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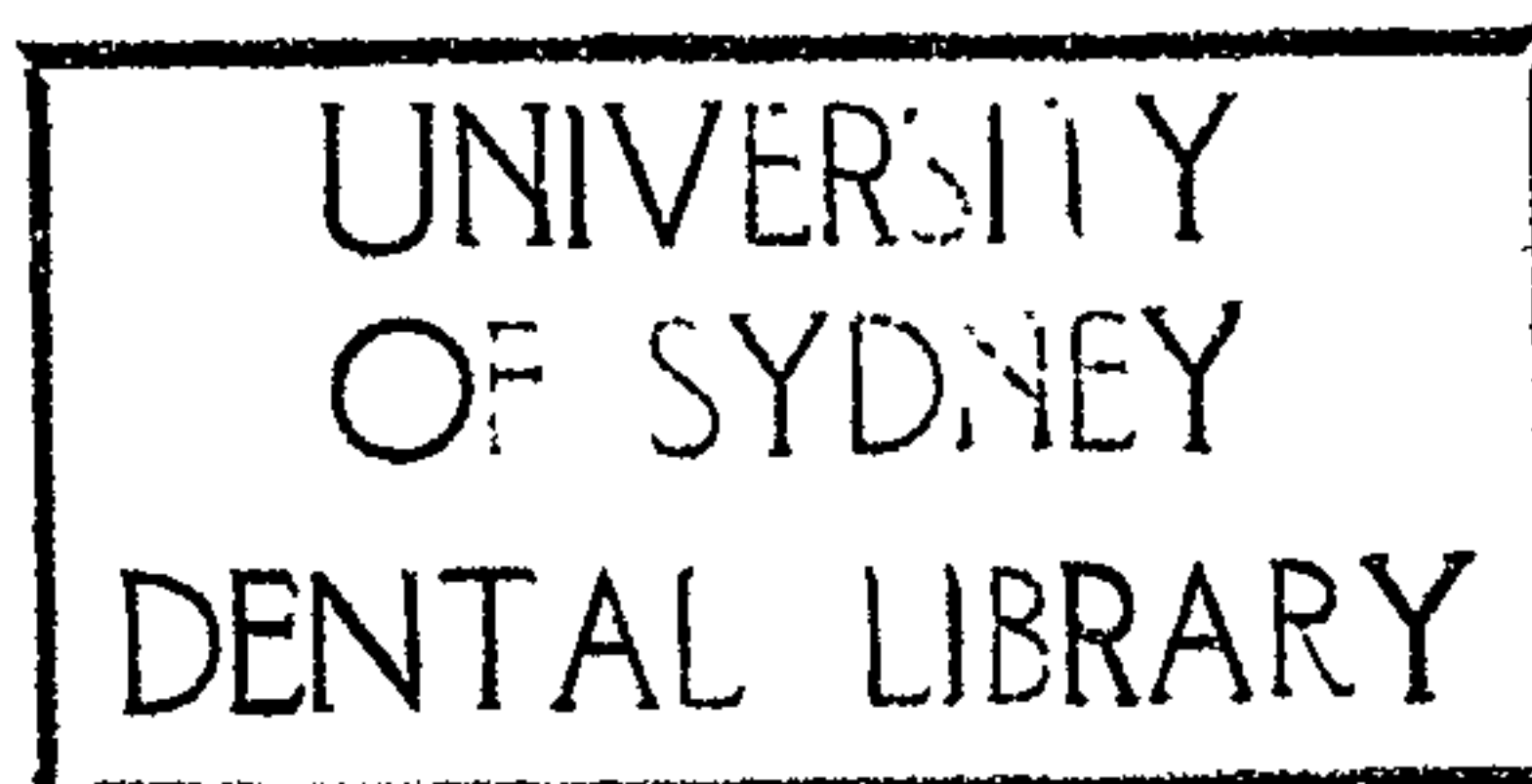
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ATTITUDES OF ELEMENTARY SCHOOLCHILDREN
TOWARDS DENTAL HEALTH CARE IN YOGYAKARTA

Niken Widyanti Sriyono
Dokter Gigi
(Gadjah Mada University)



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Department of Preventive Dentistry
Faculty of Dentistry
University of Sydney

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SUMMARY

The writer's preliminary study (Sriyono 1983) had shown that there were different attitudes towards dental health care between rural and urban elementary school children in Yogyakarta in Indonesia. Rural elementary school children tended to have less favourable attitudes towards dental health care. Changing their attitudes and development of positive attitudes are important to prevent future oral diseases. Also, rural elementary school children can play an important role and contribute to the changing of attitudes of people surrounding them towards dental health care.

Attitudes must be related to an object, and have three components: the cognitive, the affective and the conative component. These components are viewed as a "balanced" system, each dependent to a certain extent upon the others. Attitude changes could occur by changing either one of these three components or by other methods such as force or traumatic experience. In analysing attitude changes one must consider the effect of who says what, how, to whom, and with what effect.

There are direct and indirect measurements of attitudes. The most widely used techniques of attitude measurements are the indirect methods of Thurstone, Likert scaling, and semantic differential techniques. The measure must be reliable in that it must be consistent in what it measures,

and it must be valid in that it measures what the investigator actually wants to measure.

People's attitudes towards dental health care depend on many things. One of these is the level of education, which plays an important role in forming favourable attitudes. The higher the level of people's education, the more favourable their attitudes towards dental health care.

Dental health education is an integral part of any dental public health programme, for it is generally accepted as a means of influencing people's attitudes towards dental health care or the service being provided. Concentrating on education in schoolchildren is important, as it is likely that positive attitudes can be most readily shaped in this group.

About 83% of the Yogyakarta population live in rural areas, most of them are farmers who have low incomes and lack of education. One dental clinic in a Community Health Centre (Puskesmas) covers about 50,000 population, and there may not be a dentist at each of these clinics. Due to the lack of income and education and the far distance to the CHC as well, only 4.41% of the population use the service, and only 0.96% are children below 14 years of age.

School Dental Services (SDS) are an important part of dental health care in Yogyakarta and they commenced only in the early 1970s. The majority of these services are

carried out by CHC (Puskesmas), some by the Faculty of Dentistry, and a few religious organisations or private institutions also provide services. Dental health education is the priority of School Dental Services. Treatment is given only to the 6th grade children along with treatment on demand for other grades. No dental clinics are sited in the schools. One CHC (Puskesmas) covers about 14,500 elementary schoolchildren in rural areas, whereas in urban areas one CHC (Puskesmas) covers about 9,500 elementary schoolchildren. Of these children, only 16.35% have been examined in urban areas, and 10.30% have been examined in rural areas.

A survey was carried out by the writer in Yogyakarta in 1983-1984 to test the assumption that there were no attitude differences between urban and rural elementary schoolchildren towards dental health care, since the government has provided SDS through CHC (Puskesmas) in nearly all sub-districts.

The sample chosen by stratified random sampling, comprised 630 elementary schoolchildren from grade 6, consisting of 419 elementary schoolchildren from rural areas and 211 children in urban areas. Each sample was given a questionnaire to determine attitudes. The questionnaire was divided into 4 parts: attitudes towards dentists, attitudes towards dental health, attitudes towards dental treatment and attitudes towards prevention/home care. The

source of some of the questions was from a questionnaire as used by Howe, and the others were modified from the writer's 1983 preliminary study, the Dunedin study and the Owaka study. Pilot studies were carried out to test the reliability and validity of the questions, which resulted in 16 valid items being chosen for use in the survey questionnaire.

The results of the survey show that there are attitude differences between urban and rural elementary schoolchildren towards dental health care. Urban children tend to have more favourable attitudes than rural children, and parental education is one of the most important factors that influence children's attitudes towards dental health care.

Both urban and rural children seem to have favourable attitudes towards: dentists; dental treatment; and prevention. Both groups held less favourable attitudes towards dental health. However, it seems that favourable attitudes towards dental health care held by elementary schoolchildren of Yogyakarta are not strong enough to lead to positive dental health care behaviour. They do not put into practice the knowledge they have acquired.

Further studies need to be conducted in some biased item responses such as attitudes towards dentists in an area where 45% of rural children and 20% of urban children never have contact with a dentist. Also responses towards dental treatment seem to be biased if compared to oral

epidemiological data and the low utilisation of the dental services.

There are some possible methods which may result in changes in, and the development of, children's attitudes towards dental health care. One of the effective methods is to change their cognitive component by giving dental health education through the school curriculum so that information will be constantly presented and reasserted. The development of School Dental Services and active Village Community Health Development in primary health care might contribute to changes in children's attitudes.

It is important to develop, as much as possible, the provision of accurate information to mass media by dental personnel, as it is one of the main sources of dental health information.

Therefore, dental health education through the curriculum of schools, combined with the development of School Dental Services, Village Community Health Development and accurate information through mass media might have the most effective results in changing children's attitudes towards positive dental health care.

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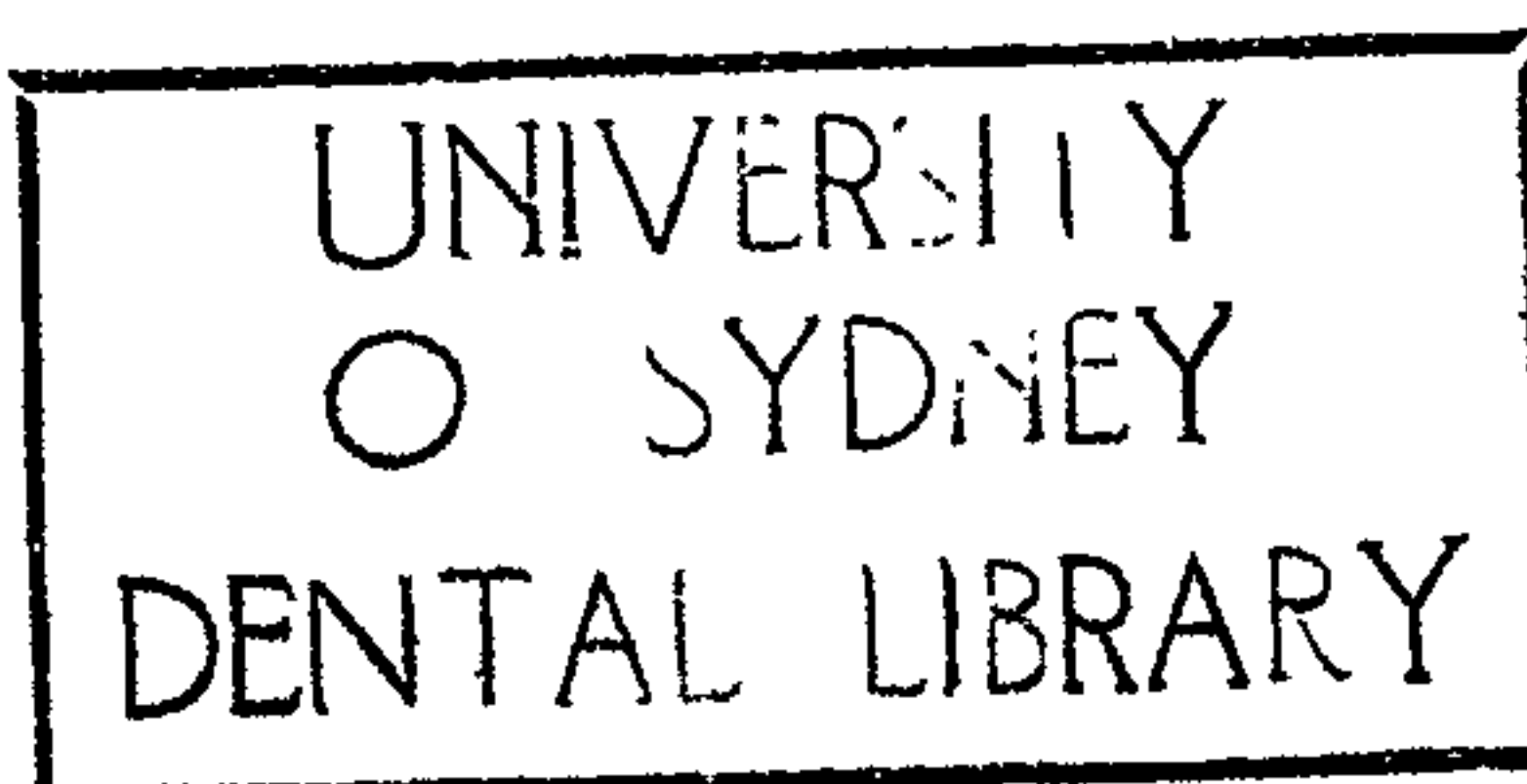
LIST OF ABBREVIATIONS

<u>Number</u>	<u>Abbreviations</u>	
1	DHE	Dental health education
2	SDS=UKGS	School Dental Service= Usaha Kesehatan Gigi Sekolah
3	CHC	Community Health Centre
4	PKMD/VCHD	Pembangunan Kesehatan Masyarakat Desa/Village Community Health Development
5	Depkes	Departemen Kesehatan= Department of Health
6	Subdit Gigi	Subdirektorat Kesehatan Gigi = Subdirectorate of Dental Health
7	Direk Kes Gigi	Direktorat Kesehatan Gigi = Directorate of Health
8	Kanwil P & K	Kantor Wilayah Pendidikan dan Kebudayaan = The Regional Office of Educa- tional and Culture Department
9	Diskes Gigi	Dinas Kesehatan Gigi = Dental Health Office
10	R.I.	Republik Indonesia = Republic of Indonesia
11	UGM	University of Gadjah Mada
12	DIY	Daerah Istimewa Yogyakarta = Yogyakarta Special Region

INTRODUCTION

A number of programmes and policies have been carried out by the Indonesian Government in improving community health conditions. The low socio-economic groups in rural, urban and isolated areas are some of the target groups, for curative and preventive health care delivery. Active community participation plays an important role in the improvement of community health. To gain improvement, Community Health Centre development is very important. Each Community Health Centre covers about 30,000 people, and around 50 persons/day use the resources in this type of health centre. However, data collected in the 1978 National Socio Economic Survey showed that only 20.2% of rural people and 4.2% of urban people were using this service while the percentage of people being treated at home was 6.2% for urban people and 35.9% for rural people. It is assumed that the travel distance, and lack of education and income are the main reasons for people not seeking their treatment in the Community Health Centre, especially in the rural areas (Tomasoa, 1981).

About 83% of Yogyakarta population live in rural areas, most of them are farmers who have low incomes and lack of education. One dental clinic in a Community Health Centre covers about 50,000 population, and there may not be a dentist at each of these clinics. Due to the lack of income and education and the far distance to the Community



Health Centre, only 4.4% population use this dental service and only 1.0% are children below 14 years of age (Subdit Gigi 1983).

School Dental Services are an important part of dental health care in Yogyakarta and these began in the early 1970s. The majority of the services are carried out by the Community Health Centre, some by the Faculty of Dentistry and a few others by religious organisations. Dental Health Education (DHE) is the priority of school dental services. Positive treatment is given only to the 6th grade children but there is also treatment on demand for other grades. No dental clinics are sited in the schools. One Community Health Centre covers about 14,500 elementary schoolchildren in rural areas, whereas in urban areas one Community Health Centre covers 9,500 elementary school children. Of these children, only 16.4% have been examined in rural areas. In addition to this, of the elementary school children who had been examined, less than 5% had used the dental services of a Community Health Centre (Sriyono, 1982 b).

The oral epidemiological data shows that there are differences in caries prevalence of the permanent dentition in urban and rural schoolchildren. Prevalence of caries of rural elementary schoolchildren in Yogyakarta at the age of 8 and 14 years is 37% and 66% respectively, while in urban areas the caries prevalence of elementary schoolchildren aged 8 and 14 years is 38% and 65% respectively. No exact data are available on the state of primary

dentition, but field observations show rampant caries mostly with pulpal involvement. Prevalence of periodontal disease ranges from 51% - 90% both in rural and urban populations. In line with the high periodontal disease prevalence, there is poor oral hygiene condition of elementary school children, particularly among rural children (Subdit. peningkatan Kes. Gigi 1984).

It can be seen from the epidemiological data that the number of children seeking dental treatment through the Community Health Centre should be much greater than 1.0%. It is possible that lack of income and the far distances to the clinics are possible causes of the low utilisation of the service, especially for rural children. But some evidence shows that sometimes the distance does not relate to the low utilisation of the service, but is more likely the "poor" attitudes of the children themselves towards dental health care. It is simply because dental health care has a low priority in the community life, as dental diseases do not cause mortality. In addition, there are strong superstitions and beliefs, maintenance of old traditions and widespread use of patent medicine (available from the free markets at low cost), that might have developed stronger "poor" attitudes towards dental health care (Direktorat Kes. Gigi 1982).

The writer's preliminary study (Sriyono 1983) showed that urban elementary schoolchildren had more positive attitudes towards dental health care than rural school-

children. But since the Government provides school dental services through Community Health Centres in nearly all subdistricts, it is possible that there are no differences in attitudes of elementary schoolchildren in rural and urban areas towards dental health care in Yogyakarta. In addition to this, general community development of Primary Health Care is one of the principal Government policies in health promotion.

This thesis presents the results, conclusions and implications of a study carried out in 1983-1984 by the writer to test the assumption that:

There are no differences in attitudes towards dental health care between urban and rural elementary schoolchildren in Yogyakarta.

The study sample, chosen by stratified random sampling, comprised 630 elementary schoolchildren from grade 6, consisting of 419 children from rural areas and 211 children in urban areas. Each sample was given a written questionnaire to determine attitudes. The questionnaire was divided into 4 parts: attitudes towards dentist/dental profession; attitudes towards dental health; attitudes towards dental treatment; and attitudes towards prevention. The source of some of the questions was from a questionnaire for children used by Howe (19—), and the others were modified from the author's preliminary study (Sriyono, 1983), the Dunedin study (Bamford, 1969) and the Owaka study (Bishop et al, 1969). Also, pilot

studies were carried out to test the reliability and validity of the questionnaire; which resulted in 16 valid items being chosen for use in the survey.

About 87% of elementary schoolchildren in Yogyakarta live in rural areas and one could expect from the previous study (1983) that they would have less favourable attitudes towards dental health care than the urban children. Less favourable attitudes would lead to poor maintenance or deterioration of the children's dental and oral health. There is a need to change the attitudes of children to more favourable attitudes, especially while they are still young. Dunning (1976) said that such children are in the learning age stage, and they are a group who are sensitive towards education and environment. Therefore it is easier to change their less favourable attitudes to more favourable ones and develop their new favourable attitudes at that stage.

However, attitudes persist over time. This is not to say that they are immutable, but the alteration of an attitude, particularly one that is strongly held, may require substantial pressure (Thomas 1978).

Triandis (1971) said that attitude changes can occur in different ways. These may include changing any one or more of the 3 components of attitudes (cognitive, affective and conative components). Robinson (1979) said that DHE through school curriculum will change effectively the attitudes of the schoolchildren. Davis (1974) said that

it is likely that positive attitudes can be shaped most readily in this group of children. These comments are in line with the Indonesian Government's point of view, that at present, DHE seems to be the "practical and cheaper" method of delivering school dental services aimed at achieving good dental health services with lack of resources.

Other elements that influence children's attitudes should be recognised. Parents, teachers, and dental personnel play important roles in changing children's attitudes. Therefore, developing partnership between these three elements and the children themselves may be one of the appropriate ways to change and develop children's attitudes. It is apparent that changing elementary schoolchildren's attitudes towards dental health care can not be considered an easy task.

The writer has organised this thesis into 8 chapters. This first chapter provides the general background of the study, and the aim of the study. This is followed by three chapters reviewing the literature in the areas of: general knowledge concerning attitudes; the general background and environment of Yogyakarta; and the dental health care of elementary schoolchildren in Yogyakarta. These chapters provide some of the necessary input required for the proper interpretation and analysis of the study. Study design and method are contained in the fifth chapter which deals with the general procedures and development of the

study. In chapter six, results are presented in table form and statistical analysis of the results is included. In chapter seven, the writer discusses the results and their relationship with the literature reviewed. Chapter 8 contains conclusions and implications of the study for achieving good dental health by changing and developing children's attitudes towards dental health care. Finally, there are appendices containing English translations of the forms and the items used for attitude measurement, additional statistical analysis, and original survey forms.

In this thesis, the writer has discussed the factors which appear to be relevant to attitude changes required for improvement of the dental and oral health of elementary schoolchildren. As there has been no relevant published literature for Yogyakarta and Indonesia, the writer has considered some ways of changing the attitudes of elementary schoolchildren based on the results of the writer's study. However, any information that could be obtained from some unpublished reports and from the writer's preliminary studies has been considered in this thesis. It is hoped that the results of the study itself may act as one of the reference baselines in conducting further studies in the writer's country.

2. ATTITUDE CHANGE

2.1 ATTITUDE CHANGE AND DEVELOPMENT AND ATTITUDE MEASUREMENTS

Before discussing attitude changes and development and attitude measurements, a summary on attitude theory (the nature of attitude) will be presented.

All social scientists agree that attitude cannot be directly observed, and so, like many other concepts, such as intelligence and personality, is a "conceptual invention" or in other words a "hypothetical construct" (Sherif et al 1965, Thomas 1978). The definition of the term attitude may be difficult to determine. There are areas of general agreement. Thomas (1978) says that an attitude is considered to be a property of individual personality, less enduring than temperament, but more enduring than a motive or mood.

