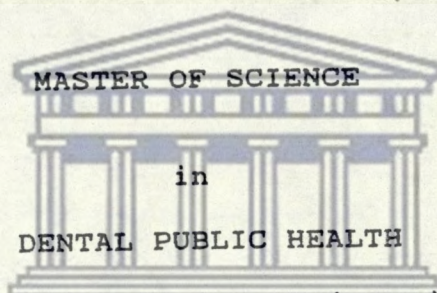


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UNDERSTANDING AND PREDICTING PREVENTIVE HEALTH
BEHAVIOUR IN MOTHERS OF PRESCHOOL CHILDREN

A report submitted as part of the requirements for the degree



in the Faculty of Medicine, University of London.

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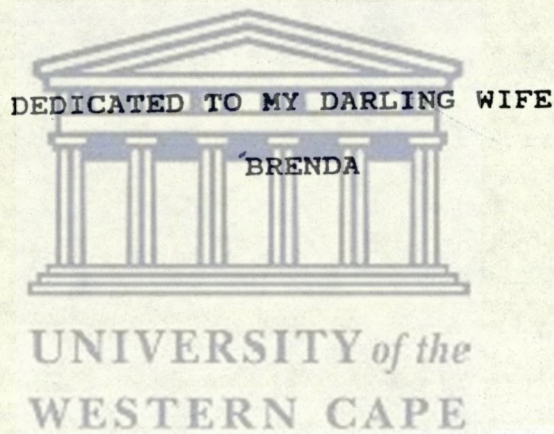
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ABSTRACT

This study was undertaken to examine the preventive dental and medical attendance behaviour of mothers of young children. The 'Theory of Reasoned Action' used to predict intention to visit the dentist and the doctor, failed to account for more than 11% of the variance in dental behaviour and 9% in the variance in medical behaviour in all the subjects. However, on assessing these behaviours for the 2 different age groups, for the younger age group, the prediction improved to 19% for the dental intention in terms of the total attitude and subjective norm score, and to 45% and 34% respectively for the individual attitudes and subjective norms. In the older age group, the prediction improved to 20% for the dental intention in terms of the total attitude and subjective norm score, and to 39% and 30% respectively for the individual attitude and subjective norms. This finding is further supported by factor analysis of the data, whereby using a principal components analysis structure, other patterns to the data were found which indicates that preventive dental and medical behaviour is a complex behavioural category, consisting of more than one action.

Two dimensions of affect accounted for 59% of dental attitudinal data and 57.9% of the dental subjective norm data, whereas three dimensions of affect accounted for 64.5% of the medical attitudinal data and 64.8% of the medical subjective norm data.

The mothers had positive attitudes to both the two dental and three medical actions highlighted by the principal components analysis. The younger mothers showed stronger attitudes associated with the treatment outcome action, whereas the older mothers showed a more positive preventive orientation by the dental data. Although two-thirds of the young mothers received dental advice from the health visitors, they were highly selective on what information to accept and put into effect. An indication here is that health messages including dental health are perceived differently by the 2 age groups even though they are from the same social class group. This finding holds in important implications for the method, approach and content of dental health education.

In terms of the medical data, the three actions highlighted, indicated that while a health directed behaviour, in terms of a healthy outcome e.g. normal growth is important, an expectation as well as a more emotional, love and tender care factor were also implicated. A healthy baby may however not be the only factor of importance to the mother, but also the mechanisms of achieving such a state of health, matters not only in terms of the convenience but also, greatly depend on the love and level of care the mother gives the child. This aspect may even be more accentuated in one parent families, in which especially the young mother is under enormous socio-economic pressure to take up employment, foresaking time she would otherwise have spend with the child.

The effect of subjective norms on preventive health behaviour

shows evidence of a 'inner cicle' or 'kinship' as reference group to the mother, which mediates between and modifies the influence of the health profession in as far as compliance with health care is expected from the mother. It therefore appears that in the lower social classes, there exists an intricate social network, exercising an important effect on the way of life of the mother, and since this network may be one of the few supports she has, its influence will be exerted in various dimensions of the mothers' life including health. There appears to be a hidden pathway or code of conduct, defined by these social norms and to which the mother feels she owes her allegiance. The level of communality between the social networks and preventive dental behaviour should be further investigated.

This study has clearly indicated that some of the dental and medical attitudes and subjective norms under consideration, has a marked independent yet related effect on preventive health behaviour whereas other attitudes and subjective norms acted independently or sometimes not at all.

