the lower class parents.

All of the preceding four tables revealed a relatively clear and consistent relationship between social class and dental attitude and knowledge. In almost all cases the data tended to concur with Hypothesis One.

II. HYPOTHESES CONCERNED WITH INCOME[1]

As income is one of the main determinants of social class, it would necessarily be expected that a definite and strong relationship would exist between these two variables. Therefore, when testing the two hypotheses concerned with income, results similar to those obtained with regard to social class, were expected.

Hypothesis Three: The greater the income of the parents, the more positive will be their attitude and knowledge regarding dental health.

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[1]Total combined income coincided with father's income, as in only 7 of the 107 families did the mother work as well as the father, and in these cases her earnings did not affect the income category into which the father was placed by the researcher.

TABLE IX

THE RELATIONSHIP BETWEEN INCOME AND DENTAL ATTITUDE AND KNOWLEDGE

Income	Dental Attitude and Knowledge							
	High		Medium		Low		Total	
High	5. (3.28)	33%	8. (0.00)	53%	2. (0.78)	13%	15.	100%
Medium	9. (0.00)	14%	39. (0.07)	60%	16. (0.22)	25%	64.	100%
Low	0.00 (2.73)	0%	15. (0.03)	53%	13. (2.37)	46%	28.	100%

N = 107

Adjusted X^2 = 9.489 d.f. = 4 P/ .05 Phi = 0.298

A study of the data revealed that it clearly tended to fall in the direction hypothesized. Of the parents who earned a high income, 33 per cent had high positive dental attitudes and knowledge as compared to middle income parents, of whom 14 per cent had high positive dental attitudes and knowledge. No one in the lower income group indicated high positive dental attitudes and knowledge. Conversely, in terms of low dental attitudes and knowledge, 46 per cent of the low income parents were classified in this category, in comparison to 25 per cent of the middle income parents, and only 14 per cent of the upper income parents.

As the adjusted Chi-square value for this relation-

ship was significant, the hypothesis that the greater the income of the parents, the more positive will be their attitude and knowledge regarding dental health, is accepted. A Phi co-efficient measured the strength of the relationship at 0.298.

Hypothesis Four: The higher the income of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with income.

Tables X, XI, and XII together depict the total observed caries experience for the sample children as related to the income level of their parents. Table X specifically shows the caries experience of the deciduous teeth. Although the mean number of caries for children of medium income parents shows somewhat of an inconsistent pattern, it was observed that the mean number of caries of children of high income parents was always considerably lower than that for children of low income parents. The children of upper income parents had a mean of 0.20 for prematurely lost teeth as against 1.71 for children of lower income parents. As well, the total mean d.e.f. for children of high income parents was 3.53, for children of middle income parents it was 5.77, and for children of lower income parents it was 6.25, almost twice that of the children of high income parents.

TABLE X

THE RELATIONSHIP BETWEEN INCOME AND THE DECIDUOUS CARIES EXPERIENCE

Income	No. of Persons	Prem. Lost	Crowns Destroyed.	Other Caries	Completely Restored	d.e.f.	
High	15	3. 0.20	1. 0.07	9. 0.60	40. 2.67	53. 3.53	Mean
Medium	64	37. 0.58	0.0 0.0	95. 1.48	237. 3.70	369. 5.77	Mean
Low	28	48. 1.71	2. 0.07	35. 1.25	91. 3.25	175. 6.25	Mean

Table XI illustrates the caries experience for the permanent teeth. As with the primary teeth, the mean number of caries for children of medium income parents was observed to fluctuate from almost a middle of the range score to a mean which was lower than that for the children of high income parents, as for example in the "completely restored" category. However, the mean number of caries for the high income group was consistently observed to be lower than that of the lower income group. The mean D. M. F. was 1.33 for children of high income parents, 1.52 for those of middle income parents, and 2.29 for those of lower income parents.

Table XII portrays the caries experience for the lower first permanent molars. In observing the data, it was found that as the income level decreased, the mean

TABLE XI

THE RELATIONSHIP BETWEEN INCOME AND THE PERMANENT CARIES EXPERIENCE

Income	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.
High	15	0.0	0.0	6.	14.	20.
		0.0	0.0	0.40	0.93	1.33 Mean
Medium	64	0.0	0.0	49.	48.	97.
		0.0	0.0	0.77	0.75	1.52 Mean
Low	28	0.0	0.0	29.	34.	64.
		0.0	0.0	1.04	1.21	2.29 Mean

TABLE XII

THE RELATIONSHIP BETWEEN INCOME AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

Income	No. of Persons	Examination	Occlusal	Buccal Pit	Mesial	Lost
High	15	24.	5.	6.	0.0	0.0
		1.60	0.33	0.40	0.0	0.0 Mean
Medium	64	105.	42.	15.	1.	0.0
		1.64	0.66	0.23	0.02	0.0 Mean
Low	28	54.	28.	15.	1.	0.0
		1.93	1.00	0.54	0.04	0.0 Mean

number of caries consistently increased.

In brief, Tables X, XI, and XII illustrated the total observed caries experience of the sample children in relation to their parents' income level. All three tables

indicated that an observable and regular pattern existed, since the children of high income parents consistently enjoyed the best dental health in terms of their recording the lowest mean rate of caries experience. With few exceptions, the greatest prevalence of dental caries experience was observed in the children whose parents were of a low income level. Generally, the children of medium income parents exhibited a mean caries rate which placed their dental health level somewhere in between these two other classes of children.

Therefore, on the basis of the visual inspection of the means, the hypothesis that the higher the income of the parents, the lower will be the total observed caries experience of the children, is accepted.

In order to determine where specifically the significance existed in the relationship between income and the total dental attitude and knowledge score, the Chi-square test with the Yates' correction factor was applied to all fifty dental attitude and knowledge questions in the questionnaire. Also, a Phi coefficient was calculated for each question. The following three questions were found to be significantly related to the level of income of the parents.

TABLE XIII

THE RELATIONSHIP BETWEEN INCOME AND DENTAL PROPHYLAXIS*

Income	Disagree		Undecided		Agree		Total	
High	15. (1.16)	100%	0.0 (0.24)	0%	0.0 (2.17)	0%	15.	100%
Medium	52. (0.50)	81%	2. (0.68)	3%	10. (0.54)	15%	64.	100%
Low	11. (3.89)	39%	5. (3.89)	17%	12. (5.73)	42%	28.	100%

N = 107

Adjusted X^2 = 18.790 d.f. = 4 P < .001 Phi = 0.419

*The question asked was "Brushing your teeth yourself has the same value as dental prophylaxis or cleaning of the teeth by a dentist."

The correct response to this question was "disagree". An examination of Table XIII revealed that in all cases, the higher the level of income, the more positive was the attitude and knowledge with regard to dental health. For example, none of the high income parents scored incorrectly on the question as compared to 15 per cent of the medium income parents and 42 per cent of the lower income parents. Substantial observed differences such as this resulted in the highly significant adjusted Chi-square.

TABLE XIV

THE RELATIONSHIP BETWEEN INCOME AND VALUE ATTACHED TO VITAMINS*

Income	Disagree		Undecided		Agree		Total	
High	6. (1.36)	40%	5. (1.27)	33%	4. (2.23)	26%	15.	100%
Medium	16 (0.09)	25%	12. (0.00)	18%	36. (0.08)	56%	64.	100%
Low	2. (2.28)	7%	2. (1.23)	7%	24. (2.72)	85%	28.	100%

N = 107

Adjusted X^2 = 11.253 d.f. = 4 P/ .05 Phi = 0.324

*The question asked was "Extra vitamins and minerals in a normal diet will help to reduce tooth decay."

"Disagree" was again the correct response to this question. A study of the data revealed that none of the income groups scored at least 50 per cent correct on this question. The low income group, however, was observed to have 85 per cent of its sample answering incorrectly and it was this cell which contributed the highest value to the adjusted Chi-square. Regardless of the somewhat low positive dental attitude and knowledge associated with this question, the high income group still exhibited the greatest percentage of correct responses, and they were followed by the medium income group.

TABLE XV

THE RELATIONSHIP BETWEEN INCOME AND ORTHODONTURE*

Income	Agree	Undecided	Disagree	Total
High	14. 93% (1.95)	0.0 0% (4.37)	1. 6% (0.02)	15. 100%
Medium	45. 70% (0.64)	17. 26% (1.20)	2. 3% (0.05)	64. 100%
Low	7. 25% (5.53)	21. 75% (11.21)	0.0 0% (0.10)	28. 100%
				N = 107

Adjusted X^2 = 25.067 d.f. = 4 P $<$ .001 Phi = 0.484

*The question asked was "An 'orthodontist' is a dentist who specializes in straightening teeth."