Most would probably agree that attitudes:

- are learned
- consist of predispositions to respond to a given object, or a class of objects, rather than fixed responses
- are either positively or negatively oriented towards the object
- persist over time

Allport (1935) defines attitudes as a mental and neural state of readiness, organized through experience,

exerting a directive or dynamic influence upon the individual's responses to all objects and situations with which it is related.

A definition that includes many of the central ideas used widely by attitude theorists is:

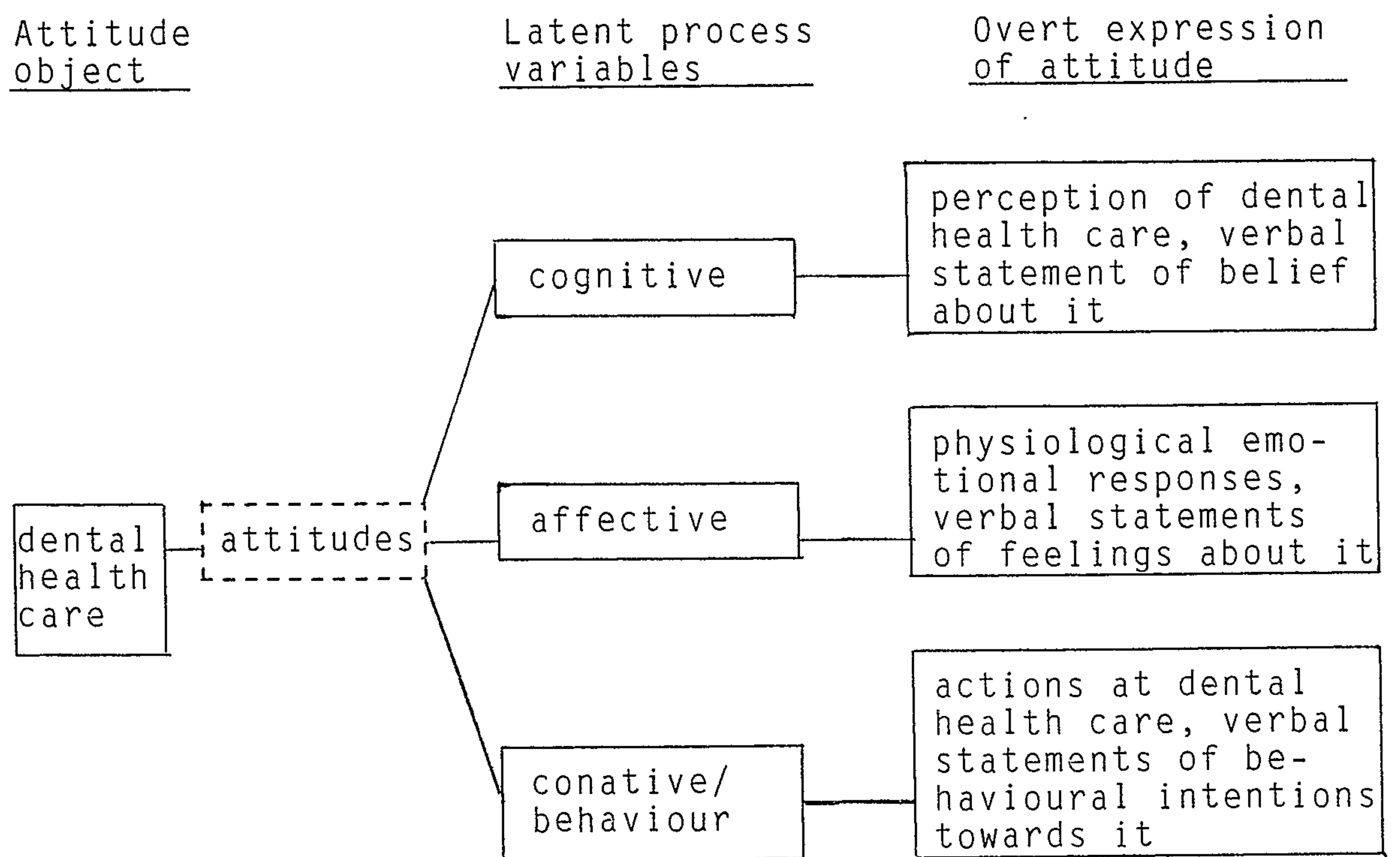
"an attitude is an idea charged with emotion which predisposes a class of actions to a particular class of social situations" (Triandis 1971 p2).

This definition suggests that attitudes have the components:

1. the cognitive component:- is the knowledge the person may have about the object of the attitude. This refers to what the person thinks about the object, his beliefs and ideas.
2. the affective component:- is the negative or positive feelings the person may have about the object. This refers not to what the person thinks about the object, but the way he feels about it, his dislikes or likes.
3. the conative component:- is the behavioural tendency a person may have with regard to the object. This refers not to what the person believes or feels about the object, but with how he tends to behave towards it.

The following figure shows a representation of the three components of attitude.

Figure 1. A schematic conception of attitudes,
adopted from Rosenberg and Hovland, 1960.



The cognitive, affective and conative components are often viewed as a "balanced" system, each dependent to a certain extent upon the others, and a state of dynamic equilibrium with the environment (Reich & Adcock 1976, Thomas 1978). As an experience leads to an increase of knowledge about an object, there will be a consequent changing in beliefs about it, leading to changes in feelings and behavioural intentions about it. There is, however, a problem with this tripartite view of attitude in that the three components may not always coincide.

Similarly as attitudes are predispositions to respond, and not fixed responses, they may or may not lead to certain behaviour (Thomas 1978).

Triandis (1971) says that the reasons people have attitudes are to:

- a. help people understand the world around them, by organising and simplifying a very complex input from their environment.
- b. protect their self-esteem by making it possible for them to avoid unpleasant truths about themselves.
- c. help people adjust in a complex world, by making it more likely that they will react so as to maximise their rewards from their environment.
- d. allow people to express their fundamental values.

ATTITUDE CHANGES AND DEVELOPMENT

Attitudes can be changed in a variety of ways. Triandis (1971) says that attitude change can occur by:

- a. changing the cognitive component, for example, with new information. A person may receive new information either from other people or through the mass media that could produce changes in the cognitive component of the person's attitude. Since there is a tendency for consistency among the components of any attitude, changes in the cognitive component will be reflected in changes in the affective and behavioural component.
- b. changing the affective component, for example, by pleasant or unpleasant experiences. In this case, attitude changes through direct experience with the attitude object.

- c. changing the behavioural component, for example, by norm change, or by legal imposition of behavioural changes. In other words, to change the attitudes by forcing a person to behave in a way that is inconsistent with the person's existing attitudes.
- d. changing attitudes by a "fait accompli". This is one form of change that is most direct and powerful, it is what is called a "traumatic experience" with the attitude object. In other words, once an event has taken place, attitude changes become consistent with the implications of the event.
- e. changing through psychotherapy by increasing the person's insight into the reasons he holds certain attitudes, by providing positive reinforcement for certain attitudes and by presenting an anxiety-reducing stimulus in the presence of the negative attitude object.

If the attitude has a value expressive function, it may be difficult to change without changing the individual's basic values. If the attitude has an adjustment function, a person may not change it, unless the offered alternative attitude can be shown to improve the individual adjustment. In other words, in order to change someone's attitudes, it is a good idea to analyse the functions of the attitudes and to adjust the strategy accordingly.

McGuire (1968), following Hovland, Janis and Kelly (1953), has described a series of steps that characterize the attitude change process:

- a. attention (the problem of selective exposure).
- b. comprehension (the problem of understanding).
- c. yielding (the problem of conformity).
- d. retention (the problem of memory of attitude change).

- e. action (the problem of relationship of verbal behaviour and other behaviour).

In analysing the attitude change process, people must consider the effect of who says what, how, to whom, and with what effect (the independent variables) (Lasswell, 1948). The 'who' concerns the source of the message, and the 'what' is the content of the message. The 'how' is the channel in which the message is delivered, the 'to whom' is the audience to which the message is delivered, and the 'effect' may include changes in attention, comprehension, yielding, retention or action.

In order to change a person's attitudes it is first necessary to expose the person to some message. If a person selectively avoids certain sources or messages it is very difficult to change the person's attitudes. Therefore, a message should:

1. increase a person's understanding and help the person to organize the complex input that the person receives from the environment.
2. not attack the person's self-esteem, and not reveal unpleasant truths about the person.
3. help the person to adjust in a complex world by making it more likely that the person will obtain rewards and avoid punishments.
4. give the person the opportunity to express the person's values and mores convincingly to others.

Although many kinds of messages exist, they have only three major characteristics: style, structure, and content.

The style refers to connotative characteristics of the messages such as whether it is dynamic or subdued, humorous or serious, elegant or clumsy. The structure refers to the way the elements of the messages are organized. The content of the message refers to matters such as the relationship between attitude change and the discrepancy between the position advocated by the source and the position of the audience, the creation of anxiety via the message, the presentation of warnings and the urging of action. Moreover, the more frequently a message is presented, the more likely it is to be retained. Repetition can even lead to "overlearning", so that the message can be remembered when it is no longer functional. Furthermore, a message that describes how adoption of a particular point of view will be consistent with the subject's values would maximise internalisation.

Among the many possible sources of attitude change are the people that the person knows, newspapers, editors, radio announcers, and authors. Sources will differ in competence, familiarity, attraction, power and hostility. In general, there is more attitude change when the source is competent, familiar and powerful, and less change when it is hostile. If the source knows the audience, it is more likely to produce messages that will be of maximum effectiveness. Also, powerful or attractive sources that are constantly present and reassert the messages are most likely to increase the retention of the message. The

relationships between the characteristics of the source and the audience are very important, since the characteristics of the audience act as a basis for their perception of the source. A large number of characteristics may be involved in a process of this kind, for instance:

1. the physical attractiveness of the source;
2. the clothes, accent, rate of speech, loudness of voice and other indications of status;
3. the source's demographic characteristics, for example, race, religion, nationality, sex, age, and social status;
4. the source's attitudes;
5. whether the source's past behaviour was generally rewarding to the subject, or mostly indifferent to, or punishing to the subject.

The channels that allow the audience to proceed at its own pace, such as reading, asking questions and obtaining clarifications, and face-to-face encounters, are most likely to maximise understanding. It is obvious that the more difficult the material, the more important it is to have the channels. However, a study in Taiwan revealed that in communicating with the Chinese students, the printed form may be more effective, but this is not so for the American students (McGinnis and Turnage 1968).

Certain kinds of audience are more likely to yield to powerful sources (for example, highly authoritarian subjects), other audiences might be more easily influenced by the attractiveness of the sources (for example, persons

with high need of affiliation), and still others might be influenced by the nature of the arguments and by the way they are related to their values (for example, those subjects who are cognitively more abstract, and have highly interrelated, logically coherent cognitive structure). On the other hand, the defensiveness of the audience is a primary factor that might inhibit understanding/comprehension (Cooper & Jahoda 1947, Kendall & Wolff 1949).

It has been previously mentioned that attitudes are learned. The functional approach to the analysis of attitudes is that a person forms and develops attitudes in order to understand the world around, to protect the person's self-esteem, to adjust in a complex world and to express the person's fundamental values. To understand the world, one needs concepts that summarise the complex information and evaluate these different concepts on how to behave correctly in relation to various objects found in the environment.

Allport (1954) has suggested that the majority of attitudes held by a person are acquired from talking with the person's family and friends. Usually these attitudes are not particularly intense. Furthermore, the attitudes of the members of the group the person belongs to, or would like to belong to, become guides for the development of the person's attitudes. A person learns attitudes through direct exposure to the attitude object. These

attitudes are more intense, but only a small proportion of attitudes develops from direct experience. A person may develop attitudes through "traumatic experience" with the attitude object. When this occurs, the attitudes are extremely intense.

Some attitudes develop in order to protect a person's self-esteem. For example, some persons are prejudiced towards Public Hospitals or Community Health Centres (because they are cheap or free of cost), and because they like to feel superior to a poor group. Finally, some people hold attitudes in order to express fundamental values, for instance, people who have experiences with a "bad dental service", may feel very negative toward dental services in general.

To sum up the development of the attitudes, each of the three components of attitude develops under the influence of somewhat different variables. People learn their attitudes either from direct experience or from other people. Direct experience is most relevant to the development of the cognitive and the affective components. The influence of other people (for example family and friends) is the most relevant to the behavioural component. Of course, direct experience can have some implications for the behavioural component, because the three components interact and there is a tendency for them to become as consistent as possible. But the behavioural component of attitudes is much more rigidly related to social norms than is the case with other components.

ATTITUDE MEASUREMENT

A measure is needed in order to compare individuals or groups and also to record changes within or between individuals or groups when they change their attitudes. To assess the differences in attitudes both within and between persons necessitates some form of reliable and valid measurement. The measure must be reliable in that it must be consistent in what it measures. Equally, the measure must be valid in that it measures what people actually want to measure. The most popular form of attitude measurement has undoubtedly been the use of attitude scales which provide a means of quantifying attitudes or quality (Elms 1976). They usually involve a choice from a range of numerical values. These scales commonly consist of a series of statements about which people express their agreement, or disagreement along a continuum. For example,

<u>Statement</u>	<u>Responses</u>
Going to the dentist	strongly agree
is a waste of money	agree
	undecided
	disagree
	strongly disagree

The responses are then scored and added together to give a score, indicating the person's attitude towards the object. The reliability and validity of such a measure are usually established by computing an index of the relation-

ship between two variables, expressed as a correlation coefficient (Thomas 1978).

There are two different basic concepts in measuring attitudes. The first is to measure each component of attitudes (indirect measurement), and the second (the most common and widely used) is not to measure each component of attitudes, but to measure all of the three components as one unity (direct measurement). Both of these procedures use statements in which anything can be said about the attitude object.

Edwards (1957) has provided the following informal criteria for attitude statements:

- avoid statements that refer to the past rather than to the present.
- avoid statements that are factual or capable of being interpreted as factual.
- avoid statements that may be interpreted in more than one way.
- avoid statements that are irrelevant to the psychological object under consideration.
- avoid statements that are likely to be endorsed by almost everyone or no one.
- select statements that are believed to cover the entire range of the affective scale of interest.
- keep the language of the statements simple, clear and direct.
- statements should be short, rarely exceeding 20 words.
- each statement should contain only one complete thought.
- avoid universals, such as all, always, none, never.

- words such as only, just, merely,... should be used with care and moderation in writing statements.
- whenever possible, statements should be in the form of simple sentences, rather than compound or complex sentences.
- avoid the use of words that may not be understood.
- avoid the use of double negatives.

There are two direct method techniques for attitude measurements:

1. Standard scaling technique (standardized verbal specific methods).

- Thurstone's equal-appearing interval scale.
- Guttman's scalogram analysis.
- Likert's method of summated ratings.
- Osgood's semantic differential techniques.

2. Miscellaneous techniques.

- Bogardu's measure of social distance.
- Kelly's repertory grid technique.
- Willson's Patterson conservatism scale.
- Sociometry.
- Unstructured techniques:
 - Unstructured-undisguised techniques.
 - Unstructured disguised techniques.

The most widely used techniques of attitude measurement are the Thurstone method, Likert scaling and the semantic differential techniques (Elms 1976).

The Likert scaling is one of the tests which has become popular in the study of social attitudes (Thomas 1978), and

was chosen for use in the writer's study. This method was developed by Likert (1932) and has the advantage that it does not require the use of judges. Thus, attitude statements are given a value by a statistical procedure that employs the data from the sample of persons whose attitudes are being studied. A Likert scale is generally considered to be simple to construct and likely to be more reliable than a Thurstone scale or others with an equivalent number of items (Elsm 1976).

The Likert method begins with a number of (n) statements which are given to the sample of individuals who are to be studied. Five response alternatives are allowed: a. strongly agree, b. agree, c. undecided, d. disagree, e. strongly disagree.

Thomas (1978) describes the steps in construction as follows:

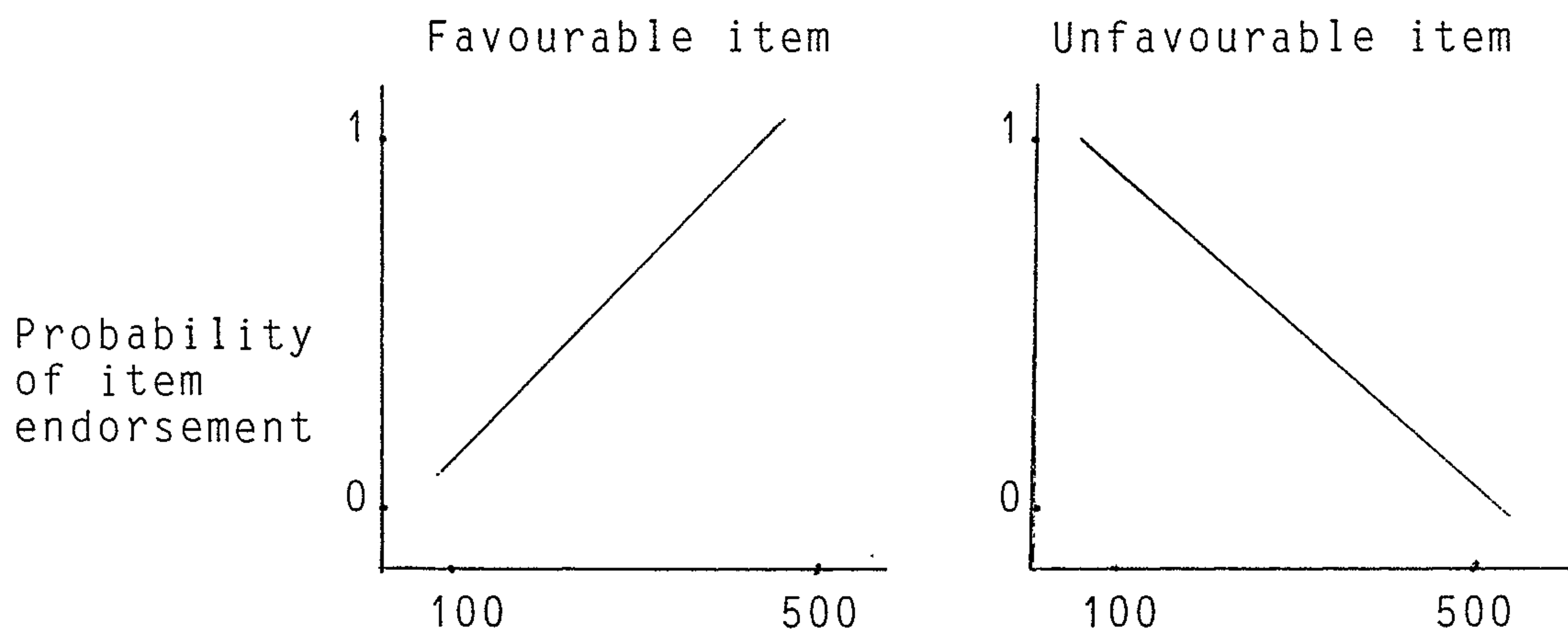
- Step 1. Collect a large pool of statements.
- Step 2. For each statement the investigator first decides whether it indicates a favourable or unfavourable attitude towards the object in question. Ambiguous statements or those indicating a neutral attitude are discarded.
- Step 3. The statements are then administered to a large group of subjects representative of those whose attitudes are to be measured. They are then asked to respond to each statement in terms of the five point scale described earlier.
- Step 4. A preliminary estimate of each respondent's attitude can be obtained.
- Step 5. Responses to each statement are scored from one to five. Strong agreement with favourable items is given a score of five, strong disagreement a

score of one. Scoring is reversed for unfavourable statements.

Step 6. A preliminary attitude score is obtained by summing across all the subject's item scores. The higher the scales, the more favourable the attitudes.

Step 7. This is the stage at which statements that are under consideration to be retained must meet the criterion of internal consistency. This implies that the more favourable the person's attitude the more likely the person is to endorse favourable statements and the less likely to endorse unfavourable statements.

Step 8. The relationship between attitude score and probability of item endorsement may be illustrated as follows:



Step 9. In Likert scaling the operating characteristic or traceline is assumed to be linear. Statements on a Likert scale will not be cumulative.

Step 10. A correlation between attitude score and statement endorsement constitutes the criterion for inclusion of an item in the scale. Therefore a given statement meets the criterion of internal consistency if the item score correlates significantly with the attitude score. The preliminary attitude score is used and correlated with the item score.

Step 11. The twenty or so items with the highest correlations, or the most discriminating items, constitute the Likert scale.

Step 12. The scale can now be administered to the sample of subjects whose attitudes are to be measured in the manner described earlier with reference to the preliminary attitude score.

Another common method of developing the Likert scale is as follows (Triandis 1971):.