The dental health educator, must therefore determine for each community and individual which action is the most appropriate target for behavioural change. Furthermore, this study has shown that if beliefs are to be modified, referents to support such a behaviour change, must therefore be appropriate to attaining this objective.

Since preventive medical and dental behaviour consists of various actions, the application of the Azjen and Fishbein model, should be to a specific action of the behaviour, which

assumes importance in the target community, associated with important others.

Baric (20) has emphasised the role of the family as an important influence on attitude and behaviour, while Boothroyd-Brooks (39) has pointed to the contribution of society as important mediators in secular life.

The results from this study would tend to support the views of Suchman(193), Baric(20) and Boothroyd-Brooks(39) that, kinship, family and social norms were important in the development of behaviour but, to sustain such a behaviour, a deeper understanding is required of the social forces operative through the social network, which shapes the mothers' health behaviour into action. be this medical or dental attendance for herself or for that of her children.



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CHAPTER ONE



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INTRODUCTION

The current decline of the two major dental diseases namely dental caries and periodontal disease in most industrialized countries has been ascribed to various reasons. There is little evidence to suggest that the dental profession has been responsible for this change in the pattern of dental disease, yet, the profession is doing their utmost to stimulate and encourage the uptake of dental services in various ways.

It would therefore be appropriate to examine the social-psychological factors which may explain 'why some people attend regularly for preventive and therapeutic care before symptoms appear, while others attend only when they experience pain or discomfort'.(177) The level and type of dental services that are acceptable (101) to the people, as well as the motivational factors which lead to compliance with prescribed dental advice and treatment, can indicate what is of relevance and importance to people,(33) rather than imposing on them norms and values which do not agree with their upbringing and social environment.(59,182)

Dental health studies indicate that the vast majority of populations of the industrialized countries are in urgent need of dental help.(170) From the results of the International Collaborative Study of Manpower Systems in relation to the Oral Health Status (22,52,101) emerges the concept that the

oral health condition seems to be more closely affected by consumer behaviour (183) and beliefs than dental manpower arrangements.(131,59)

Taking into account the startling finding that consumer satisfaction with the condition of the mouth appears to be highly associated with edentulousness,(22,52) it seems likely that a change to more frequent and regular preventive consumer behaviour will be difficult to bring about. However, it has been found that persons with natural teeth are more satisfied with their oral condition than those with partial dentures and that full denture wearers rank lowest in satisfaction.(17)

Dentists regard regular dental examinations, made preferably every six months as mandatory for the maintenance of oral health. There is no evidence to support six-monthly dental check-ups.(178) On the contrary there is evidence to suggest that for persons aged 12-15 years, an interval of 12 months between examinations is more appropriate,(38,177) though for many years, all age groups in the population have been urged to seek regular dental care once every 6 months.

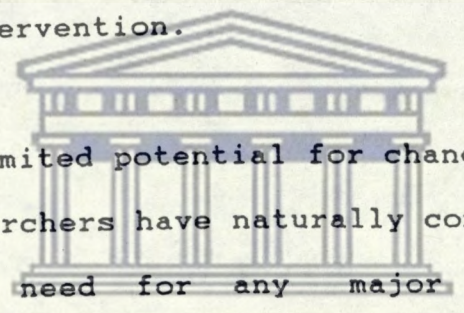
An extreme example of this arrangement can be seen in the Dutch social insurance system where a heavy penalty is imposed on those members of the population who do not submit to half-yearly dental examinations.(170) Assuming that regular dental help is worthwhile (35) it seems necessary to gain a broader insight into the factors which influence either positively or negatively the regularity of dental attendance.

This investigation will deal with the prediction of regular and irregular attenders with respect to social and psychological factors which might be of importance. The literature indicates, that the subjective needs do not correspond to the more objective needs measured, perhaps because people tend to over-estimate the condition of their teeth, (17,42,43,198) or perhaps public and professional definitions of health status and illness differ considerably. (211,131)

Furthermore different groups in a population use similar services for different reasons or given the same dental need they turn to different services. (131) The subjective need does not out of necessity result in actual behaviour, (7,27,28,34,167,182) and consequently, dental pain is an insufficient reason for many to make a dental visit. (32,33,137,158,216) It seems that neither the condition of the teeth (114) nor the number of teeth left (143, 163,171,174,198) despite their importance, account fully for seeking regular dental help.