The correct answer to this question was "agree". As Table XV indicates, a very small percentage of both upper and medium income parents answered this question incorrectly, while no one in the lower class responded incorrectly. However, an unusually large number of the low income group -- 75 per cent -- proved to be "undecided" on this question. This cell resulted in contributing almost half of the value to the highly significant adjusted Chi-square for the Table. Still, the high income group with a 93 per cent correct response, was found to have the most positive attitude and knowledge regarding dental health. It was observed that in comparison only 70 per cent of the medium income group and 25 per cent of the lower income group scored correctly

on this question.

The preceding three Tables revealed a relatively uniform relationship between the income of the parents and their attitude and knowledge regarding dental health. Almost without exception it was found that the greater the income of the parents, the more positive was their dental attitude and knowledge.

III. HYPOTHESES CONCERNED WITH EDUCATION[2]

Previous sociological studies have shown that people tend to marry other people of similar educational background to themselves. This study's findings concurred with other studies in this area when submitted to the test of association.

As Table XVI indicates, a highly significant relationship was found to exist between the level of a husband's education and his wife's education.

When testing the two hypotheses concerned with parental education, results similar to those obtained with regard to the hypotheses concerned with social class, were expected since education is one of the three predominant socio-economic variables employed in determining social class.

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[2]In relating parental education to dental attitudes and knowledge and dental caries experience, it was recognized that the education of the "decision maker" regarding the children's dental health would be a more relevant variable than simply a measurement of either the father's or mother's education. Thus, in each family, the parent to whom the questionnaire was administered was the parent who had claimed to make the decisions regarding his or her child's dental health.

TABLE XVI

THE RELATIONSHIP BETWEEN THE HUSBAND'S EDUCATION AND THE WIFE'S EDUCATION

Wife's Education	Husband's Education: University		High School		Grade School		Total	
University	15. (11.25)	75%	4. (1.43)	20%	1. (3.36)	5%	20.	100%
High School	17. (0.05)	28%	30. (1.50)	50%	13. (1.10)	21%	60.	100%
Grade School	1. (5.60)	3%	8. (0.42)	29%	18. (11.00)	66%	27.	100%

N = 107

Adjusted X^2 = 35.713 d.f. = 4 P $<$ .001 Phi = 0.578

Hypothesis Five: The higher the education of the parents, the more positive will be their attitude and knowledge regarding dental health.

TABLE XVII

THE RELATIONSHIP BETWEEN EDUCATION AND DENTAL ATTITUDE AND KNOWLEDGE

Education	Dental Attitude and Knowledge: High		Medium		Low		Total	
University	3. (0.00)	15%	13. (0.12)	65%	4. (0.43)	20%	20.	100%
High School	11. (1.02)	18%	36. (0.02)	59%	14. (0.94)	22%	61.	100%
Grade School	0.00 (2.85)	0%	14. (0.38)	46%	16. (4.33)	53%	30.	100%

N = 111.

Adjusted X^2 = 10.090 d.f. = 4 P $<$ .05 Phi = 0.301

Data showed an inconsistent pattern in terms of those parents with University education as compared to those parents with High School education with regard to their dental attitude and knowledge. Nevertheless, it was observed that parents who had acquired either of these levels of education had more positive dental attitudes and knowledge than those parents with only Grade School education.

While 15 per cent of the parents with University education, and 18 per cent of the parents with High School education indicated high positive dental attitude and knowledge, none of the parents with Grade School education qualified in this category. Conversely, 53 per cent of those parents with only Grade School education showed low dental attitudes and knowledge as against 22 per cent of the parents with High School education and 30 per cent of the parents with University education. As with occupation and income, most of the sample parents had illustrated only medium attitude and knowledge with regard to dental health.

As the adjusted Chi-square value for the observed differences was significant, the hypothesis that the higher the education of the parents the more positive will be their attitude and knowledge regarding dental health, is accepted. A Phi coefficient measured the strength of the relationship at 0.301. As the Phi coefficient for income was 0.298, it was concluded that the variance in attitude due to social class was more strongly influenced by the

education dimension of social class than by the income dimension.

Hypothesis Six: The higher the education of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with education.

Tables XVIII, XIX, and XX illustrate the total observed caries experience of the sample children in relation to education. Table XVIII represents the caries experience of the deciduous teeth. Comparing by inspection the mean for each caries classification it was found that almost without exception, those children whose parents had a high education were found to have the lowest caries experience. The converse was also found to be true. A striking example of this was found in the category of prematurely lost teeth. Children of parents with a University education had a mean of only 0.15 for prematurely lost teeth, as compared to 0.59 for children of parents with a High School education, and 1.83 for children of parents with Grade School education. Also, in comparing the total d.e.f. rate it was found that the d.e.f. rate for children of Grade School educated parents was more than twice that of the children of University educated parents.

TABLE XVIII

THE RELATIONSHIP BETWEEN EDUCATION AND THE DECIDUOUS CARIES EXPERIENCE

Education	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	d.e.f.
Univ.	20	3. 0.15	0.0 0.0	11. 0.55	43. 2.15	57. 2.85 Mean
High S.	61	36. 0.59	3. 0.05	90. 1.48	237. 3.89	366. 6.00 Mean
Grade S.	30	55. 1.83	0.0 0.0	42. 1.40	105. 3.50	201. 6.70 Mean

Table XIX shows the incidence of caries experience for the permanent teeth. Again, as the level of education decreased, the mean number of caries was consistently observed to increase. The D.M.F. rate for children of University educated parents was 1.15 as against 1.70 for children of High School educated parents and 2.03 for children of Grade School educated parents.

TABLE XIX

THE RELATIONSHIP BETWEEN EDUCATION AND THE PERMANENT CARIES EXPERIENCE

Education	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.
Univ.	20	0.0 0.0	0.0 0.0	13. 0.65	10. 0.50	23. 1.15 Mean
High S.	61	0.0 0.0	0.0 0.0	46. 0.75	57. 0.93	104. 1.70 Mean
Grade S.	30	0.0 0.0	0.0 0.0	26. 0.87	35. 1.17	61. 2.03 Mean

In Table XX, which shows the incidence of caries experience for the lower first permanent molars, an extremely similar pattern to that found in Tables XVIII and XIX was observed. In the case of Occlusal caries, children of University educated parents had a mean of 0.50, as compared to 0.62 for children of High School educated parents and 1.00 for Grade School educated parents. In other words, on the average of twice as many Occlusal caries were found in children of Grade School educated parents as in those of University educated parents.

TABLE XX

THE RELATIONSHIP BETWEEN EDUCATION AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

Education	No. of Persons	Examination	Occlusal	Buccal Pit	Mesial	Lost	
Univ.	20	32. 1.60	10. 0.50	3. 0.15	0.0 0.0	0.0 0.0	Mean
High S.	61	108. 1.67	38. 0.62	24. 0.39	1. 0.02	0.0 0.0	Mean
Grade S.	30	55. 1.83	30. 1.00	12. 0.40	1. 0.03	0.0 0.0	Mean

Therefore, throughout Tables XVIII, XIX, and XX a clear and consistent pattern was observed between the mean caries experience of children and the educational level of their parents. Almost without exception, the data fell in the direction hypothesized. Thus, on the basis of the

visual inspection of mean caries experience, the hypothesis that the higher the education of the parents, the lower will be the total observed caries experience of the children is accepted.

Finally, in order to determine where specifically the significance existed in the relationship between education and the total dental attitude and knowledge score, a separate analysis was performed. The following four questions in the questionnaire were found to be significantly related to the educational level of the parents.

TABLE XXI

THE RELATIONSHIP BETWEEN EDUCATION AND ATTITUDE TOWARDS BLEEDING GUMS*

Education	Disagree		Undecided		Agree		Total	
University	17. (0.01)	85%	3. (0.05)	15%	0.0 (0.31)	0%	20.	100%
High School	53. (0.36)	86%	8. (0.01)	13%	0.0 (2.37)	0%	61.	100%
Grade School	19. (0.86)	63%	5. (0.01)	16%	6. (9.88)	20%	30.	100%

N = 111.

Adjusted X^2 = 13.168 d.f. = 4 P = $\angle$ .02 Phi = 0.344

*The question asked was " Bleeding gums are commonplace and can be easily cured by not brushing the teeth for a few days."

A negative response was the correct answer for this

question. University and High School educated parents answered this question relatively equally with 85 per cent and 86 per cent respectively answering correctly. Only 63 per cent of the Grade School educated parents were found to have answered correctly. While none of the University or High School educated parents answered this question incorrectly, 20 per cent of the Grade School educated parents did, and it was this difference which contributed most strongly to the adjusted Chi-square value.