- Step 1. On the basis of the preliminary scoring, the individuals are ordered from more favourable to least favourable responses towards the attitude object.
- Step 2. The most favourable 25 percent and the least favourable 25 percent of the individuals are separated, so that they constitute a favourable and unfavourable group. Such groups should be reasonably pure and should consist of individuals who know where they stand in relation to an attitude object.
- Step 3. The responses to each attitude statement of the most favourable subjects are compared to the responses of those who are unfavourable. If the attitude statement is good, it will discriminate between the two groups of persons.
- Step 4. A statistical test is used to determine whether the responses of the favourable are significantly different from the responses of the unfavourable. These statements that do discriminate then are used to measure the attitudes of the entire group of individuals.

Triandis (1971) says that many researchers are using short cuts and have published studies that have not been thoroughly analysed. In other words, when one reads in the literature that a researcher has used a "Likert-type item" or "Likert scale" this does not necessarily mean that the researcher has done an item analysis as described above.

However, whilst it is possible to rank individuals in terms of their attitude towards a given object, it is not possible to say how much more favourable one is to the other. It is also possible that several patterns of responses to the various items can produce the same score (Thomas 1978).

The Thurstone's equal-appearing interval scale.

This is the earliest technique of attitude measurement that was developed by L.L. Thurstone (1929). Thurstone believed that given any attitude object, a series of statements can be constructed which range from the extremely favourable to extremely unfavourable. These statements express positions along the whole scale with equal intervals between them. The objective value of the measure should then enable the researcher to distinguish between people as to the degree to which they differ on an issue.

Steps in construction are as follows:

- Step 1. A large number of statements expressing as many variations as possible of positive and negative feelings towards the attitude object is collected. These statements may be derived from the relevant literature, interview data or devised by the constructor.
- Step 2. The pool of statements is then given to a large number of judges representative of the population of subjects whose attitudes are to be assessed. These judges are asked to sort each statement into one of eleven piles representing equal gradients of evaluation from extremely negative

through neutral to extremely positive.

- Step 3. The piles are numbered from one to eleven and the median or mean value assigned by the 'judges' is computed for each statement.
- Step 4. Statements are eliminated if 'judges' place them into widely discrepant categories. The interquartile range that includes the middle 50% of categories into which each statement was placed, or the standard deviation of the statement/ placement is computed. These indices measure the degree of disagreement amongst judges on the placement of a given statement and a large interquartile range or standard deviation should lead to rejection of the statement.
- Step 5. Consistency of responses elicited by each statement may be further checked by administering them to a group of subjects who are asked to indicate whether or not they agree with each statement. Any statement which fails to discriminate between the subjects with high or low total scores is then discarded.
- Step 6. A set of approximately 20 statements representing more or less equally spaced values is then selected to cover the whole range of attitude scale.
- Step 7. The scale is given to the sample of subjects whose attitude scores are to be measured and subjects are asked to check all statements with which they agree. Each subject's attitude score is obtained by computing the median or mean scale value of all items endorsed. Thus a subject who endorsed three items with scale value of 2.6, 3.0, 3.4, respectively, would have an attitude score of 3.0.

Osgood's semantic differential technique

This technique was published by C.E. Osgood, G.J. Suci and P.H. Tannebaum in 1957. The technique, although originally developed as an instrument for the measurement of meaning, has become widely used as an attitude measurement instrument. Osgood argued that as the basic function

of ordinary language was assumed to be the communication of meaning, then ordinary language can be used to differentiate between concepts and to measure this meaning. The semantic differential technique is based on this premise.

2.2 ATTITUDES TOWARDS DENTAL HEALTH CARE.

It is natural for a healthy person to take the normal functioning of his body for granted and to assume further that the normal functioning of his body has a certain permanency and invulnerability. When all goes well, he is aware of his teeth only occasionally in acts of chewing. When a toothache intrudes or a tooth starts to swivel in its socket, then his balance of attention shifts to the pain and malfunction. It is natural to avoid, or to limit, investment in explicit health precautionary or health-preserving activities. The dentist who wishes to influence the patient must be realistic about the patient's typical motivations in seeking dental care and in maintaining oral health (Gallagher & Moody 1981).

Attitudes are very different between social classes, especially towards dental health care; they vary by the age of the person concerned; they may vary by the sex of the person; the education he or she has received; and by his or her previous experiences of, and images of, a particular service (Willcocks 1981).

Many people do not consider their teeth very important and give dental care a low priority. A study in America in 1958 concerning attitudes towards teeth, dental care and dentists by the American Dental Association revealed some interesting insights (Dunning 1976): the most interesting

feature of that study is the description of certain social classes and the reaction of each to dental health care. From the study, the scientists divided society into 4 classes: upper middle class, lower middle class, upper lower class and lower class. The lower middle class are the most compulsive of any social class in their dental care attitudes and practices. Furthermore, 82% of the upper middle class people visited the dentist once a year or more, 46% of the lower middle class, 18% of the upper lower class and only 6% of the lower lower class.

Another finding from the same study was that, in general, the dentist occupies a high status in the minds of people and as such he and his profession evoke a feeling of respect from most individuals. Although not fully revealed by the data, there are suggestions that lower middle class people are most favourable in their attitudes towards the dentist. Upper middle class individuals tend to be somewhat critical, though they certainly accept dentists, whereas lower class individuals give evidence of respecting dentists as an authority, but at the same time being more intimidated and possibly more resentful of them (Dunning 1976).

Gift (1984) states that the satisfaction of patients is based on attitudes and feelings towards the provider

and the care provided. Since these attitudes are formed as a result of the patient provider interaction, a view instilled in the person by others, the patient's satisfaction has been used as one measure of the outcome of dental care.

One of the few studies to consider attitudes and sociodemographic variables by using multiple regression technique, showed that attitude variables had more predictive value than traditional socioeconomic variables. All the variables together explained 14% of the variance in utilization (Becker et al 1981).

Kravits (1975) used national data and multi-variate analysis to consider the relation of attitudes towards health care and the use of dental services. Kravits classified a group of services as preventive which included traditional preventive and restorative services. Attitudes of heads of households were used to identify all individuals in the study. Findings indicated that race and income interact such that the low income blacks have the most negative attitudes towards health care and the lowest utilisation. Kravits concluded that the results of many national studies under-emphasise the significance of attitude because such attitudes differ mainly among sub-cultural groups.

Blinkhorn (1981) provides evidence that mothers' encouragement of dental health education in the primary

socialisation stages of their children leads to increased utilisation of the services.

Raynor (1970) in a study of pre-teens in two school districts of New York states that a mother's dentally related behaviour was associated with home health care and the visits of the children to the dentist. He also found that upper socioeconomic status mothers expressed values and attitudes that indicated an alienation or removal from the mainstream. The middle class mothers had values and attitudes that appeared conducive to change which would result in more visits. The main finding in Raynor's work is that mothers' behaviours were primarily associated with their children's behaviour; attitudes and behaviours of the parent affect the utilisation patterns of the child. Attitudes of parents towards the dentist and perceived need were more predictive than were sociodemographic or other attitudinal variables.

Kiyak and Miller (1982) found from their study that the aged respondents held significantly more negative attitudes towards oral health than did young persons. Also, they found that elderly persons in the sample recognised their poor oral health status and may have sought professional dental care, but that this knowledge and behaviour were not significantly related to their attitudes or home care behaviour.

Wright and Beck (1981) using path analysis for a study found that dental health knowledge does not inevitably lead

to either positive attitudes or appropriate preventive dental health behaviour, and that attitudes and behaviour appear to be mutually dependent, inherently unstable, and maintained only by continued environmental support.

Raynor (1970) tested and confirmed the hypothesis that dental attitudes were products of dental health practices rather than precursors. She concluded that the implication is that dental health practices influence dental health values, and the way to get at (dental health) practices is to affect the practices themselves directly and not indirectly through attitudes.

While Douglas (1971) described how positive attitudes towards preventive health measures could be determined by previous interaction with the health care system, rather than being the results of health education efforts aimed at creating positive attitudes.

The argument of providing continual environmental change to support initial attitude and behavioural change is supported by Festinger (1964). He stated that changes in attitude and behaviour are inherently unstable and that unless an environmental change supports the new opinion and the new behaviour, the same factors which produced the initial behaviour and attitudes will continue to operate to nullify the effect of change. Festinger (1964) found that the use of dental clinics by young children didn't result in improved dental attitudes, behaviour or

status in adolescence, but rather it appeared to result in a poorer dental condition for the clinic users compared with children of similar age who had not used the clinics.

Gift (1984) cited Kriesberg and Treiman who used the results of a National Opinion Research Centre interview to analyse the experience and feelings of adults towards the practice of dentistry. They discovered that the public's chief concerns were with the dentist's personality and his skill in minimising pain and fear of what may happen. Moreover, 59% of the patients studied mentioned an aspect of the dentist's personality as the most important feature of the ideal dentist. This factor was matched by technical ability (58%) and followed by the ability to reduce fear (41%).

A study by Bamford (1968) concerning the attitudes of the Dunedin people towards the dental profession, asked whether they had received chair-side instruction in oral hygiene techniques from their dentist. A surprising 41.7% of subjects reported they had never received such instruction and only 14.4% had received instruction within the previous 12 months.

Kageles (1963) stated that patient's attitudes towards the skill and competence of the dentist, in combination with their orientation towards the value of oral health care have been found to be related to utilisation. Frazier et al (1977) found that the dentist/patient relationship affects

utilisation, particularly when the incongruence of attitudes regarding the value of dental care is evident. For example, dentists believe that the lower class mothers do not value oral health when, in fact, they do.

Bishop et al (1975) conducted a survey concerning the dental knowledge and attitudes in Owaka, and they found that many attitudes to dental health were disappointing. It was the belief of many respondents that good dental health is not related to one's own actions but is dependent on factors beyond the individual's control, such as heredity or luck.

A study of Maori attitudes to teeth, dentistry and dental practitioners was carried out by Verboeket (1976). She found that the most prevalent attitude to emerge was a reluctance and hesitance to seek dental treatment except when specific urgent need existed, principally for pain or need for dental treatment. Other factors such as weather and social contact also influenced dental behaviour.

As far as the writer has determined, there are no published literature or reports on the attitudes of people or elementary schoolchildren in Yogyakarta or Indonesia towards dental health care. However, from the writer's preliminary study (Sriyono 1983), it was shown that elementary schoolchildren in urban areas had more positive attitudes than did rural elementary schoolchildren. Some

24.4% of the children said that they felt afraid to go to the dentist if they had a toothache, while 13.3% of them preferred to take their own medicine before going to the dentist, and 8.9% of those children did not go to the dentist when they had a toothache. Only 1 child of 135 from the writer's study had actually visited a dentist within the previous month.

In summary, the attitudes of people towards dental health care are different among subcultural groups and among the social groups. Mothers' attitudes seem to influence a lot of children's dental health practices.

2.3 DENTAL HEALTH EDUCATION TOWARDS DENTAL HEALTH CARE

Health is defined by WHO (1969) as "a state of complete physical, mental and social well being and not merely the absence of disease and infirmity".

A WHO expert committee (WHO 1969) considered that dental health was concerned with the functional efficiency not only of the teeth and supporting structure but also of the surrounding parts of the oral cavity and of the various structures related to mastication and the maxillo-facial complex. The sense of dental health therefore is broader than the term implies, and it might be more correct to use the expression oral health.

At this point it would be appropriate to define dental health education.

Minns (1974) defines dental health education simply and directly by saying that dental health education is preventive dentistry planned through the social sciences, practised through the techniques of education and evaluated through methods of social enquiry and epidemiology.

Holloway (1969) said that dental health education embraces the whole concept of rendering a person more aware of the value of dental health and of placing him in a frame of mind where he is prepared to expend time and money to attain it.

Forrest and Sheridan (1981) adapted a definition of consumer health education: dental health education for the community is a process that informs, motivates, and helps persons to adopt and maintain health practices and life styles, advocates environmental changes as needed to facilitate this goal, and conducts professional training and research to the same end.

Tomasoa (1980) cited Ruskin that "education is not knowing more, but for behaving differently". Therefore, the person who is receiving education can not change his behaviour directly, but through a process that is a learning process, in which several levels of altered behaviour can be identified. Kelman (1958) said that at the lowest level, compliance, individuals who are forced to engage in a given behaviour, will comply with the external demand. For example, children will brush their teeth at school during a formal programme in which their brushing behaviour is monitored. Once the programme and the external demands for brushing end, brushing behaviour will probably end as well.

When people engage in behaviours because of the examples of others who are of significance to them, identification is occurring. While identification is one step higher than compliance, individuals are still not responding for internal reasons. The highest level of behaviour is internalisation, when individuals have incorporated the new information and

have made it consistent with their own values. Obviously, such accommodations make the behaviour change much more lasting and the internalised behaviour much more difficult to alter at a later time. While changes in behaviour can be elicited using the process of compliance or identification, internalisation will probably occur more often when appropriate learning opportunities are established. Learning that results in a sustained behaviour change is facilitated by some conditions that:

- encourage people to be active
- help and promote the individual's discover of the personal meaning of ideas
- emphasise the uniquely personal and subjective nature of learning
- tolerate ambiguity
- encourage openness of self rather than concealment of self
- permit confrontation.

Malvitz (1983) says that education for oral health is an integral part of any dental public health programme and ought to be an integral part of preventive efforts at all levels - primary, secondary and tertiary.

The WHO expert committee on dental health education stated:

"Other major obstacles to the development of a concept of positive dental health are the undramatic nature of dental diseases, the association of dental treatment with pain, discomfort, and the reluctance of many individuals to accept and to carry out on a regular, continuing basis the oral and general health practices related to the prevention and control of dental diseases".

"Education for dental health is a very complex problem, and remains to this day an intriguing challenge to the dental health education. This is so, because it involves re-shaping the attitudes of the audience as well as their re-education."

"The prevention of physical, mental or emotional disabilities is most effective when begun early in life. Therefore, to be most effective, education for dental health should be started as early as possible and should be continued throughout the life of the individual. Not only should it occur in the school, but in the home and in the community as well. Public and private facilities such as pre-natal clinics, maternity wards, well-baby clinics, and physicians' offices should be utilised to the fullest extent for this purpose."

Haefner (1974) stated that historically, dental health education for children has been a high priority for the dental profession because of the high prevalence of dental caries in this age group. As a result, the school system has emerged as the most logical and practical setting to implement large scale dental health education programmes. The school-based dental health programme provides an opportunity to reach the largest number of children during early stages of development when habit patterns can more easily be modified or changed. The school system also provides an environment conducive to learning and reinforcement for a considerable period of time and allows the teachers to utilise various strategies for inducing children to partake in appropriate preventive dental health actions.

There are four factors that influence whether or not an individual practices these preventive dental health

actions, which have been identified by Rosenstock (1966) and Kageles (1961, 1963):

- the individual must feel he/she is susceptible to dental disease;
- he/she must perceive dental disease as having serious consequences;
- he/she must believe that dental disease is preventable;
- he/she must attach a certain salience or importance to dental health.

If any of these factors are absent, the likelihood of an individual being motivated to adopt and practise preventive procedures is significantly reduced.

Only limited data exist concerning the responsibility as seen by others for dental personnel to give education to patients in maintaining and promoting patients' health activities. Raynor (1970) observed that verbal interactions between patients and dentists or between patients and auxiliaries are minimal, and the vast majority of interactions is of a non-verbal nature.

Linn (1974) reported that almost two-thirds of patients had never asked anyone in the dental office for advice or information about dental health care. Linn also observed that patients in the treatment settings usually do not initiate conversation with the dentist, and felt that this behaviour was based on the patients' assumption that the dentists would tell them whatever information they needed to know.

In a 1965 study, Linn found that almost 90% of the dentists believed that the dental profession should do more in the way of educating the patient. Ironically, the dentists in his study had also stated that they did not like to deliver patient education or to provide prophylaxis.

On the other hand, Mercer et al (1961) reported that dentists felt that there was no time in their busy practices left to educate patients in appropriate preventive activities.

However, Young (1971) and Corah (1974) were unable to find a single study related to the effectiveness of the time spent by the dentists in educating patients in good oral hygiene behaviour.

People receive information about dental health or dental health care from different sources. Frazier et al (1974) said that there are two types of information available for the public. The first is planned dental health materials that may inform through: pamphlets, posters, brochures, or public service announcements, such as those developed by the American Dental Association. A second type is the covert dental health related communication which may result in "incidental learning" on the part of the individuals receiving it. "Incidental learning" might be defined as knowledge, attitudes or behaviours learned through daily interaction with situations, experiences, or information not specifically planned by an educator, or by a formal education setting for the material. However, the quality

of both planned and incidental types of health information may be low. For one week of a commercial TV station's output news and entertainment it was shown that 70% of the health related content was inaccurate, misleading or both. The audiences of mass media have little opportunity to learn accurate dental health information. Furthermore, a much larger quantity of inaccurate or misleading information is being transmitted by the media than planned information which could provide the public with an accurate understanding of oral diseases and the measures to be employed for combatting or preventing them (Frazier et al 1974).

Therefore, dental health education programmes for the community should be applicable to all segments of the population and should be developed utilising appropriate programme planning and implementation of criteria (Forrest & Sheridan 1981). Dental health programmes also should be directed to suit a specific target group rather than a general target group. And most of the dental health programmes have been directed to children (McKegg 1984).

A study by Lamb and Ford (1960) found that elementary schoolchildren in Texas were reasonably well informed about dental hygiene but they failed to put into practice the very things they checked as important in achieving and maintaining good dental health. This is in line with a study in America (American School Health Association 1968) that most of the behaviour findings in their study have indicated

that students were not putting into practice the knowledge they have acquired.

Jordan and Pugnier (1967) concluded from their study that the children's increased knowledge seemed to have some effects on their patterns of living but that dental knowledge was applied only when it did not affect a student's daily habits seriously. For example, a child will go to the dentist twice a year much more readily than he will brush his teeth after eating, even though the child knows what he should do.

However, Gravelle et al (1967) found that high school students in their study were able to benefit from an intensive programme of dental health education.

Willford et al (1967) found that debris scores of students showed a 29.9% reduction after completion of a course of instruction. Moreover, 65.3% of students demonstrated some improvement in debris scores.

Another apparently successful programme was carried out by Fodor and Ziegler (1965) who found that some students do translate dental health knowledge into oral health behaviour.

Kaplis et al (1979) found that the combination of dental health interventions at schools had short range effects at every grade level and that those effects persisted for 9 months among the third and fourth graders.

A study of the health knowledge (and related factors) of primary schoolchildren in Ghana has been reported by Holt (1968). No relationship was found between dental health knowledge scores and the results of the oral hygiene and calculus assessments. Research into the health knowledge and behaviour of Romanian schoolchildren has been conducted by Pavlid (1968). He found that children rated well on knowledge (70%) but the number of those who put their knowledge into practice was low (32%).

Parents have influence in promoting children's dental health practices, especially a mother's behaviour which has a significant influence in the adaption of behavioural practices by children (Raynor 1970, 1974, Stafford 1969 and Baric 1979). If parents go to the dentist for preventive treatment, a high percentage (79%) of their teenage children will do so also.

Lamb and Ford (1960) state that a short cut dental health education programme needs to be initiated for the mother during the child's prenatal period as well as for the preschool and school aged children through informed parents. Davis (1967) suggests that a start should be made in antenatal clinics, in consulting rooms and in the homes. Motivation of parents is essential to the procurement of adequate dental health care for preschool and school aged children.

McKegg (1984) says that primigravida are a worthwhile

target group for dental health education, and his study shows a 38% reduction in mean scores of oral hygiene effectiveness scores after 12 months, significantly greater than the 18% reduction shown by the control group.

A study by Johns and Muhler (1965) showed that before dental health education could be meaningful to the child, the parents had to be taught the practical importance of dental health. However, methods of teaching parents have not been well defined.

Vincent (1965) said that the problems of dental health education for parents should be a matter of concern to all dentists and the average practitioner devotes too little time to this important phase of dental practice.

There are opinions that differ with regard to the relative effectiveness of personnel involved in school dental health education efforts. Knowless (1963) concluded that teachers have not been proved effective in the endeavour, while Swerdloff (1968) concluded that providing teachers with information about dental health is not an effective method of increasing dental visits of elementary schoolchildren.

Salerno (1968) stresses the importance of well-informed school educators to teach students good oral habits, give students instruction in proper diet, and inculcate a proper appreciation of early and regular professional dental care. Also the educator must present factual material so that the

students will understand why they do certain things and how to do them best.

However, regardless of the lack of definitive data on the relative effectiveness of the teachers versus other personnel concerned with dental health education, the value of teachers education is manifest.

There has been almost no relevant published literature for Yogyakarta or Indonesia in terms of dental health education especially for schoolchildren. However, a study in Yogyakarta (Sriyono 1982) revealed that:

- 21.2% of elementary schoolchildren in Yogyakarta have ever been informed about dental health or dental health care.
- 99.2% of these informed children received the information from mass media and 0.8% of them received the information from teachers, parents, friends or dental personnel.
- 9.1% of these informed children said that they understood the message, while 28.8% of them said that they "less understood" the message, and 62.1% of the children didn't understand the information.

This study in Yogyakarta (1982) also showed a decrease in OHI of the elementary schoolchildren after having been given dental health education for six months in the school (through the curriculum of the schools). This is in line with the studies conducted by Robinson (1979) and Stoll and Cathermann (1974) that found dental health education through the curriculum of the schools to be very effective.