Numerous approaches namely economic, socio-demographic, geographic, socio-psychological, socio-cultural and organisational have been used to study health behaviour. (131) This present study concentrate on the socio-psychological approach as previous research mainly reported on the demographic account without spelling out the potential impact of attitudes and behaviour patterns. (59)

The reasons for the change in research method is two-fold : the standard demographic account was yielding rapidly diminishing returns in both the theoretical understanding and the potential of policy intervention, thus pointing to socio-structural factors that were relatively stable and unchanging and certainly unresponsive to initiatives for ordinary political dimension, (27,28) and secondly, the wider social and political changes and the consequences of these changes for the position of the dental profession in advanced industrial societies. Much research in the life-style tradition reflects not only the influence of academic social psychology, but also a more or less realistic appraisal of the options for intervention.



Such is the limited potential for change in the dental system that the researchers have naturally considered strategies to bypass the need for any major restructuring of the established delivery systems. An indication of the lengths to which researchers have gone, is on different methods of encouraging low-income parents to seek dental care for their children. (7,17) Instead of considering ways in which the dental care system might be changed (111) in order to achieve higher levels of utilization among the poor and the minority groups in high social groups, attention has been directed at the poor themselves as if some aspect of their personality or value system were at fault. (2,59,131,177)

Against a background of rising public expectations and growing political pressure, the dental profession has been more

involved in advocating public debate and academic research that concentrates on issues of attitude and education to make people more dependent on dentists e.g. adoption of the sick-role (12,83,133) and loss of their autonomy,(98) rather than questioning manpower structure, the organisation and delivery of dental care, (168) alternative payment systems, (42,43,142,168,204) accessibility of services (32,61,65,89,107,148) and having a regular source of dental care. (7,11,79,111,116,168)

People have different belief intentions related to pertinent health related actions (79) and changes in long established patterns engage many motives that include and go beyond health care. Therefore altering one's belief may be sufficient to change actions that are largely motivated by health matters but are insufficient to alter one's behaviour that simultaneously satisfies a variety of motives.

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The Theory of Reasoned Action (5) is based on the assumption that human beings are usually quite rational and make systemic use of information available to them. This theory views a person's intention to perform (or not to perform) a behaviour as the immediate determinant of the action. It can be shown, how the various dimensions of social and psychological factors can be incorporated into the theory to predict and understand dental utilization behaviour.

CHAPTER TWO

DETERMINANTS OF HEALTH BEHAVIOUR

2.1 An Overview of Health Behaviour - the Relationship Between Knowledge, Attitudes and Health Behaviour

2.2 Factors influencing the Relationship between Knowledge, Attitudes and Health Behaviour

2.2.1 Family attitudes and Norms

2.2.2 Peer Groups and Social Norms

2.2.3 Resocialization and Health Education

2.2.4 Place of Residence

2.2.5 Personality Traits

2.1 An Overview of Health Behaviour - The Relationship between Knowledge, Attitudes and Health behaviours.

Health is regarded as a determinant of the quality of life and is strongly dependent upon personal behaviour.(85) Perhaps the most important and difficult problem is how to motivate an individual to follow a prescribed effective oral health care programme throughout life.(74) The weakness of many dental health education programmes is that they are not based on adequate social and educational diagnosis. (180)

Green(84) has shown that an increase in knowledge is not necessarily accompanied by a change in attitude and behaviour. The linear sequence of ; knowledge, attitude, belief, temporary action and habit may create a behavioural change, but this is not permanent. (160) The discrepancy in the knowledge, attitude and behaviour (KAB) model can be illustrated by taking examples from two areas of medicine, namely smoking and breast cancer.

Tandy (196) investigated the effects of programmed instruction on knowledge, attitude and smoking behaviour of 12 year olds. She reported that although knowledge increased, attitude scales showed no difference between those who had or had not received programmed instruction. Similarly, Liddell and Dewar (123) investigated the attitude and behaviour of nurses to cigarette smoking. The nurses were divided into three groups; smokers, nonsmokers and ex-smokers. 50% of the smokers

said they had no intention to stop smoking, while non-smokers stated it was the unpleasantness of the habit which encouraged them to refrain from the habit. All three groups stated with equal preference that the factors which would move them to discontinue smoking, are the health risks and the cost of the habit. It may be that for nurses who smoke, the perceived benefit is a relief from stress and boredom. Hereby is illustrated the socio-psychological aspect of the theory of cognitive dissonance, (69) where nurses having the knowledge of the health risks of the behaviour, uses the pressure of the work environment as justification for smoking.