TABLE XXII

THE RELATIONSHIP BETWEEN EDUCATION AND VALUE ATTACHED TO VITAMINS*

Education	Disagree		Undecided		Agree		Total	
University	8. (1.99)	40%	6. (1.00)	30%	6. (2.44)	30%	20.	100%
High School	14. (0.00)	22%	13. (0.21)	21%	34. (0.09)	55%	61.	100%
Grade School	3. (1.57)	10%	1. (2.82)	3%	26. (3.29)	86%	30.	100%

N = 111

Adjusted X^2 = 13.415 d.f. = 4 P $<$ .01 Phi = 0.348

*The question asked was "Extra vitamins and minerals in a normal diet will help to reduce tooth decay."

"Disagree" was the correct answer to this question. 40 per cent of the parents with a University education answered correctly, as compared to 22 per cent of the

parents with a High School education, and 10 per cent of the parents with a Grade School education. Conversely, whereas 86 per cent of the Grade School educated parents and 55 per cent of the High School educated parents answered this question incorrectly, only 30 per cent of the University educated parents answered incorrectly. The observed differences were found to be highly significant.

TABLE XXIII

THE RELATIONSHIP BETWEEN EDUCATION AND KNOWLEDGE OF THE EFFECT OF THUMB SUCKING*

Education	Agree		Undecided		Disagree		Total	
University	18. (0.37)	90%	1. (0.54)	5%	1. (0.20)	5%	20.	100%
High School	51 (0.41)	83%	5. (0.91)	8%	5. (0.18)	8%	61.	100%
Grade School	15. (2.29)	50%	9. (4.88)	30%	6. (1.57)	20%	30.	100%

N = 111

Adjusted X^2 = 11.341 d.f. = 4 P/ .05 Phi = 0.320

*The question asked was "Thumb sucking can result in malocclusion or an irregular bite."

The correct response to this question was "agree". 90 per cent of the University educated parents answered in this way as against 83 per cent of the High School educated parents and 50 per cent of the Grade School educated parents.

The percentage of incorrect responses also varied directly with the level of education.

TABLE XXIV

THE RELATIONSHIP BETWEEN EDUCATION AND ORTHODONTURE*

Education	Agree	Undecided	Disagree	Total
University	19. 95% (3.19)	1. 5% (4.52)	0.0 0% 0.00	20. 100%
High School	40. 65% (0.12)	18. 29% (0.55)	3. 4% (0.44)	61. 100%
Grade School	9 30% (4.29)	21. 70% (8.68)	0.0 0% (0.12)	30. 100%

N = 111

Adjusted X^2 = 21.913 d.f. = 4 P $\angle$ .001 Phi = 0.444

*The question asked was "An 'orthodontist' is a dentist who specializes in straightening teeth."

The correct response for this definition type of question was "agree" and 95% of the University educated parents answered in this way, as compared to 65 per cent of the High School educated parents and 30 per cent of the Grade School educated parents. However, while 5 per cent of the University educated parents, and 8 per cent of the High School educated parents were undecided, 70 per cent of the Grade School educated parents were undecided as to the answer, and it was this cell which contributed most strongly to the highly significant value of the adjusted Chi-square.

All of the preceding four Tables showed a distinct

relationship between the level of parental education and their dental attitude and knowledge. With few exceptions, the data were in accord with Hypothesis Six.

IV. HYPOTHESES CONCERNED WITH THE SOCIAL CLASS OF THE CHILD'S MOTHER BEFORE MARRIAGE[3]

Numerous sociological studies support the generalization that most people marry within their own social class. The practice of endogamy then, is a norm within our society. This norm was tested within the sample population of parents as indicated in Table XXV

TABLE XXV

THE RELATIONSHIP BETWEEN MOTHER'S SOCIAL CLASS BEFORE AND AFTER MARRIAGE

Previous Soc. Class	Present Social Class: Upper	Middle	Lower	Total
Upper	4. 50% (0.60)	1. 12% (0.13)	3. 37% (0.01)	8. 100%
Middle	10. 62% (5.10)	4. 25% (0.05)	2. 12% (3.18)	16. 100%
Lower	17. 20% (1.78)	22. 26% (0.01)	44. 53% (0.79)	83. 100%

N = 107

Adjusted X^2 = 11.672 d.f. = 4 P $<$ .02 Phi = 0.330

[3]The relationship between the dental attitude and knowledge of the mother and her social class before marriage was investigated. The researcher felt that the mother's early socialization would affect to some degree her present attitude

A study of the data for Table XXV revealed that a significant relationship was found to exist between a husband's social class and his wife's social class before marriage. Therefore it follows that when we test the two hypotheses concerned with the social class of the child's mother before marriage, results similar to those obtained with regard to social class (Hypotheses One and Two) would be expected.

Hypothesis Seven: The higher the social class of the mother before marriage, the more positive will be her attitude and knowledge regarding dental health.

TABLE XXVI

THE RELATIONSHIP BETWEEN MOTHER'S SOCIAL CLASS BEFORE MARRIAGE AND DENTAL ATTITUDE AND KNOWLEDGE

Previous Social Class	Dental Attitude and Knowledge: High		Medium		Low		Total	
Upper	1. (0.24)	12%	6. (0.20)	75%	1. (0.37)	12%	8.	100%
Middle	2. (0.12)	12%	10. (0.02)	62%	4. (0.03)	25%	16.	100%
Lower	11. (0.02)	12%	47. (0.07)	54%	29. (0.13)	33%	87.	100%

N = 111

Adjusted X^2 = 1.198 d.f. = 4 P\ .05 Phi = 0.104

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and knowledge and child-rearing practices with regard to dental health. This could in turn affect the child's dental caries experience, as in most cases it was the mother who was the decision-maker regarding the child's dental health.

The data for mothers in Table XXVI showed that 12 per cent of the mothers who were upper class before marriage, 12 per cent who were middle class and 12 per cent who were lower class, all had high positive dental attitude and knowledge in terms of their total score on the questionnaire. Although percentage differences did exist between the mothers of medium and low dental attitude and knowledge in terms of their social class, no significant difference was found when the Chi-square test with the Yates' correction factor was applied. Hence, the hypothesis that the higher the social class of the mother before marriage, the more positive will be her attitude and knowledge regarding dental health, is rejected.

Hypothesis Eight: The higher the social class of the mother before marriage, the lower will be the total observed caries experience of the child; that is, dental health will vary directly with the social class of the mother before marriage.

Together, Tables XXVII, XXVIII, and XXIX illustrate the total caries experience of the sample children in relation to the social class of their mother before she was married. Table XXVII specifically represents the caries experience of the deciduous teeth. By observably comparing the mean for each caries classification it was found that, without exception, children of mothers who were upper class before marriage, had the lowest caries experience. As the

level of the class decreased, the amount of caries experience increased. For example, the total mean d.e.f. for children of upper class mothers was 3.37 as compared to 4.37 for children of middle class mothers and 6.06 for lower class mothers.

TABLE XXVII

THE RELATIONSHIP BETWEEN MOTHER'S SOCIAL CLASSBEFORE MARRIAGE AND THE DECIDUOUS CARIES EXPERIENCE

Previous Soc. Class	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	d.e.f.
Upper	8	0.0 0.0	0.0 0.0	5. 0.63	22. 2.75	27. 3.37 Mean
Middle	16	3. 0.19	0.0 0.0	19. 1.19	48. 3.00	70. 4.37 Mean
Lower	87	91. 1.05	3. 0.03	119. 1.37	315. 3.62	527. 6.06 Mean

Table XXVIII shows the incidence of caries experience for the permanent teeth. It was apparent that from the means presented in this Table, no consistent relationship was found to exist between the children's permanent caries experience and their mother's social class before marriage. Findings such as those which show children of upper class mothers as having the lowest mean for "other caries", the highest mean for "completely restored", and middle for the total mean D. M. F., indicate a lack of pattern within this relationship.

TABLE XXVIII

THE RELATIONSHIP BETWEEN MOTHER'S SOCIAL CLASS BEFORE MARRIAGE AND THE PERMANENT CARIES EXPERIENCE

Previous Soc. Class	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.
Upper	8	0.0 0.0	0.0 0.0	5. 0.63	8. 1.00	13. 1.62 Mean
Middle	16	0.0 0.0	0.0 0.0	16. 1.00	9. 0.56	25. 1.56 Mean
Lower	87	0.0 0.0	0.0 0.0	64. 0.74	85. 0.98	150. 1.72

In Table XXIX which depicts the caries experience for the lower first permanent molars, again it was observed that the data did not fall in the direction hypothesized. The mean caries experience seemed to vary almost randomly with no observable pattern whatsoever in relation to the social class of the mother before marriage.