The writer's experiences have shown that people consider that dental personnel don't work if they only give dental health education. People will appreciate more those dental personnel who "did something" towards their mouth. In other words, they prefer to be examined for their oral health, rather than to be given dental health education only.

Some barriers between the educators and the learners should be taken into account in planning dental health education programmes. However, active community participation (PKMD = Village Community Health Development) can play important roles, especially in rural areas. There is no general evaluation of the PKMD programmes being carried out and no available data on the state of the PKMD oral health programmes.

To sum up, planning a dental health education programme should take into account the barriers between the educators and the learners and the target groups. Usually, the first priority target groups are schoolchildren, parents (mothers), and teachers. All education efforts with individuals or groups should:

- assess needs of the learners carefully before acting;
- plan objectives and carry out educational activities consistent with the needs identified;
- evaluate what has been accomplished in terms of improved oral health.

3. ENVIRONMENT OF YOGYAKARTA

The geography, demography, socio-economic conditions, educational systems, habits and diet may have a direct effect on the prevalence of dental diseases. It is possible to prevent most dental diseases by simple home care, including sensible diet and good oral hygiene. A lack of knowledge of dental health and a lack of motivation in home care lead to widespread oral diseases. It becomes worse if it is accompanied by "poor" population attitudes towards dental health.

3.1 GEOGRAPHY

Yogyakarta is the smallest province in Indonesia, situated in the area of $108^{\circ}30'$ - $111^{\circ}30'$ longitude west and $6^{\circ}30'$ - $8^{\circ}30'$ latitude south. Geographically, it is surrounded by the province of Central Java and Samudra Indonesia (Subroto-Karjo et al 1978).

This province has an area of 3190 square km, with over half of this area used for agriculture, 838 square km used for residential and yards, and the rest of the land used for roads, grasslands, and miscellaneous areas. In addition, this area is only 2.4% of Java island, but 5.2% of the Javanese live in this place (Selo-Sumarjan 1981).

A tropic region, the temperature ranges about 70°F - 90°F in the dry season (March-September) and the rainfall is

about 10 mm/month, whereas in the wet season (September-March) the rainfall is about 200 mm/month. The most active volcano in Indonesia call "Merapi" (3000 m. above sea level) is in the northern part of this province, and it erupts each 15-20 years. It makes the surrounding areas a disaster but fertile land. Two big rivers flow parallel to the Samudra Indonesia and these always flood yearly (Selo-Sumarjan 1981).

Administratively, the province of Yogyakarta is divided into four "kabupaten" (residencies) namely Bantul, Sleman, Kulonprogo and Gunung Kidul. The "Kotamadya" (municipality) of Yogyakarta constitutes a fifth, separate administrative area. Each "Kabupaten" is divided into a varying number of "kecamatan" (subdistricts) and each "kecamatan" is divided into a number of "kelurahan" (villages). Although the unit of the "kelurahan" is normally equated with the term of "desa" which is translated as "village", one "kelurahan" in Yogyakarta contained more than 22,000 people in 1971, a number far beyond the usual concept of a village. This is due to the village reorganisation which occurred in Yogyakarta Special Region in the first year of Independence. (McDonald & Alip 1976).

The population of Yogyakarta is predominantly Javanese, the biggest ethnic group in Indonesia, and has its own subculture and language (Selo-Sumarjan 1981). The total population of Yogyakarta is 279.1412, in which 88.32% live in

rural areas. This province has the smallest population amongst other provinces in Java, but has the second highest population density (875/square km). Furthermore, the city of Yogya has the highest density population in Indonesia (12 • 252/square km)(Kantor statistik 1980). The 1961-1971 population growth rate in Yogya was only 1.1% per annum, but after 1971 it increased (1.75% per annum). On the other hand, this population growth rate is still lower if it is compared with Java (2.1%) and Indonesia as a whole (2.3%) (Subroto-Karjo et al 1978).

Generally speaking, this province was called the Special Region of Yogyakarta, because it was a region that had its own government since the Dutch and Japanese occupation. The Governor is a king who is called a "Sultan" and "Pakualam" is the Vice-Governor.

3.2 DEMOGRAPHY

Demographic analysis in Indonesia is hampered by doubts concerning the degree of accuracy of age statements. Fortunately, Yogyakarta was one of the three provinces of Indonesia for which the 1961 census results were fully processed. In addition, there have been a number of social, economic and demographic field studies made in Yogyakarta, both of Indonesian and foreign research workers. In all, the availability of comparatively reliable demographic statistics is probably greater for Yogyakarta than any other

province in Indonesia (McDonald & Alip 1976).

From the 1980 Yogyakarta Special Region Statistical Bureau it was shown that:

10.42% of population is aged 0 - 4 years
 35.89% of population is aged 5 - 19 years
 42.36% of population is aged 20 - 54 years
 9.43% of population is aged 55 - 74 years
 1.90% of population is aged $\geq$ 75 years

The population growth rate per annum is:

Municipality of Yogya	... 1.7%
District of Bantul	... 1.2%
Kulonprogo	... 0.3%
Gunungkidul	... 0.7%
Sleman	... 1.6%
Special Region of Yogyakarta	... 1.1%

A comparison of the 1961 censuses showed that there was a relative change between urban and rural populations. There was a greater increase in the population in urban areas. The reasons for this trend are:

- a. not enough jobs available in rural areas
- b. people tended to send their children to the city to schools, especially the rural rich people.
- c. people who came from outside this province to study or to look for a job because of the many different types of schools available in the city.
- d. transmigration, mostly by rural people. (Subroto -

Karjo et al 1978).

Table 1. Population in rural and urban areas,
Yogyakarta, 1961 and 1971 censuses.

The situation at	Rural (%)	Urban (%)
Based on 1961 census	89.86	10.14
Based on 1971 census	88.32	11.68

Briefly, the estimation that, during the 1960s, the rate of natural population increase in Yogya was about 1.8% per annum, being the balance of a crude birth rate of 39 per 1000 and a crude death rate of 21 per 1000. A net out migration rate around 0.7% per annum reduced the rate of population increase to the recorded level of 1.1%. The relatively low crude birth rate in Yogya was not due to changing marital fertility but to a combination of traditionally low level of marital fertility with an increase in age at marriage and changing age structure.

Mortality rates were still high during the 1960s, meaning that any future improvement in health conditions, for which there is currently little indication, will produce a rise in the rate of population growth, if not balanced by a decline in the birth rate.

The morbidity in Yogya is about 11.37% and infectious

diseases take the first action in this case. Several serious nutritional deficiencies, e.g. protein calorie deficiency (18% of children 0 - 5 years of age); widespread vitamin A deficiency (15% of children); and iodine deficiency goitre (50% of children) (Kanwil 1982). In 1975, 49% of children in rural areas suffered from mild nutritional deficiency, 27-28% of children suffered from medium nutritional deficiency, and 4.8-5.6% of children had severe malnutrition deficiency.

With this background of nutritional deficiency, plus the prevalent diseases among infants, it is reasonable to expect permanently adverse effects on the development and maintenance of healthy teeth, oral tissues and jaw structures. The oral health features show differences between rural and urban areas, in the prevalence and incidence of caries teeth and periodontal diseases among children (6 - 14 years old).

3.3 SOCIO-ECONOMIC

Yogyakarta is officially described as a minus area. Despite the large areas of fertile, wet rice land, the province is a net importer of rice. It is an area in which extreme poverty is common. The effects of poverty induced malnutrition in infants and young children in Yogya, and leads to some diseases (e.g. goitre and xerophthalmia), mainly because of simple vitamin deficiency. In the rural community, poverty is linked closely with the land ownership and land use, however both of these show a degree of variability within this province. In rural areas, the land ownership is the primary index of the standard of living. According to Selo-Soemardjan (1981), land holdings at the time of the agrarian reform in 1918 averaged about $\frac{3}{4}$ of a hectare in Sleman and Bantul and about 3 ha in Gunungkidul and Kulonprogo. Since that time, however, the land has been divided perhaps 3 times. A level of 0.5 ha of fields has been considered as the minimum economic limit for subsistence of a family, and additional sources of income have to be tapped by the farmers to keep themselves and their families alive. The pressure of population upon land resources has produced a large group of agriculture workers. Deutser (1971) has presented figures for Yogyakarta showing that in 1959, only 3.2% of households owned 0.51ha or more, whereas by 1969, 0.9% did so. It also shows that economic conditions have deteriorated during the 1960s within the lower occupational groups as

a result of inflation. Median household income in rice equivalents declined from 352 kgs per year in 1969 to 266 kgs in 1968 for small farmers, but increased for medium and large scale farmers. For labourers, income in rice equivalents declined from 725 kgs in 1959 to 489 kgs in 1968.

During the past 140 years, rice growing has competed with two estate crops, sugar and tobacco, but particularly with sugar. Around 1900, Dutch sugar plantations covered almost 80% of all fields available in Yogyakarta. Sugar was produced in rotation with rice, the farmers would grow sugar on half of their land and rice on the other half and the areas would be interchanged after each crop. Attempts have been made since independence to revive the sugar industry in Yogyakarta and during the last few years these have had some degree of success because some farmers have found it more prudent to rent this land to the sugar factors than to grow rice. However, the refined sugar production has decreased by half in the last five years, but consumption is increasing, with consumption per capita at 12.5kg per person/year (McDonald & Alip 1976).

During the 1960s there was some increase in the area of rice land harvested, both wet rice and dry rice; however, most of the increase occurred before 1969. The increase in land harvested in the early 1960s may have provided some additional employment but it seems unlikely that very much extra employment resulted from the production of other crops.

On the other hand, figures presented by Hanna (1974) show a 66% increase in rice production from wet fields between 1960-1970 but this was not accompanied by increases in production of other basic food crops except peanuts (McDonald & Alip 1976).

Agriculture is the major means of subsistence (53% of the population in Yogyakarta), followed by industrial (17.5%), trade and transport (7.8%), service and tourism (6%), and labourer and government employee (15.7%) (Subroto-Karjo et al 1978). The 1971 census shows that in the whole of Yogyakarta, the number of females engaged in manufacturing was almost twice the number of males (table 2). Evidently a majority of persons engaged in manufacturing were working in very small scale household type industries such as the production of coconut and peanut oil, soap, coconut sugar, soft drinks, bean curd and batik. The textile industry (which only meets the needs of the population of Yogyakarta) and other light industries like tanneries, foundries and kretek cigarette factories were all working at less than 50% of their capacity in 1968-1969 (McDonald & Alip 1976). However, for the last five years, batik, which is one of the export commodities, has increased 62% (Pusat Data 1983).

Table 2. Percentage distribution of employed persons,
by industry, Yogyakarta, 1961 and 1971 censuses.

Industry	Males		Females	
	1961	1971	1961	1971
Agriculture, forestry, fishing	75.4	62.7	60.4	48.1
Mining and quarrying	0.0	0.0	0.0	0.0
Manufacturing	8.9	11.0	14.6	22.4
Construction	1.8	3.1	0.1	0.1
Electricity, water, gas	0.1	0.1	0.0	0.0
Trade, banking, insurance (a)	3.4	6.4	10.9	21.4
Transport, storage, communication	2.0	2.7	0.0	0.1
Services	8.0	12.7	8.1	6.4
Inadequately described, unknown	0.3	1.4	5.8	1.6
	100.0%	100.0%	100.0%	100.0%

(a) Includes hotels and restaurants.

Sources: McDonald & Alip 1976.

The development of tourism in Yogya (the second tourism area in Indonesia), however, may have produced some increase in the proportion of population in construction, hotels and restaurants, handicraft industries and services associated with tourism.

Overall, therefore, it is very difficult to find any socio-economic indicator which shows much improvement

during the 1960s, and there is evidence that in some aspects such as land ownership the condition is deteriorating. Agriculture development has been minimal since 1966, secondary industries are working well below their capacity.

Income per capita per annum was under Rp 26,000 (US\$ 63.00) in 1972 and increased to Rp 148,000 (\$148) in 1982. But the rate of inflation has been quite high annually (Pusat Data 1983). In 1972, for 45% of households, household expenditure per head per month averaged Rp 662 (\$1.50) of which more than 80% was spent on food (McDonald & Alip 1976).

In all, larger scale, secondary industry has had poor progress in Yogyakarta, and according to Mubyarto, may even have declined (Mubyarto 1970).

3.4 EDUCATION

Education is a responsibility of the government. It is stated in the Congress that every citizen in Indonesia, by constitution, is entitled to be educated. And the government will organize and execute a national education system which will be stipulated by law (Ketetapan MPR 1983). Education now is compulsory from 6 - 14 years of age. As the Minister of Education and Culture changed, it seems that the education system and some regulations also changed, however, the level of education throughout Indonesia never changed. Basically, the level of formal education in Indonesia can be divided into different stages, as shown in table 3.

Table 3. Level of education in Indonesia by year of schooling

No.	Level of education	Years of schooling
1	Kindergarten (preschool)	1 - 2 years
2	Elementary school	6 years
3	Secondary school and equivalent	3 years
4	High school and equivalent	3 years
5	Academic	1 - 3 years
6	University / Institution	5 - 6 years

The municipality of Yogya or City of Yogya is the administrative centre of the province and is widely recognised as the city of students. In the city itself or close to the city boundaries are a number of institutions for higher education which attract students from all over Indonesia. The 1971 census shows 45,000 students aged 20 and over in the city, while in 1971 the total population of the city of Yogya was only about 340,000.

Since Independence, the educational level of the population of Yogyakarta has been rising rapidly. Table 4 shows a substantial drop between 1961 and 1971 in the percentage of the population aged 10 years and over who had never been to school.

Table 4. Population aged 10 years and over by educational attainment, percentage distribution, regencies of Yogya, censuses of 1961 and 1971.

Regencies/ Districts	No school- ing		Some Primary		Junior High		Senior High		Academy/ University	
	1961	1971	1961	1971	1961	1971	1961	1971	1961	1971
The Muni- cipality	34.9	18.9	38.9	45.0	15.3	24.3	9.1	7.4	1.9	4.5
Bantul	69.5	45.5	27.2	47.5	2.7	4.0	0.6	2.6	0.1	0.3
Sleman	64.2	46.5	30.7	44.0	4.1	5.8	0.9	3.3	0.2	0.4
Gunungkidul	79.5	58.0	19.3	37.8	1.0	2.4	0.1	1.8	0.0	0.0
Kulonprogo	61.6	43.3	35.3	50.5	2.7	3.6	0.4	2.4	0.0	0.2
Total	64.5	44.6	29.0	44.4	4.4	6.9	1.8	3.2	0.3	0.8

In 1961, the proportion having no schooling was very high, reaching almost 80% in Gunungkidul, with levels in the other three regencies ranging between 60 and 70 percent. The change in these statistics between 1961 and 1971, however, largely reflects extensions to the education system before 1961. A comparison of enrolment ratios specific for age at the 1961 and 1971 censuses shows some decline, especially for males.

For example, the proportion of males aged eight years in school fell from 69% in 1961 to 58% in 1971; on the other hand, school enrolment ratios from age 15 onwards increased between the two censuses. More emphasis has apparently been placed on the education of girls in recent years and the sex differences in enrolment ratios has become smaller.

Drop out rates are quite high up to the junior high school level. A study by the Department of Education and Culture showed that among pupils entering the first grade in 1960, only 45% completed their primary school education six years later. From among those completed primary school in 1973, only 55% continued to junior high school. However 90% of those completing junior high school in 1973 went on to senior high school (McDonald & Alip 1976).

As stated above, a number of schools or institutions (both government or private) are available in Yogyakarta and attract students from all over Indonesia. Table 5 shows

the number of schools and school populations in Yogyakarta under the Department of Education and Culture.

Table 5. School level by number of schools and students
Yogyakarta (1979)* and 1982.

School level	Number of schools			Number of students		
	Govt.	Private	Total	Govt.	Private	Total
Pre-school	8	987	995	-	37,235	38,830
	-	-	(912)*	-	-	(28,125)*
Elementary school and equivalent	1928	312	2240	380,913	737,37	456,890
	-		(2021)*	-	-	(457,945)*
Secondary school and equivalent	130	327	327	60,252	79,249	139,958
			(394)*	-	-	(113,997)*
High school and equiv.	72	283	457	34,451	69,635	104,441
			(251)*			(64,956)*
Academic	-	15	15	-	16,481	16,481
		(14)*	(14)*	-	(11,208)*	(11,208)*
University/Institution	3	17	20	43,173	29,667	72,860
	(3)*	(16)*	(19)*	(28,691)	(20,025)*	(48,716)*
	2141	1941	4054	518,789	306,604	829,460
	(3)*	(30)*	(3611)*	(28,691)	(31,233)	(724,947)*

*1979 figures in ()

A comparison of these 1982 figures with the 1979 figures shows that there is a slight decline in the population of elementary schools (0.72%). The highest increase is the high school population (37.59%), followed by the academic and university population (32.91%), kindergarten (25.66%) and secondary school (0.2%). (Pusat Data 1983).

The Gadjah Mada University is well known and was the first university in Indonesia. It is the largest in Indonesia, with 18 faculties and more than 20,000 students. Under the Department of Health, there are 4 midwife schools, 9 nursing schools, 1 school dental nurse school, and 1 pharmacy school. The enrolment of these schools is quite satisfactory, because they offer scholarships and provide easy access to jobs.

Dental health education in the schools has a very low priority. Following negotiations between the Department of Health and the Department of Education and Culture, dental health was placed as part of health science in the elementary school curriculum. A dental health guidance book has been published for the elementary schoolchildren and distributed to the teachers recently (1981). It seems a fact that informal education plays a stronger role in dental health education than does formal education. Possibly general community development of Primary Health Care, which is one of the government policies in health promotion, is the most important informal education towards dental health. However, there is no available data to support this statement.

3.5 HABITS

Javanese have their own subculture and beliefs, and Yogyakarta is the cradle of Javanese culture, where the people still hold on to the old traditions, manners and emotions, that have been developed for many centuries. (Selo-Sumarjan 1981). The people believe it is important to keep the old traditions and certain kinds of ceremonies, otherwise "bad" events will happen. On the other hand, they believe in superstition, the "magic power" of the king, and the "magic power" of the king's heirlooms. Furthermore, having a king as Governor of this province, the traditions and customs are alive, because the people tend to follow and imitate the king's traditions, e.g. giving ceremonies for a pregnant princess (to hold a religious ceremony during the 3rd or 7th month of pregnancy), baby birth, marriage, and many other ceremonies, including the tradition of mutilation of the teeth, is to let other people know that the girl is old enough to marry. In Yogya, mutilation of the teeth usually is done by "tukang pangur" who move from one place to another place, or stay in a certain place. These "artisans" got their skill handed down from parents or relatives. Front teeth in upper and lower jaws are the teeth to be mutilated, using a variety of tools such as pumicestone, files or tongs, without any kind of anaesthesia. These tools cause trauma to the teeth and periodontal tissues and sometimes the pulp dies. The teeth are cut in a straight

line following the contour of the teeth (Asmorjo 1980). The degree of cutting the enamel or dentin depends on the parents' need and the "tukang pangur"'s taste. Sometimes almost one third of the upper teeth are mutilated. However, this tradition is in a period of transition, the young generation tend to avoid it (Subroto-Karjo et al 1978).

Beetle nut chewing or "sirih chewing" is also one of the habits that still exists, especially for old people. There are a variety of ingredients used to prepare it, dependent on the taste of individuals. The most important ingredients are the piper beetle, a sirih-quinid or lime, beetle nut or "gambir". After having sirih chewing, some people put tobacco into the mouth for a few minutes or a few hours. This habit makes the teeth black and glittering. The blacker the teeth, the more satisfied the person. Besides, people believe "sirih chewing" makes the teeth stronger and harder.

On the other hand, there is some variety in tooth-brushing habits. Past experience shows that a lot of people brush the teeth with "unusual things", especially in rural areas. For instance, in Tepus, Gunung Kidul, many people brush their teeth with pieces of glass, because they believe it will make the teeth harder, whiter and more glittering. Powder of bricks or tiles are the most popular things used to brush the teeth, besides charcoal. Abrasion of teeth and gingivitis are the most common side effects of these abrasives. The habit of using coconut husk as

a toothbrush is becoming popular in rural areas. In addition to this, the government encourages rural people to use this coconut husk as a substitute tooth brush as many families can't afford to purchase the manufactured brush (Godfrey 1981). Furthermore, the evidence shows that it is quite usual for one toothbrush to belong to the whole family in a house, so a cheap but effective substitute is needed.

There is no doubt that many people in Yogya still believe in superstitions, for instance "susuk" (by putting "things" inside the body). It is assumed that this will make the body stronger or more attractive in appearance. The most common "susuk" is derived from metal (gold, silver, or copper) or diamond. People believe that the more valuable the "susuk" the more powerful or attractive the person will be. By chance, a few patients seen by the writer in school dental clinics and some seen in private practice confessed that they used "susuk" inside their upper jaw. According to these patients, it would make the teeth stronger and made their smile more attractive. Some entertainers also use "susuk" to attract their customers. The X-rays taken indicated that there were "strange things" inside the gum, around 2 cm long, thin and radio-opaque. One of the patients said that the "susuk" had been there for more than 20 years without causing any pain to the tissues surrounding it. Unluckily, none of these patients agreed to have the "susuk" removed.