Christmas et al(49) analysed the screening of breast cancer and found that after two months of intensive public health education, many women used the service initially, but after one year, the attendance was at pre-health campaign level. It would therefore appear necessary to assess the reasons for the failure of the KAB model to facilitate behavioural change. Ewles & Simnett (68) have ascribed the failure to one or more of the following reasons :

- 1) the assumption of the belief that lay people think the expert, for example, the health professional knows best;
- 2) the imposition of middle class values and scientific health facts on people which have little effect on what they do in their lives;
- 3) arousal of guilt feelings in the lower social class groups often leads to non-compliance;
- 4) rebellion by the patient because the social norms imposed on them are incompatible with and unacceptable

to their lifestyle;

- 5) the notion that the individuals are responsible for their ill health behaviour;
- 6) the fallacy that there is a freedom of lifestyle choices available to the individual, not recognising the restriction by :
 - a) social factors - most family members may be smokers
 - b) economic factors - the high cost of wholemeal bread
 - c) health demoting factors - working conditions and stress in inner city areas.(156)

The conception of the role of health education in changing health behaviour is a complex interactive process demonstrating the need for an in-depth understanding of the functioning of the target group, on whom a programme is focused. It is within this context, that the approach to health education should be contained within the community profile and needs of a population, as was suggested by Hubley (97). In this way a change of attitudes and social norms can be achieved. This was successfully demonstrated in the North Karelia study.(157) Similar findings have been reported in the Three Community Study carried out during the Stanford University Heart Disease Prevention programme.(157)

While each individual has their own attitudes and beliefs regarding any specific behaviour, these are strongly influenced by the society in which a person lives. This is aptly demonstrated in a study in a rural part of Nigeria, where Ogionwo (146) disseminated a health education programme with

it's focus on cholera prevention. Two different methods, an individual and a community development approach (97) were employed. The latter approach was more successful in achieving the acceptance of health measures through the technique of persuasion.

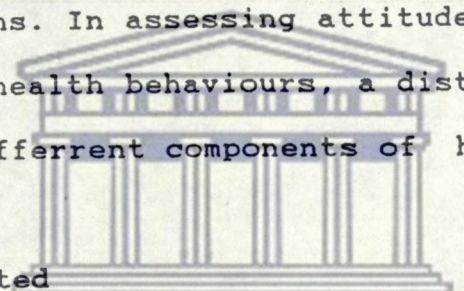
The implication is that people will behave and act in a manner that facilitates the achievement of goals, valued by them and perceived as being achievable, by a change in health behaviour forming the central theme of the programme. The study has successfully demonstrated the importance of social norms, mediated through an increase in knowledge within the context of a community approach and also the reluctance of people to perform a present labelled deviant behaviour which before the programme were totally acceptable in the community. By considering a much longer time span than experimental models allow, it has been shown that human behavioural norms change as the structure of the society changes. (132)

Apart from the process of interaction of knowledge and attitudes in illiciting a behavioural change, health behaviour itself is a multicomponent structure consisting of different types of health behavioural categories, the functions of which are important in the understanding of health behaviour and of which a short discussion will now follow.

2.1.1 Health behaviour

Health behaviour can be regarded as a dynamic concept and may be viewed not only as a sociological concept but also as a psychological phenomenon. It may be defined as any activity undertaken by individuals believing themselves to be healthy for the purpose of preventing disease or detection at an asymptomatic stage. This would include for example visiting the dentist for a routine dental check-up.

Furthermore, health behaviour can be thought of as a composite structure consisting of different and at times related health behavior actions. In assessing attitudes and subjective norms in relation to health behaviours, a distinction should be made between the different components of health behaviour. These are :

- 
- a. Health Directed
 - b. Health Related
 - c. Illness and Sick Role
 - d. At Risk and
 - e. Preventive Health Behaviour.

a. Health Directed Behaviour

In an attempt to understand and explain the determinants of health behaviour, Rosenstock (1966, 1967) Hochbaum (1994) formulated the Health Belief Model (see 3.3.C) to explore the reasons for the difference in uptake of medical and dental preventive services both between similar as well as on an intragroup basis. A person's belief of their vulnerability to illness

could be facilitated by ;

- 1) the psychological state of readiness to take specific action and,
- 2) the extent to which a particular course of action is believed to be beneficial in reducing the threat of illness. The focus of the action taken to promote health is thus influenced not only by the level of knowledge but more important by the underlying emotional elements in the psychological make up of the person.

b. Health Related Behaviour

Behaviours performed, for example, to look dentally acceptable, physically attractive or to increase self esteem, are health related and may have health consequences which are of lesser importance to the persons performing them, as the behaviour is often not specifically performed for health reasons. Teenagers may be brushing their teeth to enhance good breath odour and similiarly doing exercises could be for fun instead of losing weight. This form of behaviour has been described by Baric (20) as being influenced by socialization (see 3.4.A.) and social norms.(see 2.2.2)

c. Illness and Sick Role Behaviour

Kasl and Cobb (103) identified three categories of health directed behaviour. 'Illness' and 'Sick Role' behaviour both relate to the determination of a state of ill health and the measures undertaken to get well again and the third category is 'Health behaviour'(see 2.1.1.)