TABLE XXIX

THE RELATIONSHIP BETWEEN MOTHER'S SOCIAL CLASS BEFORE MARRIAGE AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

Previous Soc. Class	No. of Persons	Examination	Occlusal	Buccal Pit	Mesial	Lost
Upper	8	14. 1.75	4. 0.50	4. 0.50	0.0 0.0	0.0 0.0 Mean
Middle	16	24. 1.50	8. 0.50	4. 0.25	0.0 0.0	0.0 0.0 Mean
Lower	87	151. 1.74	66. 0.76	31. 0.36	2. 0.02	0.0 0.0 Mean

Since the mean caries data in two of the three Tables failed to fall in the direction hypothesized, dental health did not vary directly with the social class of the mother before marriage. Therefore, on the basis of the visual inspection of the means, the hypothesis that the higher the social class of the mother before marriage, the lower will be the total observed caries experience of the child, is rejected.

Finally, in terms of a separate analysis, only one question was found to have established a significant relationship between dental attitude and knowledge and the social class of the mother before marriage.

TABLE XXX

THE RELATIONSHIP BETWEEN SOCIAL CLASS OF THE MOTHER BEFORE MARRIAGE AND ORTHODONTURE*

Previous Social Class	Agree		Undecided		Disagree		Total	
Upper	6. (0.07)	75%	1. (0.66)	12%	1. (0.37)	12%	8.	100%
Middle	16. (3.31)	100%	0.0 (4.81)	0%	0.0 (0.01)	0%	16.	100%
Lower	46. (0.87)	52%	39. (1.63)	44%	2. (0.01)	2%	87.	100%

N = 111

Adjusted X^2 = 11.478 d.f. = 4 P $<$ .02 Phi = 0.325

*The question asked was "an 'orthodontist' is a dentist who specializes in straightening teeth."

"Agree" was the correct response to this question. All of the middle class mothers were observed to have answered this question correctly. 75 per cent of the upper class mothers and 52 per cent of the lower class mothers answered correctly. The data in this Table showed a relationship not consistent with Hypothesis Nine, which itself was rejected.

VI. HYPOTHESES CONCERNED WITH RELIGION[4]

Hypothesis Nine: There is a relationship between the religeon of the parents and their attitude and knowledge regarding dental health.

TABLE XXXI

THE RELATIONSHIP BETWEEN RELIGION AND DENTAL ATTITUDE AND KNOWLEDGE

Religion	Dental Attitude and Knowledge							
	High		Medium		Low		Total	
Catholic	3. (0.06)	12%	12. (0.08)	50%	9. (0.16)	37%	24.	100%
Protestant	8. (0.05)	11%	42. (0.02)	58%	22. (0.00)	30%	72.	100%
Jew	3. (0.29)	21%	8. (0.02)	57%	3. (0.16)	21%	14.	100%

*Each "decision-maker" in this study claimed to be of the same religion as his or her respective spouse. With the exception

[4] Religion sometimes can affect one's attitudes and knowledge as well as one's actual health. In terms of dental health, an individual may be predisposed to accept or reject certain dental health practices on the grounds of his faith, or may perceive dental disease and oral hygiene practices differently

of one set of parents, all of the others claimed to be either Protestant, Catholic, or Jewish. As one set of parents were agnostics, the sample size for the variable of religion was reduced to 110.

A study of the data revealed no clear or consistent pattern of relationship. Of the parents who represented a highly positive attitude and knowledge toward dental health, 12 per cent were Catholic, 11 per cent were Protestant, and 21 per cent were Jewish. When these and the other observed differences for Table XXXI were submitted to the test of association, the relationship between parental religion and dental attitude and knowledge proved not to be statistically significant. Therefore, as no statistical dependency has been formally established between these two variables, the hypothesis that there is a relationship between the religion of the parents and their attitude and knowledge regarding dental health, is rejected.

Hypothesis Ten: There is a relationship between the religion of the parents and the total observed caries experience of their children.

Tables XXXII, XXXIII, and XXXIV picture the total observed caries experience of the sample children in terms of their religion.[5] Table XXXII represents the caries

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according to religious teachings and beliefs. Thus, it might be expected that people of different religions would have different attitudes and knowledge regarding dental health, as well as differential caries experience.

[5]The child's religion was assumed to be the same as that of his parents.

experience of the deciduous teeth. Data fell in the direction hypothesized, as a distinct and obvious relationship was evident after observably comparing the means for each caries classification. With one minor exception, it was found that Catholic Children had the highest mean of caries experience, Protestants were somewhat lower, while Jewish children enjoyed the lowest mean rate of caries experience. For example, while the mean d.e.f. for Catholic children was 6.96, and 5.79 for Protestant children, it was only 2.29 for the Jewish children.

TABLE XXXII

THE RELATIONSHIP BETWEEN RELIGION AND THE DECIDUOUS CARIES EXPERIENCE

Religion	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	d.e.f.
Catholic	24	37. 1.54	1. 0.04	25. 1.04	104. 4.33	167. 6.96 Mean
Protestant	72	51. 0.71	2. 0.03	116. 1.61	249. 3.46	417. 5.79 Mean
Jew	14	6. 0.43	0.0 0.0	2. 0.14	24. 1.71	32. 2.29 Mean

Data for Table XXXIII which shows the incidence of caries experience for the permanent teeth, revealed the same definite relationship found in Table XXXII. It was observed that Catholic children had a mean D. M. F. of 2.12, Protestant children had a mean D. M. F. of 1.83, as compared

to the Jewish children who had the remarkably low mean D. M. F. of 0.07.

TABLE XXXIII

THE RELATIONSHIP BETWEEN RELIGION AND THE PERMANENT CARIES EXPERIENCE

Religion	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.
Catholic	24	0.0 0.0	0.0 0.0	22. 0.92	28. 1.17	51. 2.12 Mean
Protestant	72	0.0 0.0	0.0 0.0	61. 0.85	71. 0.99	132. 1.83 Mean
Jew	14	0.0 0.0	0.0 0.0	1. 0.07	0.0 0.0	1. 0.07 Mean

In Table XXXIV, which depicts the incidence of caries experience for the lower first permanent molars, an extremely similar relationship to that found in Tables XXXII and XXXIII was observed. Here again, Catholic children had the highest mean rate of caries experience, followed by Protestant children, with Jewish children having the lowest mean rate of caries experience.

TABLE XXXIV

THE RELATIONSHIP BETWEEN RELIGION AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

Religion	No. of Persons	Examination	Occlusal	Buccal Pit	Mesial	Lost
Catholic	24	39. 1.62	25. 1.04	12. 0.50	1. 0.04	0.0 0.0 Mean
Protestant	72	128. 1.78	50. 0.69	27. 0.38	1. 0.01	0.0 0.0 Mean
Jew	14	20. 1.43	1. 0.07	0.0 0.0	0.0 0.0	0.0 0.0 Mean

Thus, in all three Tables a clear and consistent relationship was observed to exist between religion and total caries experience. Therefore, the hypothesis that there is a relationship between the religion of the parents and the total observed caries experience of their children is accepted on the basis of the visual inspection of mean caries experience.

On the basis of a separate analysis, only one question in the questionnaire was found to have established a significant relationship between the religion of the parents and their dental knowledge and attitude.

TABLE XXXV

THE RELATIONSHIP BETWEEN RELIGION AND ATTITUDE TOWARDS BLEEDING GUMS*

Religion	Disagree		Undecided		Agree		Total	
Catholic	16. (0.38)	66%	3. (0.00)	12%	5. (7.78)	20%	24.	100%
Protestant	59. (0.01)	81%	12. (0.10)	16%	1. (1.50)	1%	72.	100%
Jew	13. (0.15)	92%	1. (0.14)	7%	0.0 (0.09)	0%	14.	100%
							N = 110	

Adjusted X^2 = 10.156 d.f. = 4 P $<$ .05 Phi = 0.304

*The question asked was "Bleeding gums are commonplace and can easily be cured by not brushing the teeth for a few days."

The correct response to this question was "disagree". 66 per cent of the Catholic parents indicated high positive dental attitude and knowledge regarding this question as compared to 81 per cent of the Protestant parents, and 92 per cent of the Jewish parents. Also, while no Jewish parents answered the question incorrectly, 1 per cent of the Protestant parents and 20 per cent of the Catholic parents did. Thus although the data for this particular question showed a statistically significant relationship between the religion of the parents and their dental attitude and knowledge, Hypothesis Eleven was nevertheless rejected for the data as a whole.