Generally speaking, "bad" habits of the people in Yogya that relate to their oral health are in a period of transition, but they still exist. Nevertheless, no references are available to show the extent of these practices.

However, a study of urban elementary schoolchildren in Yogyakarta showed that the percentage of students who said they would go to the dentist/nurse if they got dental diseases was quite high (74.8%), whereas 13.3% would prefer to take their own medicine before going to the dentist. The percentage who would have no treatment was lower than those who would prefer to take their own medicine (8.9% and 13.3% respectively) (Sriyono 1983).

Generally, people have a great tendency to treat their illness by taking their own medicine or going to the nurses, midwives, doctors or even to the witchdoctor (Laporan Pelita III 1983). A study in Bantul shows that the percentage of people who go to the doctors/nurses is greater than those who take their own medicine, except in some villages (Table 6), whereas the percentage of no treatment of sickness in some villages is still high, simply because they believe that sickness is the will of God. However, it seems that poverty is linked closely with the reason for no treatment at all.

Table 6. Treatment of diseases within the last month
by each village sample, in Bantul, Yogyakarta,
July 1977*

No.	Village	None %	Them- selves %	Treatment by Neighbours relatives %	Witch- doctors %	Midwives, nurses or doctors %
1	Sungapan Tragan	7.48	44.86	12.15	-	35.57
2	Polaman	40.00	21.67	3.33	1.67	33.30
3	Batokan	8.32	56.16	6.85	1.37	27.39
4	Sungapan Dubuk	17.46	29.36	11.11	1.59	40.48
5	Ngentak	22.90	29.90	4.60	-	42.60
6	Tonalan	15.79	54.73	14.74	-	14.74

*Sources: Lembaga Pengembangan Masyarakat,
Universitas Gadjah Mada.

A study in 1978 (Subroto-Karjo et al 1978) indicated that there are some habits which would influence the general level of health in Yogya, for instance:

1. non-use of latrines (66% of people)
2. people who use drinking water from:
 - a. wells (76.9%) with only 10% of the wells bring approved sources
 - b. open resources (11.3%) (lake, river, spring)
 - c. stored water rain (8.8%) especially in Gunungkidul.

3.6 DIET

Most people in Indonesia lack adequate nutrition and a balanced diet (laporan Pelita III 1983). Generally, the average calorie intake per capita is low, and the protein calorie intake per day is below the minimum standard. Most of the source of this protein is derived from vegetables. Moreover, intake of sources of vitamins and minerals have not met body requirements (Subroto-karjo et al 1978).

The supply of foodstuffs in a region is determined by the variety of products and the total production of all the foodstuffs in that region. The products of the foodstuffs are not always assumed as foodstuffs by the people in that region. For instance, in some parts of Indonesia, sago is not considered one of the foodstuffs but this is not the case in Yogyakarta Special Region. Generally, the adequacy of foodstuffs in a region is measured by the total carbohydrate and protein nourishment they contain.

In Yogyakarta, the foodstuffs are rice, corn, cassava, sweet potatoes, soya beans, peanut and grain [Cantel]. In 1975, the total supply of foodstuffs which contain carbohydrates was 154.11 kg/capita/year, while that for the protein foodstuffs was 9.11 kg/capita/year. Mostly, the protein intake is derived from vegetables, such as green beans or soya beans, simply because the basic protein food sources such as meat, fish or sea food are not within the community financial resources. The basic main food for 80%

of the population is rice, 14% of the population used cassava and 6% corn (Subroto-Karjo et al 1978).

There is no real difference in the dietary pattern between those living in urban and rural areas. The rising consumption of sugar products in Indonesia and of mass produced foods with high sugar and starch content, are penetrating both urban and rural areas. These prepared foods may be important factors in the rise of new forms of dietary and nutritional problems (Godfrey 1981). There is a basic taste difference of the food amongst the provinces in Java, and Yogyanese tend to have very sweet taste in any kind of food and drink. For Yogyakarta, tea is the everyday main drink. Hot, very sweet and very thick tea is the way in which it is taken. Almost one third of a glass containing tea leaves, with very big portions of lump sugar, is the criteria of delicious tea. According to Effendi and Wibowo (1978), typical Indonesian tea infusions contained 1.67 to 1.77 ppm fluoride. However, no single study has been carried out in terms of the fluoride content in Yogyakarta tea infusions. Because of sweet taste, therefore, the sugar consumption in Yogyakarta may be higher than in other provinces.

In the province of Yogyakarta, there are differences in calorie and protein intake between the fertile land areas and the barren land areas. For the former, the average calorie intake ranges from 1281.5 to 1783 calories/adult/day,

and the protein intake ranges from 26.5 - 34.8 gram/adult/day; while in the barren land areas the calorie intake is about 1206.5 calories/adult/day and the protein intake is about 13.9 gram/adult/day, whereas the government suggestion is that the "calorie" and protein intake for adults is about 2100 calories/day and 55 grams/day. As a result of this nutrition, deficiency conditions exist and 49% of rural children suffer from mild malnutrition deficiency, 27%-28% suffer from moderate malnutrition deficiency and 4.8%-5.6% suffer from severe malnutrition deficiency. The death rate for babies and children under 5 years old is 68 per 1000. Also, 50% of rural children suffer from iodine deficiency goitre, protein calorie deficiency (18% 0-4 years old) and widespread vitamin A deficiency (15% of children) exists (Kanwil 1982).

This malnutrition affects the development of the body and the intelligence of people and it will affect the productive capacity and indirectly influence the income of the people. Malnutrition is a complex problem, however, there are a few factors that determine the diet and nutrition of people in Yogyakarta:

1. lack of knowledge and awareness of adequate diet and nutrition;
2. culture, tradition and beliefs that inhibit improvement of health practices; for instance, children do not need "too nutritious food", simply because parents believe that "simple food" will lead to a good and successful life in the future and nutritious food is for old persons;
3. shortage of nutritious food resources and non-use of these foodstuffs even when people can afford them;

4. low income and lack of capability to use their income to achieve an optimum level of nutrition (Subroto-Karjo et al 1978).

There are two main factors that determine what foods people eat. Firstly, the food must be available, not simply in the store, but also within their financial resources. Secondly, they eat what they do, because they like it, a reason that is obvious enough to ordinary people which often seems to be forgotten by professional nutritionists (Good Housekeeping 1980).

Diet and nutrition is a complex problem, and the government tries to solve it in different ways. Since the beginning of Independence, the results of these efforts have not been satisfactory. However, the role of community health development and family welfare clubs in improving health nutrition and diet are clear enough. Since 1975, a total of 3360 cadets (community leaders and health volunteers) have been established throughout Yogya. Their activities have resulted in an increased average monthly weight gain (65.6%) from 15,434 babies (Kanwil 1982).

The government is still looking for suitable concepts and methods to improve diet and nutrition in Indonesia.

4. DENTAL HEALTH CARE OF ELEMENTARY SCHOOLCHILDREN IN YOGYAKARTA

Before discussing the dental health care of elementary schoolchildren in Yogyakarta, the oral health service pattern for Indonesia will be presented.

It is considered that professional dentistry in Indonesia started with the establishment of the first dental school in 1928. Until World War II oral health programmes were unknown. Nearly all dentists, less than 200, were private practitioners in the big cities. It was not until 1950 that dentistry was organised on a community basis (Tomosoa 1982, Direk Keseh Gigi 1982).

At central government level, the Directorate for Dental Health (Direktorat Kesehatan Gigi) is the body responsible for the directing, planning, monitoring and evaluation of the oral health service. At provincial level, the Provincial Dental Officer is responsible for the execution of the oral health programme of regencies and sub-regencies within the provincial jurisdiction. The Provincial Dental Officer is directly accountable to the Provincial Medical Officer. Indirectly he is responsible for the implementation of central policies on oral health care delivery, this responsibility being channeled through the Provincial Medical Officer. At the regency level, a dental officer is appointed to be responsible for the planning, monitoring and evaluation of the oral health care programme of the regency. Basic oral health care is executed through health centres,

and the dental nurse is the operating dental manpower stationed at these health centres. The stress of basic oral health care is on promotion and prevention and curative care is given in the form of contingency and simple restoration care. Referrals are taken up by the regency and provincial hospitals, and the top referral is to the central level. At these referral facilities, oral health service is given by dentists. While oral health care policy formulation is primarily a national level responsibility, the provincial level is responsible for the programme execution, and as the province has a high degree of autonomy, it has the right to modify operational strategies according to provincial conditions (Tomasoa 1982).

Basically, the delivery of dental health care of elementary schoolchildren is a responsibility of the government, and the government organises and executes a National Dental Health Scheme for elementary schoolchildren (Depkes 1976).

Community Health Centres (Puskesmas) serve as the base for school health programmes, including school dental health programmes (Depkes 1976 b).

The delivery of dental health care of elementary schoolchildren was carried out 33 years ago through School Dental Services, and was limited in only a few big cities in Indonesia (Mustari 1983, 1984). Before 1979, the system used in delivering school dental health care was incremental care for a small number of children with emphasis on

curative care (Direk Keseh Gigi 1977 a). This system was not suitable for Indonesia due to the lack of resources and experts, expenses, materials and dental health manpower (Direk Keseh Gigi 1977 a, 1977 b). As well as these factors, there was a caries increment of elementary school-children of 0.5 permanent teeth per child per year (Effendi 1978) and the system was changed to selective care, beginning in 1979 (the IIIrd year of Five Year Development Plan)(Direk Keseh Gigi 1977 b). This selective care system was planned on a preventive basis. Furthermore, selective care is programme in school dental care that is intended to treat all oral diseases for sixth grade pupils belonging to selected primary schools which lie within one kilometre of a Paskesmas which has a dental clinic and a dental nurse. Each of the four primary schools is estimated to hold approximately 300 pupils in sixth grade. The dental nurse is responsible for conservative (selective) care for 200 pupils of the four to sixth grade classes, providing contingency care and guidance in oral hygiene for the remaining 1000 pupils through the collaboration of the teachers. This selective care service is provided at the Community Health Centre (Puskesmas) free of charge. The nurse is required to be responsible for school dental services (two days per week) along with general community dental services (four days per week) (Tomasoa & Wijati 1982).

Beginning with the IVth Five-Year Development Plan (1984), the government is developing an integrated care

system in school health services. The purpose of this system is to reach the schools distant from a Community Health Centre (Puskesmas) (Kelompok Kerja 1981, Subdit Gigi 1983). Dental services in this system are based on prevention, mostly in the form of dental health education to the pupils (Kelompok Kerja 1981).

There are 2 main activities in delivering dental health care for elementary schoolchildren through school dental services: (Supriyono 1980, Mustari 1982):

1. Promotion - prevention, including:
 - a. dental health education
 - b. scaling and oral hygiene instruction
 - c. using fluoride or other materials
 - d. primary prevention in orthodontics.
2. Selective treatment
 - a. comprehensive care for the sixth grade pupils
 - b. treatment on demand for the Ist-Vth grade pupils:
 - relief of pain
 - controlling infection
 - simple filling of cavities.

In Yogyakarta, the delivery of dental care for elementary schoolchildren through school dental services was very limited before 1968, and it was restricted to the municipality of Yogya. The other regencies started carrying out this service in 1972, when each of the regencies had a dentist and other personnel appointed (Supriyono 1980).

Although the responsibility of carrying out school dental services is that of the government (Puskesmas),

other institutions or private institutions are able to carry out this service as well (Mustari 1984). In Yogyakarta, the Faculty of Dentistry of Gadjah Mada University in cooperation with the Department of Health and Foster Parents Plan in Yogya, have been carrying out their service since 1972. As a result of this cooperation, from 1972-1975, a total of 11,679 elementary schoolchildren has been examined both in urban and rural areas. Emergency care has been provided to the children, and dental health education to the parents, teachers and children. However, for various reasons, less than 1% of the pupils said that they have ever used the service in the Community Health Centre. Therefore, the Faculty of Dentistry decided to bring the "dental clinic" to the schools, beginning in the year 1979 (Sriyono 1982 b). One Community Health Centre (Puskesmas) covers about 11,500 elementary school children in rural areas and 9,500 elementary schoolchildren in urban areas (Kanwil 1982, Subdit Gigi 1983).

In these areas, not each Community Health Centre (Puskesmas) has a dental clinic (table 7). Moreover, for various reasons, not all Community Health Centres (Puskesmas) which have dental clinics deliver school dental Services.

Table 7. Areas of Yogyakarta by number of elementary school-children, number of sixth grade pupils, number of CHC with dental service, number of CHC with SDS, 1983

Area of elementary schools	No. of pupils	No. of 6th grade pupils	No. of CHC*	CHC with dental service	CHC with SDS*
Rural	392,313	53,576	65	48	27
Urban	57,157	8,386	15	6	6
Total	449,470	61,962	80	54	33

*CHC = Community Health Centre

**SDS = School Dental Service.

By bringing the "simple dental mobile unit" to the schools, the Faculty of Dentistry reached the remote schools that have never been covered by school dental services. As a result of this, during one year (1979-1980), 2482 elementary schoolchildren were examined from 15 schools and 13.1% of them were given emergency care. For sixth grade pupils, 18.8% of them have been treated completely in terms of simple pulp treatment, simple restorations and extraction of teeth (Sriyono 1982 b). If these results are compared to the utilisation of dental services in Community Health Centres (1.0% of children under 14 years old), it might be considered satisfactory, but from the financial and manpower points of view it is a costly service. Table 8 shows various treatments that have been carried out for elementary schoolchildren in Yogyakarta

through school dental services in Community Health Centres (Puskesmas) (Kanwil 1982). Apparently, the rate of deciduous and permanent teeth extraction in rural pupils is somewhat similar to that of urban pupils. From field observation, it was obvious that the extraction of most teeth was due to dental caries; it was quite rare for other reasons, for instance orthodontic treatment need (Sriyono 1979). On the other hand, the number of urban deciduous teeth that were filled reached almost 8 times the level for rural pupils, but the total permanent filled teeth in urban pupils was almost the same as in rural pupils.

Table 8. Areas of Yogyakarta, by number of elementary schoolchildren and type of dental treatment received in CHC*, 1982.

Area of schools	No. of elementary school-children	No. of 6th grade children	No. of pupils examined	No. of 6th grade pupils completely treated	No. of fillings		No. of extractions		No. of sca-lings	Medi-cine given	Miscel-laneous treatment
					perm. teeth	decid. teeth	perm. teeth	decid. teeth			
Rural	392,313	53,576	31,432	1,760	1,948	195	7,348	5,235	853	5,783	615
Urban	57,157	8,386	9,347	1,449	1,605	1,398	2,181	2,036	1,419	5,683	2,036
Total	449,470	61,962	40,779	3,209	3,553	1,593	7,416	2,651	2,272	11,466	2,651

* CHC = Community Health Centre

It is seen from the caries experience point of view that there is not such a difference between urban and rural pupils (table 9), although there is no available data on the state of the primary dentition. The relative differences in the number of fillings and extractions are not due to caries experience or availability of the services. The more likely reasons are the long distance to the Community Health Centre in rural areas and the poor attitude of rural pupils and parents towards dental health care (Direk Keseh Gigi 1982). For scaling, on the other hand, the amount is greater in urban pupils than those of rural pupils. However, this evidence doesn't seem due to the oral health status differences between urban and rural pupils. (Table 10). The gingivitis prevalence of 8 years old rural pupils is greater than that of urban pupils (92% and 71% respectively) (Table 11). For the groups of 14 years old pupils, the amount of gingivitis in rural and urban pupils is relatively similar, but the mean score of OHIS is much greater in rural pupils than in urban pupils (Table 12). Briefly, it can be said that the oral health condition of urban pupils is better than rural pupils, but the amount of scaling in Community Health Centres is also greater for urban pupils. These findings are also in line with another study in Birmingham. It is said that rural children showed more gingival diseases than urban children of comparable age. Disease in the rural children was more prevalent in those countries where the educational level of adults was relatively low (Russel and Ayer 1960). Another reason might be the

poor attitudes towards utilisation of the service of low socio-economic groups, that will influence the children, as was also shown in a social class study in America (American Dental Association 1956). Furthermore, the amount of treatment in rural and urban children does not indicate the actual number of teeth that should be treated, or, in other words, the extent of the problem.

The figures are likely to reflect the treatment received by those pupils who have a favourable attitude towards dental care. A few days or weeks after an examination in the school, children will be given a letter containing the appropriate date for them to go to the dental clinic in a Community Health Centre. This service is free of charge, however, in this case, although referral of children to the Community Health Centre (Puskesmas) for treatment is recommended, the onus to attend the Community Health Centre is on the children, and they do not go to the dental clinic themselves automatically.

Table 9. Caries experience of schoolchildren at the age of 8 years by area, Yogyakarta, 1981-1982*

Areas	No. of subjects	Pre-valence	Mean				SD	Mean DFS	SD	Occlusal caries %	Caries Severity	
			D	M	F	DMFT					enamel dentin	pulp involvement
Urban	100	38	0.52	0.00	0.02	0.54	0.81	0.61	1.03	78.69	98.08	1.92
Rural	100	37	0.53	0.01	0.00	0.54	0.80	0.82	1.84	59.76	83.02	16.98

*Source = Sub Direktorat Peningkatan Kesehatan Gigi
Direktorat kesehatan Gigi Dep. Kes. R.I.

Table 10. Caries experience of schoolchildren at the age of 14 years, by area, Yogyakarta, 1981-1982*

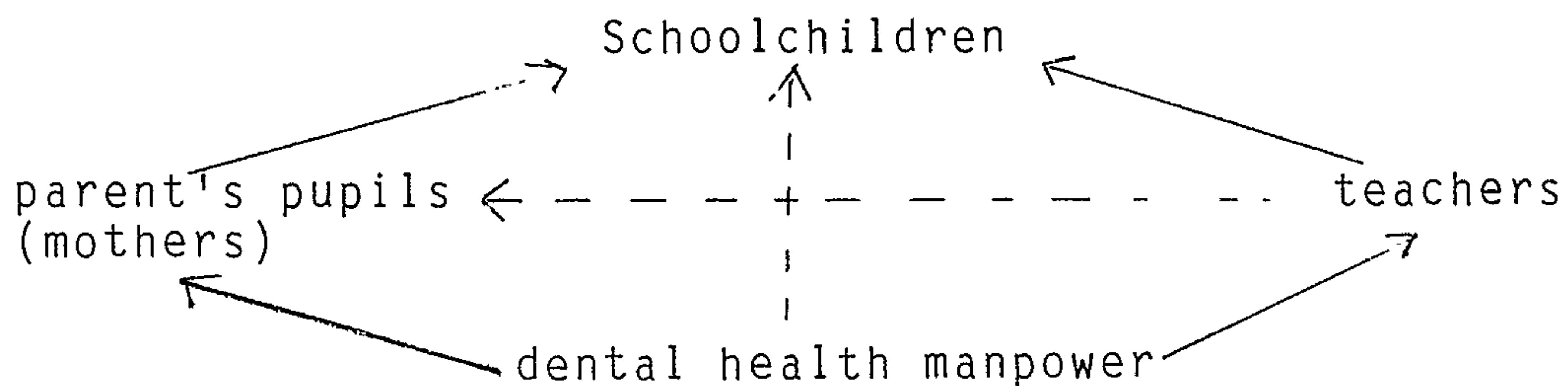
Areas	No. of subjects	Pre-valence	Mean				SD	Mean DFS	SD	Occlusal caries %	Caries severity	
			D	M	F	DMFT					enamel dentin	pulp involvement
Urban	100	65	1.53	0.06	0.15	1.74	2.00	2.87	4.95	50.00	82.35	17.65
Rural	100	66	1.56	0.08	0.08	1.72	2.06	2.75	4.06	46.84	75.64	24.36

*Source = Sub Direktorat Peningkatan Kesehatan Gigi
Direktorat kesehatan Gigi Dep. Kes. R.I.

Evidence shows that only 1.0% of the children used this service in Community Health Centres. Parents and teachers' attitudes seem to influence this situation. Many teachers are very cooperative, but some of them are not, because of various reasons. Godfrey (1981) commented that some teachers in different schools were able but others were not able or ready (for various reasons) to participate in a selective care or integrated care programme. In the latter event, there would be no justification for starting either an integrated or a selective care programme, although this had been attempted, almost without any impact. On the other hand, the dental clinic has difficulties in adjusting its time schedule to arrange for children's visits because of lack of resources. Moreover, many parents do not allow their children to visit the dental clinic in the Community Health Centre by themselves, and may be too busy to accompany them there. Furthermore, poor parents' attitudes towards dental health care, especially in rural areas, will influence the children's attitudes, so that these children will have low utilisation (Sriyono 1983).

Therefore, development of partnership attitudes between schoolchildren, teachers, dental health personnel and parents is important to establish for the improvement of dental health care for schoolchildren (Tomasoa & Wijati 1980). Such a scheme is the rectangular design of dental health care of schoolchildren (modified from Lencher & Wright Paedodontic Treatment triangle) which shows that dental health manpower are not the single responsible key persons

in achieving optimum dental health care for schoolchildren.