The concept of 'illness' behaviour has been described by Mechanic, (1933) who states that people suffer illnesses, whereas doctors diagnose diseases. However illness behaviour is difficult to understand as people may suffer symptoms and not seek medical advice or on presenting themselves for care may wrongly and/or willfully, to avoid being victim blamed or in their ignorance, complain of physical symptoms when actually they may be suffering from depression of a psychosomatic condition. Predictors of this type of behaviour are : lay referral systems (sec.3.5.D.iii.), social networks (sec 3.4.D.), social class, ethnicity (sec.3.2.B.iii.) and gender (sec 3.2.B.ii.). It follows that in 'illness behaviour,' a person copes with the disability, whereas a person taking on the 'sick role' is afforded a special status in society, associated with a set of rights and obligations.(Fig.1) The main characteristic of the latter is that an individual is not held responsible for his incapacity, which is usually limited of duration. (Fig.2)

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Fig.1 The Relationship between Illness Behaviours and the Right and Obligations of the Individual

	Rights	Obligations
Sick Role	yes	yes, but fewer than if at risk
Chronic Ill	yes	yes, but than fewer if at risk
At Risk	Very Few	mostly

d. At Risk Behaviour

Since everybody is at risk from something, at some time or

other, the medical care system promoting effective prevention formalizes an 'at risk' role (18) for that part of the population who are at higher than average risk from a health threat. The aetiology may be due to age, gender, occupation or personal habits. However the individual is held responsible for the risk incurred, has few rights and mostly obligations (e.g. changing habits) and the role is long lasting. (see Fig.1 & 2)

Fig.2 The Relationship between the duration of different illness behaviours and personal responsibility

	Person Responsible	Duration
Sick Role	No	Short
Chronic Ill	No	Short
At Risk	Yes	Long Lasting

e. Preventive Health Behaviour

Preventive health behaviour encompass the activities performed by a healthy individual with the objective of maintaining this state of health. The importance of health and the perceived health status of the individual forms a conceptual framework of reference to health and may differ culturally as well as being influenced by the individuals past health experience and the contemporary health environment. Antonovsky & Katz(10) has described the theory of preventive health behaviour as consisting of an interrelationship of the contribution of three variables which are :

1. Predisposing motivation, can be regarded as the dynamic

axis of this behaviour, being viewed as goal directed, related to the advancement of health, affording the approval of significant others, for example, smoking behaviour, and the achievement of self approval ;

2. Blockage variables, may aid or prevent the individual from taking health action in two ways :

a. it may occur internally, for example, through lack of knowledge, fear or anxiety or

b. externally as a perceived lack of available resources as described in the North Karelia project (157)