VII. HYPOTHESES CONCERNED WITH THE RURAL-URBAN BACKGROUND OF PARENTS[6]

Previous sociological studies have shown that residential propinquity is an important factor in marriage selection. In most cases, people from a rural background marry other people from a rural background and people from an urban background usually marry other people from an urban

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[6]The researcher felt that a relationship exists between the native background of the parents and their attitudes and knowledge regarding dental health. Rural dwellers generally would not be exposed to dental education and dental services, thus restricting their contact with the valuable information regarding the importance of dental health. People in urban areas on the other hand, are in closer proximity with public health services, notably dental health and care. Therefore, even though a child is born and raised in the City of Winnipeg, the background of his parents would

background. These generalized findings with regard to propinquity of residence were tested within the sample population of parents and appear below in Table XXXVI.

TABLE XXXVI

THE RELATIONSHIP OF PROPINQUITY OF RURAL-URBAN BACKGROUND TO MARRIAGE

	Rural		Urban		Total	
Rural	10. (14.17)	50%	10. (2.49)	50%	20	100%
Urban	6. (3.26)	6%	81. (0.57)	93%	87.	100%

N = 107

Adjusted X^2 = 20.489 d.f. = 1 P $<$ .001 Phi = 0.438

A study of the data in Table XXXVI revealed that a highly significant relationship existed between propinquity of rural-urban background and marriage. That is, most spouses had a similar residential background.

Hypothesis Eleven: There is a relationship between the rural-urban background of the parents and their attitude and knowledge regarding dental health.

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affect their attitude and knowledge, and this in turn would affect their socialization of the child and his resultant caries experience.

TABLE XXXVII

THE RELATIONSHIP BETWEEN RURAL-URBAN BACKGROUND AND DENTAL ATTITUDE AND KNOWLEDGE

	Dental Attitude and Knowledge							
Background	High		Medium		Low		Total	
Rural	0.0 (1.38)	0%	11. (0.01)	61%	7. (0.18)	38%	18.	100%
Urban	14. (0.27)	15%	52. (0.00)	55%	27. (0.03)	29%	93.	100%

N = 111

Adjusted X^2 = 1.868, d.f. = 2, P = .05, Phi = 0.130

The data for Table XXXVII seemed to be inconsistent with Hypothesis Eleven. No uniform pattern of relationship was distinguishable between the two variables although it was observed that 15% of the parents with an urban background had high positive dental attitude and knowledge as against none for the parents of a rural background. However, as the observed differences between these two variables did not prove to be statistically significant, the hypothesis that there is a relationship between the rural-urban background of the parents and their attitude and knowledge regarding dental health, is rejected.

Hypothesis Twelve: There is a relationship between the rural-urban background of the parents and the total observed caries experience of their children.

Together, Tables XXXVIII, XXXIX, and XL represent the total caries experience for the sample children with respect to the rural or urban background of their parents. Table XXXVIII specifically depicts the caries experience of the deciduous teeth. With the one exception of the mean number of "crowns destroyed", it was found that children of parents with an urban background had a lower mean caries experience than children of parents with a rural background. The mean differences between the two groups however, proved to be quite small.

TABLE XXXVIII

THE RELATIONSHIP BETWEEN RURAL-URBAN BACKGROUND AND THE DECIDUOUS CARIES EXPERIENCE

Background	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	d.e.f.
Rural	18	20. 1.11	0.0 0.0	25. 1.39	69. 3.83	114. 6.33 Mean
Urban	93	74 0.80	3. 0.03	118. 1.27	316. 3.40	510. 5.48 Mean

Table XXXIX illustrates the caries experience for the permanent teeth. Data showed an inconsistent pattern, as the mean caries experience for children with parents of an urban background was higher than for children with parents of a rural background in terms of "other caries", lower in terms of "completely restored", but higher again

when comparing D. M. F. rates between the two groups.

TABLE XXXIX

THE RELATIONSHIP BETWEEN RURAL-URBAN BACKGROUND AND THE PERMANENT CARIES EXPERIENCE

Back-ground	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.
Rural	18	0.0 0.0	0.0 0.0	9.0 0.50	19. 1.06	29. 1.61 Mean
Urban	93	0.0 0.0	0.0 0.0	76. 0.82	83. 0.89	159. 1.71 Mean

Table XL indicates the caries experience for the lower first permanent molars. In observing the data for this Table, it was noted that children with parents of an urban background were generally found to have a slightly lower caries experience rate than children with parents of a rural background.

TABLE XL

THE RELATIONSHIP BETWEEN RURAL-URBAN BACKGROUND AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

Back-ground	No. of Persons	Examin-ation	Occlu-sal	Buccal Pit	Mesial	Lost
Rural	18	27. 1.50	15. 0.83	8. 0.44	1. 0.06	0.0 0.0 Mean
Urban	93	162. 1.74	63. 0.68	33. 0.33	1. 0.01	0.0 0.0 Mean

However, Tables XXXVIII, XXXIX, and XL which provide the total observed caries experience of the sample children in relation to their parents' rural-urban background, failed to establish any distinct relationship between these two variables. Therefore, on the basis of the visual inspection of the means, the hypothesis that there is a relationship between the rural-urban background of the parents and the total observed caries experience of their children, is rejected.

On the basis of a separate analysis, only the following question in the questionnaire established a significant difference between the dental attitude and knowledge of parents from a rural background as compared to parents of an urban background.

TABLE XLI

THE RELATIONSHIP BETWEEN RURAL-URBAN BACKGROUND AND ORTHODONTURE*

Background	Agree		Undecided		Disagree		Total	
Rural	5. (2.77)	27%	13. (5.58)	72%	0.0 (0.00)	0%	18.	100%
Urban	63. (0.54)	67%	27. (1.08)	29%	3. (0.00)	3%	93.	100%

N = 111

Adjusted X^2 = 9.961 d.f. = 2 P < .02 Phi = 0.300

*The question asked was "An 'orthodontist' is a dentist who specializes in straightening teeth."

The correct response to this question was "agree". 67 per cent of the parents with an urban background answered this question correctly as against 27 per cent of the parents with a rural background. However, the greatest observable difference in Table XLI was the fact that while 39 per cent of the first mentioned group of parents were "undecided", 72 per cent of the second group of parents were "undecided" and it was this cell which contributed most strongly to the significant value of the adjusted Chi-square.

VIII. HYPOTHESES CONCERNED WITH THE CHILD'S SEX[7]

Hypothesis Thirteen: There is a relationship between the child's sex and his parents' attitude and knowledge regarding dental health.

An examination of the data for Table XLII revealed that very little difference existed between the dental attitude and knowledge of the parents of boys and the parents

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[7] The possibility of a relationship between child's sex and his parents' attitudes and knowledge regarding dental health was investigated, as the researcher felt that the child's sex, and the learning of the roles associated with this sex would directly affect the attitude and knowledge displayed by the parents. Thus, it was assumed that not only would the child's sex influence the attitude and knowledge of his parents towards dental health, but also the child's actual caries experience could be affected by the parents' differential child-rearing practices as determined by the sex of the child. For example, it was felt that where daughters were concerned, the parents would be more interested in physical appearance and thus would stress such things as dental care, more so than would parents of boys.

TABLE XLII

THE RELATIONSHIP BETWEEN CHILD'S SEX AND DENTAL ATTITUDE AND KNOWLEDGE

	Dental Attitude and Knowledge							
Child's Sex	High		Medium		Low		Total	
Male	10. (0.36)	16%	35. (0.00)	56%	17. (0.12)	27%	62.	100%
Female	4. (0.46)	8%	28. (0.00)	57%	17. (0.15)	34%	49.	100%

N = 111.

Adjusted X^2 = 1.089 d.f. = 2 P\ .05 Phi = 0.099

of girls. Of those parents who had a boy in the sample, 16 per cent scored a high positive dental attitude and knowledge as compared to 8 per cent for the parents who had a girl in the sample. The other observed differences between the two groups were both less than 8 per cent. When the observed differences were submitted to the test of association, the association proved not to be statistically significant at the .05 level. Therefore, the hypothesis that there is a relationship between the child's sex and his parents' attitude and knowledge regarding dental health, is rejected.

Hypothesis Fourteen: There is a relationship between the child's sex and his total observed caries experience.

Together, Tables XLIII, XLIV, and XLV depict the total observed caries experience of the sample children in terms of their sex. Table XLIII specifically indicates the caries experience of the deciduous teeth. In comparing the means for each caries classification by sex, it was found that with the small exception of the "crowns destroyed" category, boys always had a slightly lower caries experience than girls. The mean d.e.f. for the boys in the sample was 5.13 as against 6.24 for the girls.