In this design, parental emphasis is on mothers, because mothers are closer to the children than fathers, and mothers play an important role in developing children's attitudes. Furthermore, Gravelle et al (1967) said that there was significant improvement in oral hygiene, when teachers are interested in dental health programmes. Briefly, developing the partnership attitude of all constituent elements which are involved in delivery of dental health care for schoolchildren is very important in achieving their good dental health (Tomasoa 1980).

The primary concern for the oral and dental health of elementary schoolchildren should be oral hygiene and its relationship to periodontal diseases. The second problem is the occurrence of dental diseases which include dental caries, malocclusion and oral tissue damage. For the first problem, Yogyanese elementary schoolchildren seem to have relatively "fair" scores in terms of the mean score of OHIS (tables 11 and 12). Another study in Yogya has shown that from 1299 rural elementary schoolchildren that have been examined:

- 17.2% of them had good oral hygiene
 - 55% of them had fair oral hygiene
 - 27.8% of them had bad oral hygiene
 - the prevalence of periodontal disease was 79%
 - children who never brush their teeth were 18.9%
- (Subroto-Karjo 1981, Sriyono 1982 a).

Table 11. Oral hygiene and gingival status of schoolchildren at the age of 8 years, by area, Yogyakarta, 1981-1982.*

Areas	No. of subjects	Pre-valence (gingivitis)	Mean OHI-S	SD	Gingivitis severity (%)			Mean segment affected
					Mild	Moderate	Severe	
Urban	100	71	1.69	0.68	43.66	46.48	9.86	2.39
Rural	100	92	1.79	0.67	56.52	38.04	5.44	2.96

*Source = Sub Direktorat Peningkatan kesehatan gigi
Direktorat Kesehatan Gigi, Dep. Kes. R.I.

Table 12. Oral hygiene and gingival status of schoolchildren at the age of 14 years, by area, Yogyakarta, 1981-1982*

Areas	No. of subjects	Pre-valence (Gingivitis)	Mean OHI-S	SD	Gingivitis severity (%)			Mean segment affected
					Mild	Moderate	Severe	
Urban	100	94	1.66	0.48	62.77	29.79	7.44	3.32
Rural	100	92	2.05	0.77	41.30	39.13	19.57	3.54

*Source = Sub Kirektorat penimpkatan keseabatan gigi
Direktorat Kesehatan Gigi, Dep. Kes. R.I.

From the results of these studies and due to the limited resources, prevention in terms of dental home care may be given as the first priority for elementary schoolchildren and their parents.

The dental health personnel may have instructed the children how to care for their teeth, but usually the children are more or less on their own after that. As for care, children have apparently learned their tooth-brushing lessons quite well and it seems about the only lesson they have learned. They say in effect that "brushing is the thing", and that the more frequent and the more vigorous the brushing, the better it is (Dunning 1979). However, from the previously mentioned study (Subroto-Karjo 1981, Sriyono 1982 a), almost 19% of rural elementary schoolchildren never brush their teeth. The most common reasons are that they do not have any toothbrush or that they forget each day to brush their teeth. Nevertheless, poor attitudes towards dental health care especially home care is the more likely reason. Again, parents' attitudes play an important role in developing children's routine home care. But many parents, especially in rural areas with low education, do not consider their teeth very important and give dental care a low priority (Dunning 1979). These groups usually had diagnosed their own state of oral health and found no necessity for professional services and did not use the services provided. Undoubtedly, this indicated a low valuation of the importance of oral health.

More important, perhaps, is the indication of ignorance of the value of regular visits to the dentist to detect oral pathology early, and to attend for treatment before extensive corrections are necessary. On the other hand, self diagnosis and self medication are attitudes of self care or self preserving behaviour. Every person has this self care attitude to some extent and it is part of the general community culture. This self care action aims to improve health promotion and to prevent disease and its treatment. Tomaso and Wijati (1980) cited Fry, that self care behaviour has four roles:

1. general health care
2. prevention of the diseases
3. self diagnosis, self medication and self treatment
4. using the professional services or health services

Apparently the general community development in primary health care will support self care or "preserve community" behaviour (Mustari 1984).

This concept was put into practice beginning in 1960 in Central Java and was the origin of Indonesia's PKMD (Pembangunan Kesehatan Masyarakat Desa = Village Community Health Development), and appeared to have greatly influenced the government's ongoing policies and plans for the development of health services throughout the country. The kaders (prokesas) of PKMD are selected from active community leaders, and the selection of health

volunteers is on the basis of education, personal qualities and interest in community service. In the area of oral health care, after having been upgraded by the dental health personnel, those leaders have various tasks, including (Kelompok kerja 1981):

1. Medical techniques
 - a. simple oral health screening examinations using simple diagnostic equipment;
 - b. simple care:
 - giving simple medicine (analgesic) for pain control
 - extraction of very loose teeth
 - scaling of soft calculus in order to facilitate better gingival hygiene
 - arranging referral to the CHC
 - guidance in the making of substitute tooth brushes for schoolchildren and the community.
2. Management.
 - a. data collection concerning personal oral health status
 - b. recorded details of their delivery of the care
3. Education.
 - giving dental health education.

It is hoped that children who are not covered by School Dental Services (either selective care or integrated care) will be covered by these kaders. In some areas, the primary health care programmes of the kaders are reported as satisfactory, however, although there is a general evaluation of the PKMD programme being carried out, there is no available data on the state of the PKMD oral health programme.

The government delivery of dental care for school-children has not covered the mentally retarded or handicapped children in the extraordinary schools. Services are provided only by private institutions and the Faculty of Dentistry, which started their service only a few years ago. Many mentally retarded children require special management techniques in the dental office or in the hospital if restorative dental care is to be accomplished. In these cases, the children will be sent to "Bethesda Hospital" or the Faculty of Dentistry. In the past, many retarded children were "stay at home" (hidden), but today many retarded children are institutionalised at an early age. Cerebral palsied children (including those who show evidence of some retardation) have a variety of problems that complicate treatment. The major difficulty stems from the frequency with which these children suffer extraneous dyskinesic movement of portions of, or the entire body, making it difficult to perform mouth hygiene procedures and requiring special methods of stabilisation to provide effective dental treatment. The difficulties in rendering service to the paraplegic are obvious. Other handicapped children who present special management problems are those suffering from muscular dystrophy or emotional disturbances. In contrast to other countries, for instance America, children with oral clefts receive no special attention from the government. Parents must look for the special care, which is costly, and not within every parent's financial

resources. But the service in public hospitals may be free, if it is approved that the parents are not able to pay for the services.

Other handicapped children seem to be neglected both by parents and providers. Until recently, community resources to assist in the provision of dental services for these individuals were quite rare. However, the dental problems of handicapped children have received increasing attention (Direk Keseh Gigi 1982).

To sum up, the delivery of dental health care for elementary schoolchildren is inhibited by many factors. It seems that lack of resources (either manpower, financial or equipment) is a problem that the providers are always talking about and complaining about. Some evidence, however, shows that even if services provided are easy to reach and free of charge, this does not guarantee that the pupils will use the services. Socio-economic factors and lack of education seem to play important roles. Moreover, attitudes of the children, parents and teachers towards dental health care tend to be not recognised by the providers and so far no studies have been carried out in this important area.

As Willcocks (1981) says, the attitude of the consumers is a key factor in determining whether a service reaches its objectives. It is obvious that the poor attitudes of elementary schoolchildren towards dental health care are important and need to be changed and developed.

5. STUDY DESIGN AND METHOD

5.1 STUDY AIM

Knowledge of the attitude of the elementary school-children in Yogyakarta towards dental health care is of basic importance to their future dental care and the prevention of oral diseases. A good attitude of children towards their dental health care is very important to establish.

The writer's duty is guiding and supervising students of a faculty of dentistry when they work in School Dental Services. The schoolchildren normally have negative attitudes towards dental health care, especially in rural areas, and the writer saw the need to carry out research in this field. In addition to this, the results of such research would be of value to the local government for any considerations of changing the attitudes of elementary schoolchildren and developing dental health care in Yogyakarta. Therefore a study was going to be carried out in 1983-1984 by the writer to test the assumption that:

There are no differences in attitudes towards dental health care between urban and rural elementary schoolchildren in Yogyakarta.

From the writer's preliminary study (Sriyono 1983) it was shown that urban elementary schoolchildren had more positive attitudes towards dental health care. Since the government gives School Dental Services through Community Health Centres (Puskesmas) in nearly all subdistricts, there

should be no difference in attitudes of elementary schoolchildren in rural and urban areas towards dental health care in Yogyakarta. In addition to this, general community development of primary health care is one of the government's policies in health promotion.

5.2 SAMPLING

The sample for this survey contains 6th grade elementary schoolchildren from the urban and rural areas of Yogyakarta. Children for the urban sample were selected at random from class lists within the municipality of Yogya. The rural sample was selected at random from class lists from schools stratified by district and subdistrict. The rural area is divided into the 4 districts: Bantul, Sleman, Kulonprogo (Wates) and Wonosari (See map, figure 2). Each district is divided into subdistricts:

- Bantul has 16 subdistricts and 494 classes of 6th grade elementary schoolchildren;
- Wonosari has 13 subdistricts, with 546 classes of 6th grade elementary schoolchildren;
- Kulonprogo (Wates) has 12 subdistricts and 546 classes of 6th grade elementary schoolchildren;
- Sleman has 17 subdistricts and 586 classes of 6th grade elementary schoolchildren.

Because of limited time and the cost of the survey, only one subdistrict was chosen at random for each district.

The subdistricts chosen were:

- Subdistrict number 10 of Wates
- Subdistrict number 16 of Sleman

- Subdistrict number 8 of Wonosari
- Subdistrict number 15 of Bantul.

The total number of 6th grade elementary schoolchildren in Yogya is 61,962 from 2,454 classes. Of these, 53,576 from 2,172 classes are in rural areas and 8,386 from 282 classes are the urban area.

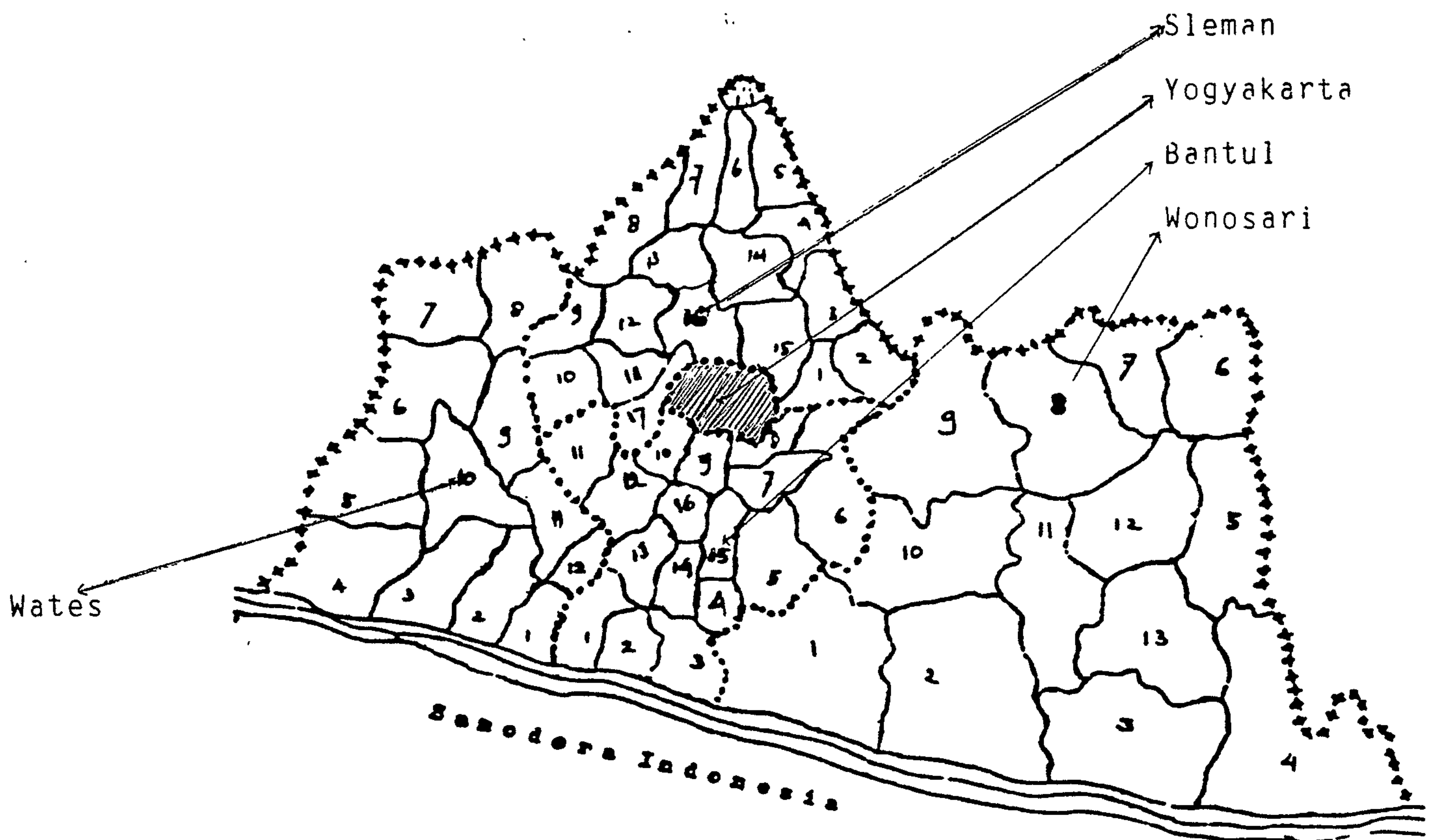
To show meaningful differences between urban and rural samples, a total of 600 students were selected as follows:

- in rural areas, 400 children from 15 classes, with each class having 27 children chosen randomly;
- in the urban area, 200 children, from 7 classes, with each classes having 30 children chosen randomly.

Classes were chosen randomly from each of the subdistrict sample schools.

- 4 classes from subdistrict of Sleman;
- 4 classes from Wates;
- 5 classes from subdistrict of Bantul;
- 2 classes from subdistrict of Wonosari.

Figure 2: Sampling frame for the attitude survey of elementary schoolchildren in Yogya.



+++++: province border line

.....: district border line

1—17: number of subdistricts

—: sample of subdistrict (rural sample)

: the municipality of Yogya
the urban sample.

For the municipality urban sample, 7 classes were chosen randomly.

The map designates the exact districts and subdistricts in rural areas that were selected for the sample.

5.3 THE QUESTIONNAIRE

A questionnaire to measure attitudes of children towards dental health care was developed (Appendix 14).

A 1 - 5 Likert scale from unfavourable — favourable was used for responses.

The questionnaire contains 41 items, grouped into 4 categories (See Appendix 2).

Category 1: attitudes towards dentists/dental profession (11 items)

Category 2: attitudes towards prevention/home care care (11 items)

Category 3: attitudes towards dental health (9 items)

Category 4: attitudes towards dental treatment (10 items).

The items include some from a questionnaire for school-children used by Howe (19 —); others are modified from the writer's preliminary study (Sriyono 1983) and the Owaka (Bishop et al 1969) and Dunedin studies (Bamford 1969). In addition, the items were reviewed and approved by Dr Pinkerton and Dr Walker, psychologists from the Department of Psychology of the University of Sydney. Item analysis was carried out (from the data of the pilot study for the survey), to provide the index of item difficulty and the index of item validity for the 41 proposed questions. The index of validity shows how well the item measures or discriminates in agreement with the rest of the test or how well it predicts some external criterion (Guilford 1954).

Two questions (not using a Likert scale) were added to see how much previous contact the students had had with a dentist. The translation of the questionnaire from English to Indonesian (Appendix 4) was reviewed for appropriateness by the Elementary School Section of the Department of Education in Yogya and by staff of the Department of Psychology of Gadjah Mada University.

5.4 THE SURVEY FORM

The survey form consists of the questionnaire form and answer sheet form (Appendices 1.1 and 1.2). The form was also used to record information on sex and parental education (years of attending school). The guidelines on the questionnaire were easy to understand for the elementary schoolchildren. It was decided that the best way to administer the questionnaire was directly to the students for completion (by them) in class. It was difficult to get the information about parental education directly from the children, especially for the rural samples; class teachers assisted by giving this information from the class register.

5.5 THE PILOT STUDY

A pilot study was carried out using 2 groups of at least 20 students of 6th grade of elementary schoolchildren in rural and urban areas. Item analysis was carried out for the data of the pilot study using the index of difficulty

and the index of validity of the items. Sutrisno-Hadi (personal contact) stated that the questionnaire should have at least 15 items that have been proved for difficulty and validity, and these items could then be used to measure the attitudes of the entire sample. In addition, the questionnaire should have at least one valid item which is representative for each category of attitude.

As a result of the item analysis, fewer than 15 items of the pilot questionnaire were found to be valid. The sentences of the weak discriminating items were changed or discharged, and new items developed. Further pilot studies were carried out to prove these items, to provide 15 or more discriminating items for this survey.

5.6 SCHEDULE FOR THE SURVEY

The tentative schedule for the completion of the survey was as follows:

1. 12 - 17 December 1983:
Preparation for study implementation
(e.g. seeking the consent from the government).
2. 19 - 31 December 1983:
Pilot project studies in rural and urban areas.
3. 2 January 1984 - 12 February 1984:
Data collection in rural and urban areas, as follows:
 - 3.1 2 - 7 January 1984 - district of Bantul
(rural areas)
 - 3.2 9 - 4 January 1984 - district of Sleman
(rural areas)
 - 3.3 16 - 21 January 1984 - district of Wates
(rural areas)

3.4 23 - 31 January 1984 - district of Wonosari
(rural areas)

3.5 1 - 12 February 1984 - Municipality of
Yogya (urban area).

5.7 ANALYSIS OF DATA

After compiling the data, statistical tests were used to prove or disprove the hypothesis and aid in the interpretation of the results.

Some of the statistical tests used were:

- the "t" test - to prove/disprove the attitude of differences between rural and urban elementary schoolchildren in Yogyakarta.
- Analysis of covariance (ANACOVA) to prove/disprove the differences between rural and urban elementary schoolchildren which are thought to relate to sex differences, and parental education influence on the attitudes of the children.
The actual number of years of attending school were used for this analysis.
- X^2 test was used for comparison of differences between urban and rural parental education.
Parental education data were grouped into 6 groups for this comparison, as follows:

Table 13: Number of years of education, Yogyakarta, 1984.

No.	Level of Schooling	Number of years
1	None	0
2	Primary	1 - 3 4 - 6
3	Secondary school and equivalent school	7 - 9
4	High school and equivalent school	10 - 12
5	Academic and equivalent school	13 - 15
6	University/Institute	16 - 18 <

Examples of data analysis using the "t" test and analysis of covariance are shown in Appendix 3.

6. RESULTS

6.1 PILOT STUDIES

Item analysis showed that from the first pilot study, 15 out of 41 items were valid to measure the entire sample and each category of attitude had at least one representative valid item. The first pilot study was carried out in 2 groups of 25 students of 6th grade elementary school-children in rural and urban areas. To get a greater number of valid items, the statistician suggested that more students be taken for a further pilot study. The sentences of the discarded items were changed and a second pilot study was carried out of 121 6th grade elementary schoolchildren (50 in urban and 71 in rural areas).

Item analysis from the second pilot study showed that only 14 out of 41 items were valid attitude measurements, and that each category of attitude had representative valid items.

Taking these results into consideration, the writer and the statistician went back to the first pilot study and looked carefully at the key score items. Some staff of the Department of Psychology of Gadjah Mada University suggested changes to key score items which would be more suitable for Indonesian conditions, and re-analysis of the items. Accepting this advice, the results of re-item-analysis of the first pilot study showed 16 valid items. These 16

items became the attitude measurement for the main survey.

The results of all the pilot study item analyses are shown in tables 14 - 16.

Table 14: First Pilot Study. N = 50.
Results of item analysis

Item attitude category	Number of items tested	Valid item numbers	Number of valid items
1 (dentist)	11	1 3 5 9	4
2 (dental health)	9	1 3	2
3 (treatment)	10	1 5 9	3
4 (prevention)	11	1 3 5 7 9 11	6
All categories	41		15

Table 15: Second Pilot Study. N = 121
Results of item* analysis.

Item attitude category	Number of items tested	Valid item analysis	Number of valid items
1 (dentist)	11	2 6 7 8	4
2 (dental health)	9	1 3	2
3 (treatment)	10	5 6 9	3
4 (prevention)	11	6 7 8 9 10	5
All categories	41		14

*Items different to first Pilot Study and re-item analysis.

Table 16. Re-item analysis
from the first Pilot Study. N = 50

Item attitude category	Number of items tested	Valid item numbers*	Number of valid items
1 (dentist)	11	1 3 5 9	4
2 (dental health)	9	1 3	2
3 (treatment)	10	2 3 6 10	4
4 (prevention)	11	1 3 5 7 9 11	6
All categories	41		16

*Final items used for survey.

6.2 FINAL SAMPLE

There was no variation from the study design in the final sample who completed questionnaires. From the total sample of 630 elementary schoolchildren of 6th grade, 211 were chosen in urban area and 419 in rural areas. The sample numbers are shown in tables 17 and 18.

Table 17. Number in final sample, by area and sex.

Sex	Urban	Rural	Total
Female	100	214	314
Male	111	205	316
Total	211	419	630

Table 18. Number of classes and children in sample by district.