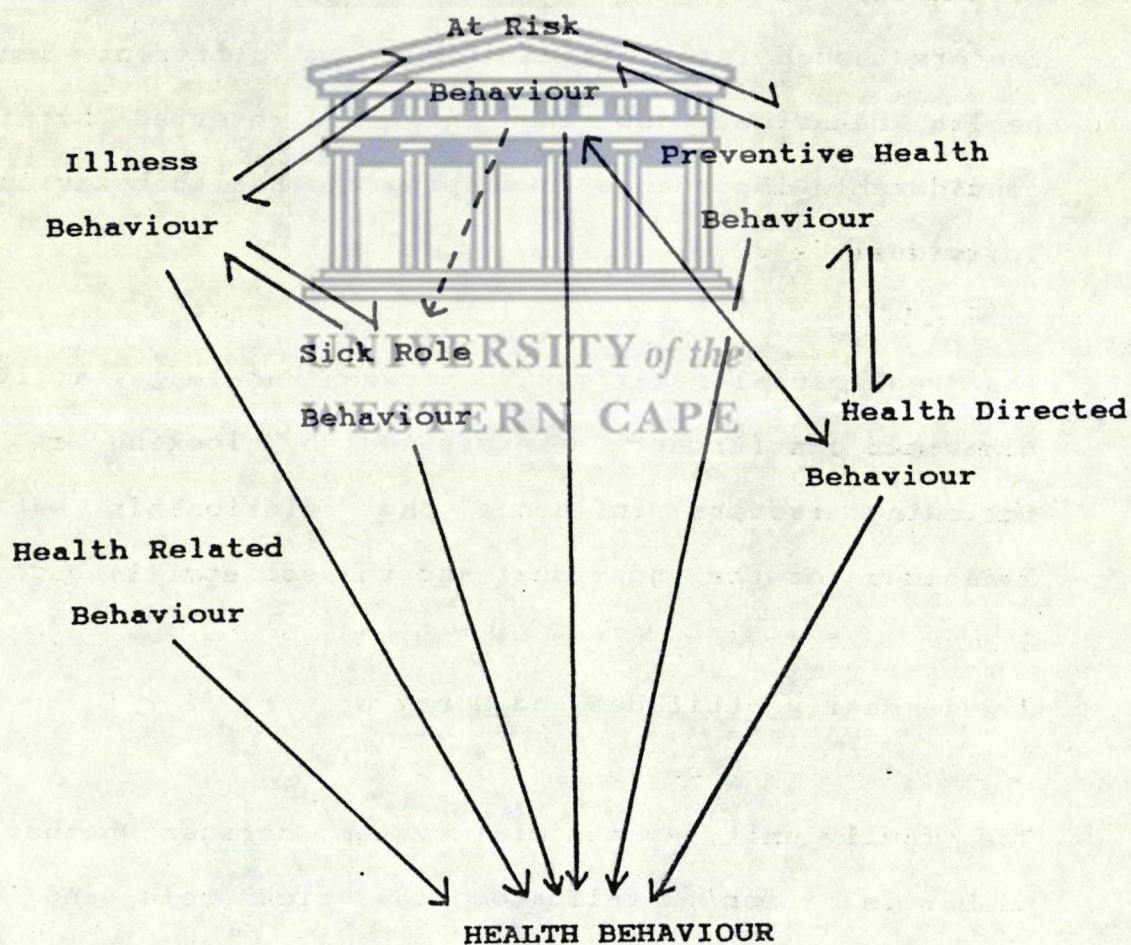
3. Conditioning variables, which includes the psychosocial factors, for example, socio-economic structure, educational level attained, may modify both the motivating and blockage variables. It is therefore evident that a behavioural change may not only require new knowledge or experience, but also any former held attitudes and beliefs about that action have to be modified.

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The social intervention aspect of preventive health behaviour formally described by Baric (18) in relation to smoking behaviour portrays institutionalized social behaviour as having a directive influence on health behaviour. He states that health and illness present a part of 'everyday life' experiences, which is intergrated into the social sphere of the environment of the individual. Important though is that the various manifestations of health behaviour, including the preventive aspect, within this conceptual background is accepted as part of everyday life and is not highlighted as special entities or occurences. A diagramatical presentation

of the relationship of the various types of health behaviours is shown in Fig.3.

Fig.3 An illustration of the interrelationship between the various health behaviours.



2.2 Factors influencing the relationship between knowledge, attitudes and behaviour.

The factors which influence the relationship between knowledge, attitudes and behaviour, have different potential strengths in the development of the attitude and behaviour of the individual.

The response of the individual to societal demands and restraints imposed by the immediate family, friends, kinship or society are most likely to be the strongest, and fall in line with group norms, characteristic of the environment. These factors though interrelated, focus on different aspects of health behaviour and the influence exerted by it, have considerable importance in shaping the health behaviour of the individual.

The weak causal relationship between knowledge, attitudes and behaviour can further be explained by looking at how the following factors influence the relationship between the behaviour of the individual and the society (s)he comes from.

2.2.1 Family attitudes and Norms

The family unit, as a social system, defines whether or not a member is 'sick', validates the sick role and is often instrumental in directing the members behaviour, which may or may not lead to contact with the health care system. (83,126)
The general value system of a society is relevant to the

health attitudes held by families and individuals.(182)

One quality that is of particular relevance to health attitudes is its salience to the family. This feature is of particular importance in the area of preventive health, because of the general absence of overt symptoms and the presumed need for taking action before signs and symptoms of a condition appear. (182) An example of a health area which seems to have low perceived salience to major segments of a population especially with low income groups is the preventive aspect of dental health.