TABLE XLIII

THE RELATIONSHIP BETWEEN THE CHILD'S SEX AND THE DECIDUOUS CARIES EXPERIENCE

Child's Sex	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	d.e.f.
Male	62	52. 0.84	2. 0.03	59. 0.95	206. 3.32	318. 5.13 Mean
Female	49	42 0.86	1. 0.02	84. 1.71	179. 3.65	306. 6.24 Mean

Data for Table XLIV depicts the incidence of caries experience for the permanent teeth. It was observed that boys tended to have a lower incidence of caries experience for permanent teeth than girls. Although the data was somewhat inconsistent, the mean D. M. F. for boys was 1.65 as compared to 1.76 for girls.

TABLE XLIV

THE RELATIONSHIP BETWEEN CHILD'S SEX AND THE PERMANENT CARIES EXPERIENCE

Child's Sex	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.
Male	62	0.0 0.0	0.0 0.0	44. 0.71	58. 0.94	102. 1.65 Mean
Female	49	0.0 0.0	0.0 0.0	41. 0.84	44. 0.90	86. 1.76 Mean

In Table XLV which depcits the incidence of caries experience for the lower first permanent molars, only small and inconsistent differences were found to exist between the boys and the girls.

TABLE XLV

THE RELATIONSHIP BETWEEN CHILD'S SEX AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

Child's Sex	No. of Persons	Examination	Occlusal	Buccal Pit	Mesial	Lost
Male	62	107. 1.73	38. 0.61	22. 0.35	1. 0.02	0.0 0.0 Mean
Female	49	82. 1.67	40. 0.82	17. 0.35	1. 0.02	0.0 0.0 Mean

Although somewhat of an inconsistent pattern emerged from the three Tables, nevertheless, boys showed a mean caries count which was lower than that for the girls. Therefore, on the basis of the visual inspection of the mean

caries experience, the hypothesis that there is a relationship between the child's sex and his total observed caries experience, is accepted.

In terms of a separate analysis, no question in the questionnaire was found to have established any significant relationship between the child's sex and his parents' attitude and knowledge regarding dental health.

IX. HYPOTHESES CONCERNED WITH THE NUMBER OF CHILDREN LIVING AT HOME[8]

Hypothesis Fifteen: There is a relationship between the number of children living at home and their parents' attitude and knowledge regarding dental health.

A study of the data revealed no clear or consistent pattern of relationship between these two variables. Of the parents who indicated a highly positive attitude and knowledge regarding dental health, 15 per cent had a small number of children, while 4 per cent had a large number of children. Only small differences in dental attitude and knowledge were observed to exist between the

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[8]The researcher was concerned that the size of the family would affect the dental attitudes and knowledge of the parents, and subsequently the dental caries experience of the child. This reasoning was based on the assumption that parents of a small family could devote more time to the proper training of their child's dental health practices than could parents with a large family.

TABLE XLVI

THE RELATIONSHIP BETWEEN NUMBER OF CHILDREN LIVING AT HOME AND DENTAL ATTITUDE AND KNOWLEDGE

No. of Children	Dental Attitude and Knowledge: High		Medium		Low		Total	
Small*	13. (0.25)	15%	48. (0.00)	55%	25. (0.03)	25%	86.	100%
Large*	1. (0.87)	4%	15. (0.01)	60%	9. (0.09)	36%	25.	100%

N = 111

Adjusted X^2 = 1.247 d.f. = 2 P $\backslash$ .05 Phi = 0.106

*The term "small" denotes a family size of 1-4 children. The term "large" denotes a family size of 5-9 children.

two variables and these observed differences proved not to be statistically significant at the .05 level. Therefore, the hypothesis that there is a relationship between the number of children living at home and their parents' attitude and knowledge regarding dental health is rejected.

Hypothesis Sixteen: There is a relationship between the number of children living at home and the total observed caries experience of the child.

The three Tables XLVII, XLVIII, and XLIX indicate the total observed caries experience of the sample children with respect to the number of children living in the home

of the sample child. Table XLVII specifically depicts the caries experience of the deciduous teeth. A study of the data revealed that children of small size families tended to have a lower deciduous mean caries count than children of large size families although the converse was true in terms of the "other caries" category. Children of small size families had a mean d.e.f. of 5.49 as compared to 6.08 for children of large families.

TABLE XLVII

THE RELATIONSHIP BETWEEN NUMBER OF CHILDREN AT HOME AND THE DECIDUOUS CARIES EXPERIENCE

No. of Children	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	d.e.f.
Small	86	62. 0.72	2. 0.02	107. 1.24	302. 3.51	472. 5.49 Mean
Large	25	32. 1.28	1. 0.04	36. 1.44	83. 3.32	152. 6.08 Mean

Table XLVIII represents the caries experience for the permanent teeth. Data in this table showed a pattern completely contrary to that of Table XLVII. Findings indicated that children of small size families had a higher permanent mean caries count than children of large families. While children of small families showed a mean D. M. F. of 1.78, children of large families showed a corresponding rate of 1.40.

TABLE XLVIII

THE RELATIONSHIP BETWEEN NUMBER OF CHILDREN AT HOME AND THE PERMANENT CARIES EXPERIENCE

No. of Children	No. of Persons	Prem. Lost	Crowns Destroyed	Other Caries	Completely Restored	D.M.F.	
Small	86	0.0	0.0	69.	84.	153.	
		0.0	0.0	0.80	0.98	1.78	Mean
Large	25	0.0	0.0	16.	18.	35.	
		0.0	0.0	0.64	0.72	1.40	Mean

Table XLIX depicts the caries experience for the lower first permanent molars. In observing the data, it was found that children of small size families generally had a slightly lower mean caries experience than did children of large size families.

TABLE XLIX

THE RELATIONSHIP BETWEEN NUMBER OF CHILDREN AT HOME AND THE CARIES EXPERIENCE FOR THE LOWER FIRST PERMANENT MOLARS

No. of Children	No. of Persons	Examination	Occlusal	Buccal Pit	Mesial	Lost	
Small	86	143.	58.	30.	2.	0.0	
		1.66	0.67	0.35	0.02	0.0	Mean
Large	25	46.	20.	9.	0.0	0.0	
		1.84	0.80	0.36	0.0	0.0	Mean

Thus, Tables XLVII, XLVIII, and XLIX provided the total observed caries experience of the sample children with regard to the number of children living in the home.

The data however, failed to reveal any clear and consistent pattern of relationship. Therefore, on the basis of the visual inspection of the means, the hypothesis that there is a relationship between the number of children living at home and the total observed caries experience of the child is rejected.

In terms of a separate analysis, the researcher found that no question in the questionnaire established any significant relationship between the number of children living at home and their parents' attitude and knowledge regarding dental health.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Objectives

The objective of this study was twofold. The first objective was to investigate the relationship of the independent variables of social class, income, education, the social class of the mother before marriage, religion, rural or urban background, sex, and the number of children living at home to the attitudes and knowledge towards dental health of the parents of school children who utilize dental services. The second objective was to investigate the relationship between the preceding independent variables and the observed dental caries experience among school-age children who utilize dental services.

Collection of Data

Data on caries experience for native Winnipeg children aged six to eight years and in grades one to three, who utilize dental services, were collected by dentists and dental hygienists from both private practice and school dental clinics between the months of September and December of 1967.

Data on the parents of these children were collected by means of a structured interview questionnaire administered to the parent who is the decision-maker regarding

his child's dental health.

The interview questionnaire was basically designed with a twofold purpose: (1) to measure the dental attitudes and knowledge of the parent (decision-maker) whose child utilizes dental services, and (2) to measure social class and other related variables.

Findings

Sixteen hypotheses were formulated and tested in regard to this study. A summary of the results can be found in Tables L and LI.

TABLE L

SUMMARY OF RESULTS OF CHI-SQUARE ANALYSES

Hypotheses	X^2	d.f.	P	Phi
1. The higher the social class of the parents, the more positive will be their attitude and knowledge regarding dental health.	11.312	4	$<$ .05	0.325
3. The greater the income of the parents, the more positive will be their attitude and knowledge regarding dental health.	9.489	4	$<$ .05	0.298
5. The higher the education of the parents, the more positive will be their attitude and knowledge regarding dental health.	10.090	4	$<$ .05	0.301
7. The higher the social class of the mother before marriage, the more positive will be her attitude and knowledge regarding dental health.	1.198	4	$\not<$ .05	0.104

TABLE L Continued.....

Hypotheses	X^2	d.f.	P	Phi
9. There is a relationship between the religion of the parents and their attitude and knowledge regarding dental health.	0.839	4	λ.05	0.087
11. There is a relationship between the rural-urban background of the parents and their attitude and knowledge regarding dental health.	1.868	2	λ.05	0.130
13. There is a relationship between the child's sex and his parents' attitude and knowledge regarding dental health.	1.089	2	λ.05	0.099
15. There is a relationship between the number of children living at home and their parents' attitude and knowledge regarding dental health.	1.247	2	λ.05	0.106

TABLE LI

SUMMARY OF RESULTS BY VISUAL INSPECTION OF THE MEAN

Hypotheses	Acceptance/ Rejection
2. The higher the social class of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with social class.	Accepted
4. The higher the income of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with income.	Accepted

TABLE LI Continued.....