Area	Number of classes	Number of children
Urban	7	211
Rural		
Wonosari	2	59
Sleman	4	116
Wates	4	110
Bantul	5	134
Total rural	15	419
Total	22	630

6.3 PARENTAL EDUCATION

Parental education was recorded by the number of years of attending schools, from 0 to 18 years or more. The results were categorised into 6 groups, which are shown in tables 19 and 20.

Table 19. Number of years of parental education.
Urban area. N = 211.

Number of years	Number of subjects	Percentage
None (0)	0	0
Primary (1-3)	0	0
(4-6)	12	6
Secondary (7-9)	30	14
High School (10-12)	74	35
Academic (13-15)	45	21
University (16-18<)	50	24
Total	211	100%

Table 20. Number of years of parental education
Rural areas. N = 419.

Number of years	Number of subjects	Percentage
None (0)	51	12
Primary (1-3)	45	10
(4-6)	148	36
Secondary (7-9)	60	14
High School (10-12)	90	22
Academic (13-15)	19	5
University (16-18<)	6	1
Total	419	100%

6.4 RESPONSES FOR INDIVIDUAL ITEMS WITHIN CATEGORIES.

Item numbers are presented within the four attitude categories and are the final items used on the survey form and answer sheet (see appendices 1.1 and 1.2). The results are shown in tables 21 - 28. Note that the abbreviations used to describe the items are shown in Appendix 1.3.

Table 21. Responses to attitude category 1: attitudes towards dentists. Urban area. N = 211.

Item No. Abbrevi- ation	Number (%) of subjects' responses					
	1	2	3	4	5	Total
6 waste money	2(1)	1(0.5)	8(3.5)	118(56)	82(39)	211(100%)
13 make money	1(0.5)	17(8)	56(26.5)	95(45)	42(20)	211(100%)
4 hurt	3(1)	12(6)	32(15)	131(62)	33(16)	211(100%)
11 boring	2(1)	2(1)	11(5)	104(49)	92(44)	211(100%)

Table 22. Responses to attitude category 2: attitudes towards dental health. Urban area. N = 211

Item No. Abbrev.	Number (%) of subjects' responses					
	1	2	3	4	5	Total
7 natural teeth	15(7)	51(24)	33(16)	80(38)	32(15)	211(100%)
2 dec.caries	8(4)	81(38)	40(19)	77(37)	5(2)	211(100%)

Table 23. Responses to attitude category 3: attitudes towards dental treatment. Urban area. N = 211

Item		Number (%) of subjects' responses					
No.	Abbrev.	1	2	3	4	5	Total
14	buck teeth	6(3)	47(22)	24(11)	93(44)	41(20)	211(100%)
1	filled	5(2)	26(12)	10(5)	149(71)	21(10)	211(100%)
16	toothache	18(9)	63(30)	9(4)	105(50)	16(7)	211(100%)
8	medicine	6(3)	47(22)	16(7)	106(50)	36(18)	211(100%)

Table 24. Responses to attitude category 4: attitudes towards prevention. Urban area. N = 211.

Item		Number (%) of subjects' responses					
No.	Abbrev.	1	2	3	4	5	Total
3	tooth-brushing	2(1)	2(1)	4(2)	73(34)	130(62)	211(100%)
15	gums	91(43)	67(32)	8(4)	33(15)	12(6)	211(100%)
9	toothpaste	18(9)	28(13)	36(17)	88(42)	41(19)	211(100%)
12	mouth rinsing	8(4)	26(12)	17(8)	133(63)	27(13)	211(100%)
5	snacks	9(4)	65(31)	45(21)	77(37)	15(7)	211(100%)
10	disclosing sol	7(3)	29(14)	66(31)	79(38)	30(14)	211(100%)

Table 25. Responses to attitude category 1: attitudes towards dentists. Rural areas. N = 419.

Item No. Abbrev.	Number (%) of subjects' responses					Total
	1	2	3	4	5	
6 waste money	13(3)	17(4)	30(7)	204(49)	155(37)	419(100%)
13 make money	11(3)	32(8)	104(25)	191(45)	81(19)	419(100%)
4 hurt	19(4)	49(11)	66(15)	206(51)	79(19)	419(100%)
11 boring	6(1)	20(5)	45(11)	176(42)	172(41)	419(100%)

Table 26. Responses to attitude category 2: attitudes towards dental health. Rural areas. N = 419.

Item No. Abbrev.	Number (%) of subjects' responses					Total
	1	2	3	4	5	
7 natural teeth	26(6)	90(22)	81(19)	122(29)	100(24)	419(100%)
2 dec.caries	51(12)	141(34)	93(22)	104(25)	30(7)	419(100%)

Table 27. Responses to attitude category 3: attitudes towards dental treatment. Rural areas.
N = 419.

Item No. Abbrev.	Number (%) of subjects' responses					Total
	1	2	3	4	5	
14 buck teeth	51(12)	127(30)	59(14)	107(26)	75(18)	419(100%)
1 filled	19(4)	36(9)	43(10)	275(66)	46(11)	419(100%)
16 toothache	75(18)	138(33)	30(7)	136(32)	40(9)	419(100%)
8 medicine	25(6)	91(22)	42(10)	204(49)	57(13)	419(100%)

Table 28. Responses to attitude category 4: attitudes towards prevention. Rural areas. N = 419.

Item No. Abbrev.	Number (%) of subjects' responses					Total
	1	2	3	4	5	
3 tooth-brushing	9(2)	12(3)	12(3)	129(31)	257(61)	419(100%)
15 gums	153(37)	163(39)	30(7)	42(10)	31(7)	419(100%)
9 tooth-paste	42(10)	85(20)	79(19)	133(32)	80(19)	419(100%)
12 mouth rinsing	18(4)	44(11)	58(14)	206(49)	93(22)	419(100%)
5 snacks	25(6)	127(30)	158(38)	99(24)	10(2)	419(100%)
10 disclosing sol	16(4)	54(13)	119(28)	127(30)	103(25)	419(100%)

6.5 RESPONSES FOR TWO ADDITIONAL ITEMS

(Contact with dentists)

The two additional questions on the final survey form (appendix 1.1) related to the number of times persons had visited a dentist (item A1) and the time of their last visit to the dentist (item A2).

Tables 29 and 30 show the responses in urban and rural areas.

Table 29. Responses to two additional items - contact with dentists. Urban area. N = 211.

Item No. Abbrev.	Number (%) of subjects' responses						Total
	1	2	3	4	5	NG*	
A1 Visited	Never	Once	Twice	3 times	4 times		
	43(20)	28(13)	22(11)	19(9)	95(45)	4(2)	211(100%)
A2 Last seen	Never	1 week	6 mths	1 year	>1 year	NG*	
	60(28)	4(2)	42(20)	41(20)	57(27)	7(3)	211(100%)

Table 30. Responses to two additional items - contact with dentists. Rural areas. N = 419.

Item No. Abbrev.	Number (%) of subjects' responses						Total
	1	2	3	4	5	NG*	
A1 Visited	Never	Once	Twice	3 times	4 times		
	187(45)	80(19)	52(12)	20(5)	74(18)	6(11)	419(100%)
A2 Last seen	Never	1 week	6 mths	1 year	>1 year	NG*	
	176(42)	110(26)	71(17)	21(5)	28(7)	13(3)	419(100%)

* NG = Not given.

Inconsistency of responses was noted for these two items. Many individuals gave positive responses to the number of times they had visited a dentist but answered "never" to the question when did they last visit a dentist.

The number of inconsistent responses is shown in Table 31:

Table 31. Inconsistent responses to 2 additional items.
Contact with dentists. By area. N = 630.

Area	Number of subjects	Percentage of sample
urban	24	11
rural	87	21
Total	111	18%

6.6 RESPONSES BY FAVOURABLE AND UNFAVOURABLE CLASSIFICATION

The tables 32 and 33 show the results for the favourable (+) attitude responses and unfavourable (-) attitude responses of subjects in rural and urban areas by attitude categories.

Table 32. Favourable and unfavourable responses by attitude category.
Urban area. N = 211

Attitude category	Numbers (%) of subjects' responses		Total
	favourable (+)	unfavourable (-)	
1 (dentists)	127 (60)	84 (40)	211 (100%)
2 (dental health)	157 (74)	54 (26)	211 (100%)
3 (treatment)	134 (64)	77 (36)	211 (100%)
4 (prevention)	127 (60)	84 (40)	211 (100%)

Table 33. Favourable and unfavourable responses by attitude category.
Rural areas. N = 419.

Attitude category	Numbers (%) of subjects' responses		Total
	favourable (+)	unfavourable (-)	
1 (dentist)	254 (60)	165 (40)	419 (100%)
2 (dental health)	291 (69)	128 (31)	419 (100%)
3 (treatment)	232 (55)	187 (45)	419 (100%)
4 (prevention)	242 (58)	177 (42)	419 (100%)

6.7 RESPONSES FOR FAVOURABLE AND UNFAVOURABLE
ATTITUDE BY AREA

Table 34 shows the results for the favourable (+) attitude responses and unfavourable (-) attitude responses of subjects by area.

Table 34. Favourable and unfavourable responses by area.
 N = 630

Area	Numbers (%) of subjects' responses		Total
	Favourable (+)	Unfavourable (-)	
Urban	114 (54)	97 (46)	211 (100%)
Rural	223 (51)	196 (49)	419 (100%)
Total	337 (53)	293 (47)	630 (100%)

6.8 COMPARISON OF URBAN AND RURAL AREAS.

Different levels of parental education:

The X^2 test was used to show the statistically significant subject response differences for attitude categories between urban and rural areas.

- Subjects' responses for attitude category 1.
There was no significant difference between urban and rural areas ($X_0 = 0.0001$. $P > 0.05$).
- Subjects' responses for attitude category 2.
There was no significant difference between urban and rural areas ($X_0 = 1.67$. $P > 0.05$).
- Subjects' responses for attitude category 3.
There was no significant difference between urban and rural areas ($X_0 = 0.301$. $P > 0.05$).
- Subjects' responses for attitude category 4.
There was no significant difference between urban and rural areas ($X_0 = 0.343$. $P > 0.05$).

Different subject responses for all attitude categories:

The X^2 test was used to show that there were no statistically significant differences in subject responses between urban and rural areas ($X_0 = 0.002$. $P > 0.05$).

Comparison of urban and rural areas:

All categories combined.

The "t" test was used to see the attitude response differences between urban and rural areas. There was a

significant difference between urban and rural areas:

$$t_0 = 4.534$$

$$t_{5\%} = 1.645 \quad df = 629$$

$$t_0 > t_{5\%} \rightarrow H_0 \text{ is rejected, } P < 0.05.$$

$$\text{Coefficient of determination } (r^2) = 0.3.$$

All categories controlled for parental education and sex:

By controlling parental education, gender, in attitude responses between urban and rural areas. ANACOVA showed no significant differences between urban and rural areas. $F = 0.24$. $P = 0.59$.

$$\text{Coefficient of determination } (r^2) = 0.062.$$

7. DISCUSSION

Generally there were few difficulties experienced in conducting the survey in terms of administering the questionnaire. It was decided that the best way to administer the questionnaire was directly to the students in the classroom. However, during the study there were some schools (5 rural and 2 urban) which refused to allow questionnaire completion in the classroom and in these schools students would complete the questionnaire at home, and the writer would collect and check them after a few days. For these returns it might be possible that parents, friends or families helped the students in completing their questionnaire, even though the writer had warned them strongly not to do so. There was a chance of losing the questionnaire when it was taken home, but this did not occur.

In one rural school, the parental education data was not completed by the school and as most of the students did not know their parent's education level, the writer also asked these students to complete the questionnaire at home.

By using the 1961 and 1971 census data as a basis for comparison (Table 4), it is evident that there has been an increasing parental educational level both in urban and rural areas. However, the proportions having "good education" among rural and urban parents are very different;

i.e. 72% of rural parents having education less than high school, but only 20% of urban parents having education less than high school. This better education will influence their better knowledge and attitudes towards dental health, and will, therefore, lead to attitude differences between urban and rural parents. The attitudes of parents will influence the attitudes of their children, and as a result, should lead to attitude differences between urban and rural children. Parents, especially mothers, have influence in promoting children's dental health practices (Raynor 1970, 1974, Stafford 1967 and Baric 1979).

The results of the analysis of this study, comparing urban with rural elementary schoolchildren's attitudes towards dental health care, provide some interesting insights. In this study, there are attitude response differences between urban and rural elementary schoolchildren, in which urban children have more positive attitudes towards dental health care ($t = 1.645$; $p < 0.05$; $df\ 629$; $r^2 = 0.03$). One of the possible causes is because the chance of receiving information about dental health and health care is greater in urban than in rural areas, as the number of elementary schools which are covered by School Dental Services is greater in the urban areas (Table 7). Moreover, as a result of a study in Yogya by Sriyono in 1982, it was shown that almost 99% of the children received their dental health education through mass media and only 1% received dental health information from friends, parents, teachers or

dental personnel. The urban children have a greater chance of getting information than rural children, as the sources of mass media information are not available or are limited in rural areas.

However, when controlling parental education and gender within attitude responses between urban and rural children, there were no significant differences shown between urban and rural children. So that, in this study, parental education and gender do influence the attitude differences between urban and rural children ($F = 0.24$. $P 0.59$, $r^2 = 0.062$). There was a significant difference in parental education, i.e. parental education of urban children was better than that of rural children and this is obviously associated with the attitude differences between rural and urban children towards dental health care.

On the other hand, there were no significant differences found in attitudes towards the dental health care between males and females both in urban or rural areas. Therefore, parental education plays a more important role in child attitudes towards dental care than does gender.

However, responses for each of the attitude categories show no significant differences between urban and rural children. Attitudes towards dentists (category 1) seem to be favourable both in rural and urban areas. It should be noted that there may have been a tendency for the subjects to choose favourable responses rather than unfav-

ourable responses because of the local manner and customs in which people tend to give nice/favourable statement responses about others. Some children tended to choose the undecided responses, as it was shown in attitude responses for category 1 (attitudes towards dentists), especially among rural children.

Responses from the two additional items showed that there are 20% of urban children and 45% of rural children who never visited a dentist. This means that they had no contact with a dentist prior to the survey. From this point of view, it might be possible that their responses are biased because in answer to the question "When did you last see a dentist", 28% of urban children and 42% of rural children responded "never seen". Although there is inconsistency in responses to the two additional items (18% of the samples), the proportion of children never having contact with a dentist is still very high.

Elementary schoolchildren both in rural and urban areas tend to have unfavourable attitudes towards dental health (category 2 - tables 22 and 26). Their attitudes towards natural teeth are more favourable than their attitudes towards caries in deciduous teeth. The percentage of item responses to number 7 (natural teeth) is lower than studies conducted in Dunedin (1969), in Owaka (1975) or by Williams (1959). Elementary schoolchildren in Yogya both in the rural and urban samples seem to have limited knowledge and

poor attitudes towards deciduous teeth. This finding is supported by the finding in the writer's preliminary study (Sriyono 1983) that children's dental health knowledge is not satisfactory and they have unfavourable attitudes towards dental health. It seems that those children were less well-informed on most aspects of dental health. It was shown from a study in Yogya (Sriyono 1982 a) that mass media is the main source of information about dental health, and could be inaccurate. Frazier et al (1974) found that 70% of mass media dental health information may be inaccurate or misleading.

From the responses to attitudes towards dental treatment (category 3), it seems that urban children have more favourable attitudes towards dental treatment than rural children. The percentage of those who chose favourable responses to item no. 14 ('buck' teeth) is about the same amount in comparison with those who choose less favourable attitude responses. One of the possible causes is that these children do not understand such treatment (orthodontic treatment), especially in the rural areas. This is in line with the writer's previous study in Yogya (Sriyono 1981) that responses wanting orthodontic treatment were greater in urban than in rural areas. Another possible cause of the differences might be the attitudes towards the aesthetic value of nice-looking teeth, which is better in urban than in rural areas. Even in Germany, only one-third of students do not rate the aesthetic value of teeth highly (WHO-USPHS).

However, further studies should be conducted to clarify the reasons for the wide range in attitudes towards dental treatment of 'buck' teeth.

In contrast to 57% of urban children, 42% of rural children responded that they only need to go to the dentist when they get a toothache. In the writer's preliminary study (Sriyono 1983), the percentage of urban children who would go to the dentist/nurses if they got dental diseases was quite high (74.8%). It would seem from the many favourable responses that those children have favourable attitudes towards dental treatment especially for urban children. But it is seen from the epidemiological data point of view, high need and the low utilisation of the dental service in Community Health Centres (which are not fully utilised), it is obvious that the students' favourable responses do not lead to positive behaviour. In other words, their attitudes are not translated into practice. Moreover, parents' attitudes will influence children's attitudes, and parents with low education (especially in rural areas) do not consider their teeth very important and give dental care a low priority. This group normally diagnose their own state of oral health and find no necessity for professional services and do not use the services provided (Dunning 1979).

The responses to item number 1 (filled teeth) show very favourable attitudes towards having filled teeth but attitudes are not translated into practice. Therefore, this

finding also suggests the need for conducting further studies.

The children's responses to item number 8 (if the students had a toothache, they would prefer to take their own medicine before going to the dentist) show a favourable attitude, both in urban and rural areas (68% and 62% respectively). This finding contrasts with the writer's preliminary study (Sriyono 1983), which found that students in schools had less favourable attitudes in seeking dental care. It is possible that there has been an improvement in students' attitudes since the developments in School Dental Services and the development of PKMD in rural areas and improvements utilisation of the dental services.

In summary, children's attitudes towards dental treatment seem to be favourable enough both in urban and rural areas. But if seen from the oral epidemiological data and the low utilisation of the dental services point of view, it seems that the students' responses are biased. Further studies are suggested to be carried out.

The students' attitudes towards prevention (category 4) was assessed by responses to six statements. Four out of the six statements responses show favourable attitudes towards prevention both in rural and urban areas. The highest favourable percentage for responses is for tooth-brushing. However, the knowledge and the attitude that they hold does not reflect on their practices as 19% of rural children and 15% of urban children never brush their teeth. The

principal reasons given for not toothbrushing were because they "do not have any toothbrush" or "forget to brush their teeth", but the more likely reason is because of their negative attitudes towards prevention, especially among urban children. In contrast to the attitudes towards toothbrushing, children have unsatisfactory knowledge and hold negative attitudes towards gum brushing. In this case, there is doubt as to the significance and appropriateness of the question. The writer could not find reference to gum brushing in any dental health education materials for children or the community in the writer's country. It was suggested that this item be dropped because it might be beyond the students' knowledge, but on item analysis it appeared to be reliable and valid.

Children seem to have good knowledge and hold positive attitudes towards the value of toothpaste, mouthrinsing and disclosing solution in helping to maintain oral health. However, from the percentage of children who never brush their teeth, and the high OHI of children, it seems that children are not putting into practice the knowledge they have acquired. This is in line with the statements of Lamb and Ford (1960), Jordan and Pugnier(1967), that most students failed to put into practice the knowledge they acquired.

Between meals snacks, however, are not rated highly by urban and rural children as causing dental caries. Only 26% of rural children agree that between meals snacks are

dangerous for their teeth, while for urban children the percentage is 44%. The percentage with negative responses to this statement is the same in rural and urban areas (35% and 36% respectively). It is interesting to note that 38% of rural children and 21% of urban children give undecided responses to this statement. These findings contrast with a study by Williams (1959), using the same question, in which 87% of persons gave positive responses, 5% negative responses and only 8% gave undecided responses.

Although the danger of between meals snacks is one of the first priorities in dental health education, the children seem to ignore it. The ready availability of between meals snacks at very cheap prices in the school areas and shops are tempting children to buy. Also, the custom of rural people is not to have breakfast but to eat snacks frequently, might influence the habits and attitudes of the children.

Obviously, there are some attitude differences between urban and rural elementary schoolchildren towards dental health care. Generally, urban children have more favourable attitudes. However, both urban and rural children failed to put into practice the knowledge they had acquired and the attitudes they hold may not lead to positive dental health care behaviour. It might be that these children do not hold strong enough attitudes towards dental health care, and this is in line with a statement of Thomas (1978) that attitude responses may or may not lead to a certain behaviour.

The problem is how to change the attitudes of children so that they are more favourable and strongly held, and will lead towards positive dental health care behaviour. Triandis (1971) said that attitudes can be changed by forcing a person, or by "fait accompli" (which is the most direct and powerful), so that attitude change will become consistent with change in practice. But it is difficult for these methods to be applied in Indonesia, because of the lack of resources.

One of the possible methods is to change the children's cognitive component, for example by giving information which is constantly presented and reasserted, in a way most likely to increase the retention of the information. From this point of view, it seems that dental health education through the curriculum of the schools is a suitable method to be implemented. This is in line with Robinson's (1979) statement that dental health education through the school curriculum will effectively change the attitudes of the school-children.