There has been a growing awareness in the medical and dental profession of the importance of rendering treatment in a holistic sense of well being, not only focusing on the individual, but giving due consideration to the broader social context of the family, peer, ethnic and community group, to which the individual belongs.

The practices, beliefs, norms and values surrounding health are a function of the family and culture tradition in which the individual is socialized. Consequently, the first and of the strongest influences on the attitudes and beliefs of an individual is the immediate family of a person.

Primary Socialization - can be defined as the emotional identification of children with the values, attitudes and behaviours of the parents, especially the mother.(201) The method of transfer includes role modelling and a system of

reward and punishment. Gorton (83)etal describes a similiarity between family members in their reported levels of symptoms and doctor's visits showing evidence for a strong father-child similiarity and states that notwithstanding the father's ultimate authorative role, he may at the same time be engaged in expressing a nurturant and rewarding response to the child.

Different intrafamilial patterns of behavioural norms exert a characteristic influence on the child. The father may have a important role in the socialization process which up to now have been either disregarded or underestimated. Consequently, although the mother may be the most infuential in family health practices, the father will also have a role to play.

Kriesberg and Treiman (114,115) illustrated this concept in preventive dental visits, where teenagers, whose parents go preventively, follow the same trend demonstrating that preventive health behaviour, is a specific pattern which is learnt by precept and example.

In a different dimension of family life, Tessler (197) describes the importance of the birth order of the child and the influence exerted on the attitudes of the family, towards the use of preventive physician services. This finding is supported by that of Schacter, (176) who showed that great concern is expressed over the first child, but less so with the later children. This clearly has an effect on the internalization of the child's attitude towards health and frequently results in a heightened sense of vulnerability to

illness for the eldest child and results in a strong propensity to complain about pain. Health behaviours developed at this time will be regarded as the social norm (i.e. social expectations which have become incorporated into general behaviour and lifestyle), and are performed without conscious effort or decision. Bathing or keeping nails short will be health related but the child may also learn health directed behaviours through this process, e.g. visiting the dentist every six months.

In a study where 72 families were interviewed, Rayner (159) found that the dental health practices of mothers were one of the most important influential factors in the determination of the child's attitudes and practices and Jenny et al (101) have shown that the family and community are more powerful and persuasive in their influence on the individual than is recognised especially in preventive programmes.

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A study by Blaikie, (33) supported by the findings of Kegeles, (107) show that while most people believe that teeth and dental health are important, this attitude is not translated into successful dental health behaviour, because the programmes are not compatible with their lifestyle. The structure of the family, whether it is a married couple, single parents, divorced or having adopted children exert different directive influences on children, even though from similar social backgrounds (81) and this was further illustrated by Lennon & Fieldhouse (120) in the description of the emotional attachment to certain foods, the outcome of

which may result in a reward, or punishment behaviour.

Baric (20) has shown within a three generation family study how the transformation of health norms (norms are informal shared experiences that the society imposes on individuals and which are accepted by the immediate community) included in the health knowledge of one generation and if shared by the majority of individuals becomes part of the norms of the next generation. The importance of the crucial role of the family is highlighted in this transmission.

Evidence from a Scottish study by Blaxter and Paterson, (34) shows that while the first generation mothers appear to be very fatalistic i.e. putting the blame for their health or social condition to factors external and beyond their control, this was not so for the second generation mothers in the same family.

Findings from the study of Pill and Stott (153) study demonstrated that not all people in lower social class families are fatalistic although in the Blaxter and Paterson study (34) certain illnesses were accepted as the norm, e.g. chest infections.

Extending this pattern of thinking to dental health, Legler et al (119) have shown in their study that although the sample was predominantly from the low income group, 72% exhibited a future orientation and presented voluntarily for dental care. The implication is that the notion that all lower social class

persons are fatalistic in their outlook should be questioned. Kegeles, (104,105) Metz, (136) Kriesberg, (114,115) and Ramirez (161) have shown that parents who are preventively orientated exert a major influence on the preventive visiting potential of their children. The maternal influence appears to be the stronger of the two, acting directly whereas the father's influence is effected more indirectly.

However, the family is but one of the factors which has an influence on health behaviour. Peer groups and other role models exert less emotional and equally important influences on health behaviour.



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2.2.2. Peer Groups and Social Norms

Social group conformity has an important influence on habits and practices. Furthermore almost as important as group membership itself, is the reference group and its function as an influence on attitudes and behaviour, should not be overlooked.