Hypotheses	Acceptance/ Rejection
6. The higher the education of the parents, the lower will be the total observed caries experience of the children; that is, dental health will vary directly with education.	Accepted
8. The higher the social class of the mother before marriage, the lower will be the total observed caries experience of the child; that is, dental health will vary directly with the social class of the mother before marriage.	Rejected
10. There is a relationship between the religion of the parents and the total observed caries experience of their children.	Accepted
12. There is a relationship between the rural-urban background of the parents and the total observed caries experience of their children.	Rejected
14. There is a relationship between the child's sex and his total observed caries experience.	Accepted
16. There is a relationship between the number of children living at home and the total observed caries experience of the child.	Rejected

Hypotheses Concerned with Social Class, Income, and Education

The socio-economic variable of social class and its related dimension variables of income and education taken singly all proved to be significantly related to the dental attitude and knowledge of the parents of school children who utilize dental services. A study of the data revealed that the higher the social class, the income,

and/or the education of the parents, the more positive was their attitude and knowledge regarding dental health. These findings were in complete accord with past studies in this area.

From a sociological perspective, it would be expected that the differences in the parents' attitude and knowledge toward dental health would result in differences in socialization and child-rearing practices with regard to dental health. Although most parents are genuinely concerned about the health and welfare of their children, they may, for a number of reasons, neglect their children's dental health.

> Learning to take care of the teeth is not an easy matter, either from the point of view of the parent or the child. ... It is a type of self-care that a child cannot easily observe (to some extent it occurs "within" a person), nor is it one that a parent can teach easily. This latter consideration reflects the observation that adults do not always know what the "right" dental care is, so that emphasis is put on the activity without too much concern as to whether it is being done in the best possible way in order to achieve certain results. Parents are more inclined to stress the repetitive nature of dental care rather than indicate the pleasures and objectives of this pursuit.
>
> Much of this is to say that people, both children and adults, are never quite sure whether they are taking "good" care of their teeth. For one thing, results are manifested in a negative fashion and then only after some delay in time. If cavities are few, then the teeth have been properly cared for. Secondly, results are not as visible in this area as they are, for example, when a person combs his hair, washes his face or hands, and the like. Social recognition for this act is thus not easy to achieve. A parent can acknowledge that the child has performed the activity (or ritual), but

> he cannot assess the result. In this fashion, duty more than the attainment of good, healthy teeth comes to be emphasized in this area.
>
> Related to this is that the results of dental care for the individual are essentially private -- the feeling of a "clean mouth," the tactile pleasures associated with brushing, massaging, rinsing, tasting. These, too, are difficult to communicate or to acknowledge. The more mature feeling of "being clean" usually is not present among children. Without strong encouragement or reinforcement from parents, the gains to be derived from dental care are not especially clear for youngsters.[1]

Thus, the role of parents in regard to their child's dental health has many facets. Not only are they responsible for the child's oral hygiene with the accompanying proper daily routine of toothbrushing, but they are also responsible for the selection and preparation of adequate meals. As well, the intake of sweets must be controlled by the parents. They are also responsible for obtaining dental treatment for their children. In many of these instances, funds are required in order to carry out these responsibilities properly and adequately.

Although the free school dental clinics instituted by the City of Winnipeg undoubtedly helped to alleviate the neglect of dental treatment suffered by children whose parents could not afford the cost of dental services, they

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[1] Bureau of Economic Research and Statistics, "A Motivational Study of Dental Care", p. 574.

had little or no effect on the parents' dental attitude and knowledge. Therefore, this study found that regardless of the fact that all of the children in the sample availed themselves equally of dental services, their dental health remained unequal. That is, data with regard to dental caries experience showed that the higher the social class, income, and/or education of the parents, the lower was the total observed caries experience of the children.

What is needed then, as well as free dental clinics, in order to ensure better dental health among all children is an effective dental health education program. Parents of all socio-economic levels must be made more aware of the importance of dental health for their children. However, awareness alone of measures recommended to promote dental health does not ensure their adoption into practice. Consequently, new and more thorough methods must be found in order to stimulate parent co-operation in regard to their children's dental health.

Parents, especially those of the lower class, must be made to feel a sense of satisfaction and self-confidence in their ability to rear their children properly with regard to dental health practices. Perhaps such a program of education and motivation of the parents could most effectively be instituted within the service framework of the free school dental clinics by making it mandatory for

at least one of the parents to attend the clinic and receive dental health education each time his child is being treated. Such education programs could be made the responsibility explicitly of the public health nurse, or of the dental hygienist and/or the dentist. A similar plan could be introduced into private dental practices. A community dental health program such as the one formulated above would seem to be the key to the successful control and prevention of dental diseases in children resulting in better dental health.

Hypotheses Concerned with the Social Class of the Child's Mother Before Marriage

A study of the data with regard to the hypotheses "the higher the social class of the mother before marriage, the more positive will be her attitude and knowledge regarding dental health", and "the higher the social class of the mother before marriage, the lower will be the total observed caries experience of the child", led the researcher to reject both of these. While the variable social class of family at present was found to be significantly related to both dental attitude and knowledge and dental caries experience, the social class of the child's mother before marriage was not. This would tend to indicate that the class into which a woman marries and spends the greatest portion of her life, has a greater effect upon her attitudes

and knowledge and child-rearing practices than does the class into which she was born and raised.

Hypotheses Concerned with Religion

Previous studies have shown that members of different religions or ethnic groups often differ in the way in which they perceive health and health practices. However, in analyzing the data it was found that the hypothesis which states that "there is a relationship between the religion of the parents and their attitude and knowledge regarding dental health", was rejected.

However the hypothesis "there is a relationship between the religion of the parents and the total observed caries experience of their children", was accepted. In fact, it was found that Catholic children had the highest rate of dental caries experience, Protestant children were second, and Jewish children had the lowest rate of caries experience. Thus, although religion did not seem to be related to the dental attitude and knowledge of the parents, their children did not register comparable dental health. Differences in the caries experience of children of various religious groups may be due to differences in child-rearing practices between which the questionnaire failed to discriminate.

Hypotheses Concerned with the Rural-Urban Background of the Parents

In analyzing the data, the Hypothesis that "there

is a relationship between the child's sex and his parents' attitude and knowledge regarding dental health", was rejected. However, the Hypothesis that "there is a relationship between the child's sex and his total observed caries experience" was accepted. More research on this specific problem would be necessary in order to explain the fact that the boys in this study showed a slightly lower total caries experience than the girls.

Hypotheses Concerned with the Number of Children Living at Home

Finally, the hypotheses "there is a relationship between the number of children living at home and their parent's attitude and knowledge regarding dental health" and "there is a relationship between the number of children living at home and the total observed caries experience of the child" were both rejected.

In conclusion, the socio-economic variable of social class and its related dimension variables of income and education taken singly proved to be the only independent variables in this study to which the dental attitudes and knowledge of parents were significantly related. These same three independent variables along with religion and the child's sex were the selected variables in the study which influenced the dental caries experience of children.

CHAPTER VII

EPILOGUE

This last section of the paper has become necessary as a result of the oral examination in which a number of shortcomings and limitations of the foregoing thesis were brought into focus by members of the committee. These are essentially as follows:

(1) The basic assumption stated on page 27 that all children in the sample would have had equal utilization of dental services clearly is not tenable due to the fact that no control for utilization of dental services was instituted for the children's first five years of life. As these are the formative years for a child's baby teeth, present differences in caries experience could in fact be the result of past treatment or the lack of it.

(2) The implications concerning the acceptance or rejection of hypotheses made on the basis of merely visual inspection of the means cannot in any sense have the force of those made on the basis of statistical tests or be imputed as characteristic of a more general population.

(3) In view of the fact that more than one of the independent variables were found to be significantly related to caries experience (eg. social class and religion), and in view of the fact that no controls were inserted, the conclusions

cited in the study must of necessity be more tentative than suggested. In other words, no causal relationship was established in any part of the study.

(4) The assumption that oral defects of a so-called genetic origin can be completely controlled for, is fallacious.

APPENDICES

APPENDIX A

DENTAL SURVEY FORM*

Child's Name_____ Date_____

Address_____ Coded Respondent Number_____ 1,2,3.