School Dental Services, on the other hand, play an important role in changing children's attitudes and developing them, as the emphasis of the service is on dental health education. But one School Dental Service in Yogya covers about 14,500 rural elementary schoolchildren and about 9,500 urban elementary schoolchildren. There is a lack of dental personnel which would make implementation in delivery of this service difficult. Moreover, teachers' attitudes seem

to influence this service, as some teachers are not co-operative (Godfrey 1981). Furthermore, the success of this service also depends on the parents' attitudes towards dental health/dental health care. Therefore, it is very important that there be a development of the partnership attitudes between parents, teachers, dental personnel and the children themselves. This partnership attitude can be achieved but it might be in the long term, because of the limited resources.

It is also important that there is development of active community participation in primary health care through PKMD (VCHD). It is one of their tasks to give dental health education to the remote schoolchildren who are not covered by School Dental Services. Hopefully, this system will work successfully as the workers or Kaders are trained volunteers. Evaluation should be carried out for this system and if it is shown to be an effective system it can then be applied throughout Indonesia.

Dental personnel, especially dentists in Yogya, should participate more actively in presenting or providing accurate dental health education material, especially through mass media. At the present time, mass media is the main source of dental health information for elementary schoolchildren. There should be cooperation between the Dental Faculty, the Department of Health, the Department of Education and the Dental Association in Yogya to develop suitable dental health education materials for elementary schoolchildren,

teachers and parents, in order to increase children's dental knowledge and develop more favourable attitudes towards dental health care.

8. CONCLUSIONS

1. There are attitude differences between urban and rural elementary schoolchildren in Yogyakarta towards dental health care. Urban children tend to have more favourable attitudes than rural children. Parental education is one of the most important factors that influence children's attitudes towards dental health care, while gender does not seem to influence the attitudes of the children.
2. Both rural and urban children have favourable attitudes towards dentists, but it seems that they give biased responses as almost 45% of rural children and 20% of urban children have never seen a dentist. Besides, there is a tendency in Indonesia (especially in rural areas) to give favourable responses to other persons (or questionnaires) because it is the custom of the people. Therefore, further studies need to be conducted in the areas of biased responses.
3. Elementary schoolchildren tend to have less dental health knowledge and hold negative attitudes towards dental health, because it is difficult for children (especially in rural areas) to gain accurate information about dental health.

4. Urban children show more favourable attitudes than rural children towards dental treatment. Further studies need to be conducted, because it seems the students' responses are biased if compared to oral epidemiological data and the low utilisation of the dental services which is well within the present resources of the Community Health Centres.
5. Generally, elementary schoolchildren both in rural and urban areas do hold positive attitudes towards prevention. However, students seem to have less knowledge about, and hold negative attitudes towards, brushing of the gums and the danger of between meals snacks. Moreover, there is a tendency that children do not put into practice the satisfactory knowledge they had acquired and the positive attitudes that they hold towards prevention.
6. It seems that favourable attitudes towards dental health care held by elementary schoolchildren of Yogyakarta are not strong enough to lead to positive dental health care behaviour. They do not put into practice the knowledge they have acquired.
7. There are some possible methods which may result in changes in, and the development of, children's attitudes towards dental health care. One of the effective

methods is to change their cognitive component by giving dental health education through the school curriculum, so that information will be constantly presented and reasserted. The development of School Dental Services and active Village Community Health Development in primary health care might contribute to changes in children's attitudes. It is important to develop, as much as possible, the provision of accurate information to mass media by dental personnel, as it is one of the main sources of dental health information. Therefore, dental health education through the curriculum of schools, combined with the development of School Dental Services, Village Community Health Development and accurate information through mass media, might have the most effective results in changing children's attitudes towards positive dental health care.

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APPENDIX 1: ENGLISH TRANSLATIONS OF FORMS

APPENDIX 1.1: SURVEY FORM - ENGLISH TRANSLATION.

ATTENTION!

1. There are 16 items in these pages. Read them carefully. For each item there are 5 possible answers, and you have to choose one only of the 5 possible answers by putting (X) in the appropriate box.
2. If you don't understand, raise your hand.
3. Besides the 16 items, there are 2 additional questions that you also have to answer by giving your answers in the appropriate box with (X).
4. Answer the questions on the answer sheet papers only!
5. When you have finished answering the questions, give them to the supervisors.

Example

No.	Item	Possible answers	
1	Boys are stronger than girls	Strongly agree	1 ☐
		Agree	2 ☐
		Undecided	3 ☐
		Disagree	4 ☐
		Strongly disagree	5 ☐

If you think that you strongly agree with the statement, mark with (X) in the box number 1.

If you think that you are undecided, mark with (X) in the box number 3.

Read the questions carefully, and give your answers in the box required.

Number Items		Possible answer	
1	When you go to the dentist, you should only have the big holes filled, not the little ones	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
2	Caries in deciduous teeth is not very dangerous, because the permanent teeth will replace them	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
3	It is all right if your gums bleed a bit sometimes when you clean your teeth	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
4	Dentists always hurt people	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
5	Between meals snacks are dangerous for your teeth	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
6	Going to the dentist is a waste of money	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
7	Going to the dentist is fun	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5

Number Items		Possible answer	
8	If you had a toothache, you would prefer to take your own medicine before going to a dentist	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
9	Any sort of toothpaste will stop you from getting holes	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
10	Using disclosing solution regularly is important to help you to clean your teeth	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
11	Dentists are very boring people	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
12	Mouth-rinsing is useful in maintaining your oral health	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
13	Dentists always find holes in your teeth, so they can make more money	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
14	Everybody with buck teeth should get braces put on them	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5

Number Items		Possible answer	
15	You should brush your gums with a toothbrush	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5
16	You only need to go to the dentist when you get a toothache	Strongly agree	1
		Agree	2
		Undecided	3
		Disagree	4
		Strongly disagree	5

The two additional questions.

Number Items		Possible answer	
1	How many times have you visited the dentist?	Never	1
		Once	2
		Twice	3
		Three times	4
		Four times or more	5
2	When did you last see a dentist?	Never	1
		Within last week	2
		Within last 6 months	3
		Last year	4
		More than one year ago	5

APPENDIX 1.2: ANSWER SHEET - ENGLISH TRANSLATIONANSWER SHEET

Number of card:

I. Student and Parental (Guardian) data.

Name of student

Age/date of birth

Name of school

District of

Name of Parents/Guardian

Age

Parental (Guardian) education.

1. Never attending school ☐

2. Elementary school until grade of:

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 63. Junior high school and equivalent school
until grade of:☐ 1 ☐ 2 ☐ 34. High school and equivalent school,
until grade of:☐ 1 ☐ 2 ☐ 3

5. Academic, until grade of:

☐ 1 ☐ 2 ☐ 3

6. University/Institute, until grade of:

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

II. Item Sheet Answer.

1. For 16 items

No. of items		Columns of answers				
1	1	2	3	4	5	
2	1	2	3	4	5	
3	1	2	3	4	5	
4	1	2	3	4	5	
5	1	2	3	4	5	
6	1	2	3	4	5	
7	1	2	3	4	5	
8	1	2	3	4	5	
9	1	2	3	4	5	
10	1	2	3	4	5	
11	1	2	3	4	5	
12	1	2	3	4	5	
13	1	2	3	4	5	
14	1	2	3	4	5	
15	1	2	3	4	5	
16	1	2	3	4	5	

2. For 2 additional items.

No. of items		Columns of answers				
1	1	2	3	4	5	
2	1	2	3	4	5	

APPENDIX 1.3: LIST OF ABBREVIATIONS OF ITEMS USED.

No. of items	Abbreviations
1	filled
2	dec. caries
3	tooth brushing
4	hurt
5	snacks
6	waste money
7	natural teeth
8	medicine
9	toothpaste
10	disclosing solution
11	boring
12	mouthrinsing
13	make money
14	buck teeth
15	gums
16	toothache
A1	visited
A2	last seen

APPENDIX 2: ITEMS TESTED BY CATEGORY,
LIKERT SCALE, AND SOURCE

Forty-one items in 4 categories, with the key scores as per Likert scale and the source from which the items were derived.

Category 1: Attitude towards the dentist/dental profession.

Number	Item	Agree — Disagree*					Source**
		SA	A	U	D	SD	
1	Going to the dentist is a waste of money	1	2	3	4	5	Howe
2	Dental services should be free throughout life	1	2	3	4	5	Sriyono
3	Dentists often find holes in your teeth so they can make more money	1	2	3	4	5	Howe
4	Going to the dentist is fun	5	4	3	2	1	Howe
5	Dentists always hurt people	1	2	3	4	5	Howe
6	Dentists like to make your mouth look nicer	5	4	3	2	1	Howe
7	Dentists try to help you keep your teeth all your life	5	4	3	2	1	Howe
8	Dentists always understand you	5	4	3	2	1	Howe
9	Dentists are very boring people	1	2	3	4	5	Howe
10	Dentists always tell you things you want to know about	1	2	3	4	5	Howe
11	Dentists should give you advice about keeping your mouth clean, even though you didn't ask for it	5	4	3	2	1	Modified from Dunedin

Category 2: Attitudes towards dental health.

Number	Item	SA	A	U	D	SD*	Source**
1	It is possible for a person to retain his own natural teeth all his life	5	4	3	2	1	Sriyono
2	It is advisable for a person to try to retain his own natural teeth	5	4	3	2	1	Modified from Dunedin/Owaka
3	Caries in deciduous teeth is not very dangerous, because the permanent teeth will replace them	1	2	3	4	5	Sriyono/Owaka
4	It is worth filling cavities in deciduous teeth	5	4	3	2	1	Sriyono/Owaka
5	Diet has an influence on tooth decay	5	4	3	2	1	Sriyono/Owaka
6	Eating lots of chewing gum can cause you to get holes	1	2	3	4	5	Howe/Owaka
7	It is all right if your gums bleed a bit sometimes if you clean your teeth	1	2	3	4	5	Owaka
8	The harder you brush your teeth, the cleaner they are	1	2	3	4	5	Owaka
9	It is believed that some people are just born with strong teeth	1	2	3	4	5	Modified from Owaka

Category 3: Attitudes towards dental treatment/clinics.

Number	Item	SA	A	U	D	SD*	Source**
1	Children with buck teeth shouldn't worry because they get better as they grow up	1	2	3	4	5	Howe
2	Everybody with buck teeth should get braces put on them	1	2	3	4	5	Howe
3	When you go to the dentist you should only have the big holes filled, not the little ones	1	2	3	4	5	Howe
4	When you go to the dentist you should have all the teeth with big holes in them pulled out	1	2	3	4	5	Howe
5	It is better to have your teeth out when you grow up because false teeth save you a lot of worry	1	2	3	4	5	Howe
6	You only need to go to the dentist when you get a toothache	1	2	3	4	5	Howe
7	You prefer to be treated in your school together with your friend	5	4	3	2	1	Sriyono
8	Dental clinics in Primary Health Centre (Puskesmas) are preferable because they are cheap	5	4	3	2	1	Sriyono
9	Dental clinics in big hospitals is your choice, because the instruments are very complete	5	4	3	2	1	Sriyono
10	If you had a toothache you would prefer to take your own medicine before going to a dentist	1	2	3	4	5	Sriyono

Category 4: Attitudes towards prevention.

Number	Item	SA	A	U	D	SD*	Source
1	Toothbrushing is useful in preventing or reducing dental disease	5	4	3	2	1	Sriyono
2	Brushing your teeth once a day is enough	1	2	3	4	5	Sriyono (modified)
3	You should brush your gums with a toothbrush	5	4	3	2	1	Howe
4	Any toothbrush is good, as long as it is new	5	4	3	2	1	Howe/Sriyono (modified)
5	Any sort of toothpaste will stop you from getting holes	5	4	3	2	1	Howe/Sriyono (modified)
6	Drinking water with fluoride in it helps you not to get holes	5	4	3	2	1	Howe
7	Mouthrinsing is useful in maintaining your oral health	5	4	3	2	1	Sriyono
8	Sticky food causes dental disease	5	4	3	2	1	Sriyono
9	Between meals snacks are dangerous for your dental health	5	4	3	2	1	Sriyono
10	Eating fresh fruit helps reduce oral debris	5	4	3	2	1	Sriyono
11	Using disclosing solution regularly is important to help you to clean your teeth.	5	4	3	2	1	Sriyono

Note:* SA = Strongly agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly disagree

**Source: Sriyono (1983)
Howe (-)
Dunedin - Bamford et al (1969)
Owaka - Bishop et al (1975)

APPENDIX 3: EXAMPLES OF DATA ANALYSIS

Analysis of variance, 1 variable

Comparison of attitude responses between rural and urban areas.

Sample	N	ΣX	$\bar{X}$	SD	Var.
Urban	211	12010	56.92	4.6	21.17
Rural	419	23021	54.94	5.42	29.38

$$F_0 = 0.72$$

$$F_{t \ 5\%} = 1. \quad \begin{array}{l} df \ 210 \\ df \ 418 \end{array}$$

$F_0 < F_{t5\%} \rightarrow H_0$ is accepted — variance homogeneity is high.

Anova 1 (t test)

Source	SS	df	MS	F
Treatment	548.33	1	548.33	20.53
Error	16776.2	628	26.71	

$$t_0 = \sqrt{20.53} = 4.53$$

$$t_{5\%} = 1.645$$

$t_0 > t_{5\%} \rightarrow H_0$ is rejected, $p > 0.05$.

$$r^2 \text{ (coefficient of determination)} = 0.03$$

Analysis of covariance

A_1 = urban

A_2 = rural

B_1 = male

B_2 = female

x = education in years

y = attitudes

Summary of analysis

Source	SS	df	MS	F	P
Treatment	6.02	1	6.02	0.24	0.59
Error	15706.90	627	25.05		
Total	15712.92	628			

$r = 0.249$

r^2 (coefficient of determination) = 0.062

APPENDIX 4

- 1 -

PERHATIAN !

1. Jawablah pernyataan2 dilembar jawaban, bukan dilembar soal !
2. Dibawah ini ada 16 pernyataan, bacalah setiap pernyataan dengan teliti dan hati2. Pada tiap2 pernyataan ada 5(lima) jawaban, tetapi anak2 hanya boleh menjawab satu dari lima jawaban yang tertera ,yang dirasa anak2 paling tepat untuk dijawab, dan berilah tanda silang (X) pada lembar jawaban.
3. Apabila anak2 telah selesai menjawab pernyataan2 semuanya, kumpulkanlah kepada pengawas/ guru yang telah ditunjuk, baik lembar soal maupun lembar jawabannya !

Contoh menjawab pernyataan

No.	Pernyataan.	Jawaban .	
1.	Anak laki2 lebih kuat daripada anak perempuan.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5

Apabila anak2 mempunyai pendapat, bahwa anak2 Sangat setuju kalau Anak laki2 lebih kuat daripada anak perempuan, maka berilah tanda silang (X) pada kolom jawaban nomer 1.

Apabila anak2 mempunyai pendapat, bahwa anak perempuan lebih kuat daripada anak laki2, yang berarti anak2 tidak setuju dengan pernyataan tersebut diatas, maka berilah tanda silang(X) pada kolom jawaban nomor 4.

Apabila anak2 tidak tahu atau tidak dapat menentukan, mana yang lebih kuat, apakah anak laki2 ataukah anak perempuan, maka berilah tanda silang (X) pada kolom jawaban nomer 3.

4. Apabila dalam menjawab pernyataan2, anak2 ingin merubah jawaban yang dipilih, misalaya dari nomer 1 menjadi nomer 5 , maka lingkariilah nomer 5 tersebut.
5. Selain 16 pernyataan tersebut diatas, ada 2 pernyataan tambahan yang juga harus dijawab oleh anak2. Cara menjawabnya, ialah dengan memberi tanda silang(X) pada nomer jawaban yang dipilih. Jawaban hanya ditulis pada lembar jawaban, bukan pada lembar2 pernyataan !
6. Untuk mengisi kolom pendidikan orang tua/wali murid dan pekerjaan orangtua/wali murid berilah tanda silang(X) pada kotak jawaban yang tersedia. Isilah dengan pendidikan dan pekerjaan orangtua/walimurid yang terakhir.

Selamat bekerja.!

- 2 -

Bacalah setiap pernyataan dengan teliti dan hati2, dan berilah-jawaban pernyataan anda, pada kolom yang telah disediakan.

Nomor	Pernyataan.	Jawaban	
1.	Apabila anak2 pergi kedokter gigi, maka hanya lobang gigi (caries) yang besar - saja yang harus ditambal, - sedangkan lobang gigi (caries) yang kecil tidak harus ditambal.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
2.	Lubang gigi (Caries) pada gigi susu tidak sangat berbahaya, karena gigi tetap - akan menggantikan gigi susu tersebut	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
3	Menyikat gigi adalah berguna untuk mencegah atau mengurangi penyakit2 gigi.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
4.	Dokter gigi dalam bekerja - selalu membuat rasa sakit.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
5.	Jajanan diantara waktu makan adalah sangat berbahaya untuk gigi anak2.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
6.	Pergi ke dokter gigi adalah membuang uang dengan sia2.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
7.	Sangat mungkin bagi seseorang untuk mempertahankan gigi2 aslinya selama hidup.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5

-3-

Nomer	Pernyataan	Jawaban	
8.	Apabila anak2 menderita sakit gigi, anak2 memilih minum obat nya sendiri sebelum pergi ke-dokter gigi.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
9.	Setiap jenis pasta gigi, akan-mencegah gigi anak2 untuk mempunyai lubang gigi (caries).	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
10.	Dengan memakai zat pewarna gigi secara teratur, sangat penting untuk menolong anak2 dalam -membersihkan gigi geligi .	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
11.	Dokter gigi adalah seseorang-yang membosankan.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
12.	Kumur2 adalah sangat berguna-untuk mempertahankan kesehatan mulut anak2.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
13.	Dokter gigi sering menemukan -lubang gigi (caries) digigi -geligi anak2, maka dokter gigi dapat mempunyai lebih banyak-uang.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
14.	Tiap orang yang mempunyai gigi gingsul (tak rata), harus memakai "kawat" pada giginya.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5
15.	Anak2 harus menyikat gusinya dengan sikat gigi.	Sangat setuju	1
		Setuju	2
		Tidak tahu	3
		Tidak setuju	4
		Sangat tidak setuju	5

- 4 -

Nomer.	Pernyataan.	Jawaban.
16.	Anak2 hanya pergi ke dokter gigi, apabila sedang sakit gigi.	Sangat setuju 1
		Setuju 2
		Tidak tahu 3
		Tidak setuju 4
		Sangat tidak setuju 5

Tambahan pernyataan.

- | | | |
|-----|---|----------------------------------|
| 17. | Sudah berapa kalikah anak2 mengunjungi/berobat ke dokter gigi? | 1. Tidak pernah |
| | | 2. Sekali |
| | | 3. Dua kali |
| | | 4. Tiga kali |
| | | 5. Lebih dari - tiga kali. |
| 18. | Kapanakah anak2 mengunjungi/dikunjungi dokter gigi untuk pengobatan yang terakhir kali ?. | 1. Tidak pernah |
| | | 2. Dalam seminggu - yang lalu |
| | | 3. Dalam 6 bulan - yang lalu |
| | | 4. Setahun yang lalu |
| | | 5. Lebih dari setahun yang lalu. |

STUDY.

No Kartu :.....

LEMBAR JAWABAN.

I Data2 murid dan orang tua/wali murid.

Nama murid : Nakasi Nur Widyani, G. M.

Umur/Tgl lahir : 17-4-1972..... tempat lahir: Yogyakarta.....

Nama sekolah : SD. Kerpunan IV Kabupaten : Yogyakarta

Nama orang tua/walimurid : Drs. KRT. Widayaningrat

Umur : 50

Pendidikan orang tua/wali murid terakhir :

a). Tidak sekolah: ☐

b) PBH : 11

c). SD , dicapai sampai : kelas: 1 ; 2 ; 3 ; 4 ; 5 ; 6 ;

lulus:

tidak lulus:

d). SLTP dan sederajat, dicapai sampai : klas

1

 ;

2

 ;

3

 ;

lulus: _____

tidak lulus : ☐

e). SLTA dan sederajat, dicapai sampai : klas

1

 ;

2

 ;

3

 ;

ulus :

tidak lulus : ☐

f). Akademi , dicapai sampai : lulus :

tidak lulus:

g). Perguruan tinggi, dicapai sampai: Sarjana : tanat : ☒

tidak tamat: ☐

Pasca Sarjana : lulus : ☐

belum lulus: ☐

No.!	Kolom	Jawaban	No.!	Kolom	Jawaban
1.	1	2 3 ~~4~~ 5	9.	1	2 3 ~~4~~ 5
2.	1	2 3 ~~4~~ 5	10.	1	~~2~~ 3 4 5
3.	1	~~2~~ 3 4 5	11.	1	2 3 ~~4~~ 5
4.	1	2 3 ~~4~~ 5	12.	1	~~2~~ 3 4 5
5.	1	2 3 ~~4~~ 5	13.	1	2 3 ~~4~~ 5
6.	1	2 3 ~~4~~ 5	14.	1	~~2~~ 3 4 5
7.	1	2 3 ~~4~~ 5	15.	1	2 3 ~~4~~ 5
8.	1	~~2~~ 3 4 5	16.	1	~~2~~ 3 4 5

Tambahar jawaban pernyataan:

17. 1 2 3 ~~X~~ 5

18. 1 2 3 ~~4~~ 5

terima kasih.