Phone No._____

Age_____ Grade_____ Sex_____

Dental Caries

Prem Lost	Crowns Destroyed	Other Caries	Complete Restored	TOTAL	Lower First Permanent Molars 15 Exam	16 Occ	17 B.P.	18 Mes.	19 Lost
4 Dec	5 Dec	6 Dec	7 Dec	8,9 d.e.f.	0	0	0	0	0
					1	1	1	1	1
10 Perm	11 Perm	12 Perm	13 Perm	14 D.M.F.	2	2	2	2	2

20 Fluorosis: (1) No (2) Yes

Examiner:

Please Record:

21. (a) The number of failed appointments the child had during the last year_____

22. (b) The number of cancelled appointments the child had during the last year_____

23. (c) The total number of professional visits to the dentist in the last year_____

*(This Dental Survey Form is a modified version of the Winnipeg Health Department Form 506 ab (supplementary) 1964).

APPENDIX B

THE UNIVERSITY OF MANITOBA

Department of Sociology Winnipeg, Canada

Dear

Our department, under the sponsorship of the Department of Health and Welfare, is undertaking a study of Dental Services for children in the City of Winnipeg. A random sample of parents has been selected who will be asked to give us information about their childrens' dental health. Your name is one of those that has been selected.

The study itself is attempting to gain reliable information about children's dental needs and the use of services available to them. As a parent, you will be contacted in the near future by an interviewer who will ask you to answer a few questions of great importance for the possible improvement of Dental Services in Manitoba. We trust you will receive him with courtesy and co-operation.

All the information which you give will be regarded as confidential and will be seen by no one except the research team.

Yours sincerely,

Douglas L. Rennie,
Professor of Sociology.

APPENDIX C

INSTRUCTIONS

Listen carefully to each statement as it is read to you. Then, pick the word or phrase which best describes your reaction to the statement read.

STRONGLY AGREE - Choose 'strongly agree' when you are "sure" that you agree with that statement and that it is correct.

AGREE - Choose 'agree' when you "think" that you agree with the statement but you are not sure it is true.

UNDECIDED - Choose 'undecided' when you do not know whether the statement is true or false.

DISAGREE - Choose 'disagree' when you "think" that you disagree with the statement but you are not sure that it is false.

STRONGLY DISAGREE - Choose 'strongly disagree' when you are "sure" that you disagree with the statement and that it is incorrect.

APPENDIX D

DENTAL HEALTH QUESTIONNAIRE

Study

1967-1968

Note to Interviewers: The person to be interviewed MUST be the person who makes the decisions regarding the child's dental health.

DENTAL HEALTH QUESTIONNAIRE

SECTION I

Coded Respondent Number
1. 2. 3.

4. There is no special care that you should take of your baby's mouth before his teeth appear. _____

5. There is nothing you can do to help your child's teething process. _____

6. Normally there are 20 deciduous or baby teeth. _____

7. A child should pay his first visit to the dentist when he is about two years old. _____

8. All children are afraid of the dentist. _____

9. In general, a child should visit the dentist about once every two years. _____

10. It makes little or no difference to a child's dental health whether or not his baby teeth are cared for because they are soon going to fall out anyway. _____

11. The proper care of the child's baby teeth can help to eliminate the need for "straightening" his permanent teeth later on in life. _____

12. A child who has accidentally broken a permanent front tooth should visit the dentist at once. _____

13. Proper brushing of the teeth helps to prevent cavities. _____

14. When brushing, the gum tissues as well as the teeth should be brushed. _____

15. Toothbrushing is most important just before breakfast when you get up in the morning. _____

16. It is not too important for young children to form the habit of brushing their teeth regularly _____

17. Brushing your teeth yourself has the same value as dental prophylaxis or cleaning of the teeth by a dentist. _____

18. Irregular teeth should almost always be straightened. _____

19. Bleeding gums are commonplace and can easily be cured by not brushing the teeth for a few days. _____

20. Unhealthy teeth and gums can affect the other parts of the body. _____

21. It is not too important for each member of the family to have his own toothbrush. _____

22. If one does not have toothpaste, then a mixture of baking soda and table salt can serve as a substitute. _____

23. Toothpaste and toothpowder are equally effective as an aid in brushing teeth. _____

24. The teeth should be brushed after every meal and after the eating of sweets to help prevent decay. _____

25. The child should not use a toothbrush until he is about five years old. _____

26. In the beginning a parent should help the child to brush his teeth. _____

27. Teeth should be brushed in a crosswise direction. _____

28. It is a good idea to talk with the dentist about your child's dental health. _____

29. Fluoridation of our drinking water has proved largely ineffective in reducing the amount of tooth decay. _____

30. X-ray pictures are considered to be an essential part of a complete mouth examination. _____

31. There are 32 permanent teeth. _____

32. Certain foods such as milk, eggs, cereal, fresh fruit, and vegetables contain vitamins that are essential for good health. _____

33. Extra vitamins and minerals in a normal diet will help to reduce tooth decay.

34. Thumb sucking can result in malocclusion or an irregular bite. _____

35. An "orthodontist" is a dentist who specializes in straightening teeth. _____

36. Tooth decay originates within the structure of the tooth itself. _____

37. Tooth decay cannot be prevented. _____

38. Periodontal disease such as pyorrhea affects the gums and the supporting tissues of the teeth. _____

39. Between-meal treats such as chocolates and candies should be discouraged. _____

40. Dentists often tell you that there is much more wrong with your teeth than there really is. _____

41. It really does not matter what a person's teeth look like. _____

42. Most dental work is very painful. _____

43. Most people have a great deal of confidence in their dentist. _____

44. Dentists are regarded as being among the leading professional people of the community. _____

45. Thinking of going to the dentist give you an uncomfortable and fearful feeling. _____

46. If your child cannot keep a dentist appointment, you should phone the dentist to tell him of this. _____

47. It is not so important to keep your teeth as long as possible now that false teeth are so nice. _____

48. If your child lost one or two of his front teeth, you would not bother to have them replaced. _____

49. Some people's teeth are so bad that it just is not worthwhile for them to go to a dentist _____

50. It is important for the public as a whole to receive more dental health education. _____

51. Teeth really are not something to worry too much about because nobody ever died from having a toothache. _____

52. It takes too much trouble to make an appointment for your child with the dentist. _____

53. It is not as important for the unskilled manual laborer to have good teeth as it is for the business or professional man. _____

*Do you have any comment that you care to make about dental services? (Try to quote the respondent).

_____

_____

_____

SECTION II

54. Person Interviewed: (1) Husband _____

(2) Wife _____

55. What is your marital status:
(1) Married
(2) Separated
(3) Divorced
(4) Widowed
(5) Common Law
(6) Single
(7) Refused to say

FATHER

(Omit the following section only if the husband is deceased or no longer living in the home.)

56. Husband's education:
(1) University and/or Professional Degree
(2) Some University
(3) Grades 10-12
(4) Grades 7-9
(5) Grades 1-6
(6) No formal education

57. Husband's occupation:_____

58. His father's occupation:_____

59. Husband's religion:
(1) Catholic
(2) Protestant
(3) Jew
(4) Other (specify)_____
(5) No religion
(6) Refused to say

60. Has the husband lived most of his life in the city or in the country:
(1) city
(2) country

61. Husband's annual income:
(1) over $16000
(2) 12000 - 16000
(3) 8000 - 12000
(4) 4000 - 8000
(5) 2000 - 4000
(6) under 2000

MOTHER

(Omit the following section only if the mother is deceased or no longer living in the home.)

62. Mother's education:
(1) University and/or Professional Degree
(2) Some University
(3) Grades 10-12
(4) Grades 7-9
(5) Grades 1-6
(6) no formal education

63. Mother's occupation:_____

64. Her father's occupation:_____

65. Her religion:
(1) Catholic
(2) Protestant
(3) Jew
(4) Other (specify)_____
(5) No religion
(6) Refused to say

66. Has the mother lived most of her life in the city or in the country:
(1) city
(2) country

(If the mother is NOT a housewife in question 63, then ask questions 67 and 68.)

67. Mother's annual income:
(1) over $16000
(2) 12000 - 16000
(3) 8000 - 12000
(4) 4000 - 8000
(5) 2000 - 4000
(6) under 2000

68. Total combined income for both parents if both are working:
(1) over $16000
(2) 12000 - 16000
(3) 8000 - 12000
(4) 4000 - 8000
(5) 2000 - 4000
(6) under 2000

CHILD

(We are concerned here specifically with the child in the dental survey.)

69. Child's dentist:
(1) private
(2) clinic (school)

70. Child's sex:
(1) male
(2) female

71. Child's age:_____years.

72. Child's schooling: Grade_____

73. The number of children living at home_____

74. In conclusion, the child in this survey is:
(1) an only child
(2) the eldest child
(3) the youngest child
(4) mid-range amongst other children

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