On entering the schooling career, the child enters into a much broader environment, than the home could offer, with new experiences being acquired in the absence of the mother. In this way, informal peer groups, kinship groups and formal organisations can act indirectly by producing and modifying attitudes. (60)

Secondary Socialization - is described by Baric (20) and Tones (201) as a more formal process, occurring notably outside the home environment in the absence of the family. Children learn by example long before the cognitive process takes place, and although the influence of parents does not cease, they will copy, in addition, the actions of their peers and other important adults to whom they are exposed. During this process of secondary socialization, the effect of role model is reinforced by the desire for recognition, or a wish to be accepted as one of the group. (60)

Research in this field by Sunseri et al (194) have shown that the role of the peer group, becomes increasingly important as

the adolescent changes from being dependent on the parents, to being dependent on friends. This is further illustrated by the effect of values and behaviours learnt from television, which, if not reconciled with learnt at home, may result in a conflict situation. Within this context, the transferring of knowledge and behaviours acquired at school, would only be successful, if it can be taken up within the home environment.

In terms of acquiring new behaviours, McKinlay (131) states that behaviour are often the result of a conflict among motives, together with indecision on what action to take. Where motives are themselves in conflict, and compete for attention, those that have the highest salience for the individual will be aroused. Consequently, with increasing age and more independence, values outside that of the immediate family, begins to have greater influence.

Anticipatory Socialization - Mothers of young children are usually concerned with establishing instead of changing routines. So, by its very nature, this group identifies themselves as mothers modelling their behaviour in accordance to societal norms of motherhood. (36,201) The process of anticipatory socialization is not only observed in mothers. It could also be seen with children, adapting to the norms of the peer group in order to obtain entry qualifications and group acceptance.

Blaikie (33) has aptly described how the attitudes, behaviours and expectations of health of lower socio-economic

groups are a function of cultural definition. In this context, what may be defined as a symptom to the middle class, may be regarded as a norm to the lower socio-economic groups. Blaxter and Paterson (34) has described how within the context of the influence of peer and reference groups, disease is defined in terms of the incapacity or inability to continue with daily activities e.g. employment.

Knowledge and understanding of the existent peer group norms as well as the influence it exerts on attitudes and behaviours, are essential for the success of a preventive dental programme. Instead of viewing a person in social isolation, a better approach would be to see them in the context of the social environment from which they come.

Kinship - Douglas (60) suggested 'kinship' as another significant source of social norms. This is supported by the work of McKinlay, who stated that together with the family and friendship networks, kinship influences the manner in which individuals define and act upon symptoms and life crises. It followed that individuals who found difficulty in accepting health messages, were resistant to change in their health behaviour. Such individuals were characterised as coming from a patriarchal society with a higher level of 'friendship solidarity' as well as some scepticism towards medical care. It is therefore possible, that by the acceptance of the attributes of the admired reference group, membership of the group may follow, as well as the gradual change of social norms within that society.

2.2.3. Health Education and Resocialization

The health career concept is a way by which the process of socialization creates, moulds and consolidates individuals health beliefs, values and behaviour. (20,201) Schooling, itself imposes a set of rules, and has direct consequences on the behaviour of the child. However, such an environment can be used to encourage social control, providing a platform for formal health education.

Problems arise when formal health education is rigidly compartmentalized. The health education may then not appear to the pupil as being of relevance, because a conflict may arise between values portrayed at home, resulting in a culture clash. (201) This situation may be overcome, by involving parents in school health education projects, which could indirectly, encourage the change family norms. It is important, that due regard be given to the values of disadvantaged groups. This would stimulate the participation of such groups, if they can see the relevance of a programme to their well being and would at the same time stimulate the promotion of health among its members.

In a wider context, Baric (19) states that a learnt, health directed behaviour of one generation is modified and passed on, so that by the third generation it becomes a routine behaviour, requiring no conscious decision to perform i.e. a social norm. McKeown (132) has described this process and related it to the development of sanitation, cleanliness and improved nutrition, giving rise to a decrease in the incidence

of infective disease in the western world during the nineteenth century. This process of resocialization, shows how what was once a fashionable behaviour becomes unfashionable and is best illustrated by anti-smoking campaigns, which within a more favourable changed social climate has put pressure on the individual to change accordingly.

Attempts to enforce resocialization through the adoption of a healthier behaviour, meets with limited success as some individuals and groups in society adapt to new rules in faster than others and consequently have different health careers from others. (201).

Blinkhorn (35) has illustrated that among young people, a strategy of promotion of attractiveness and body grooming to improve appearance, are more important than advising regular preventive dental visits and supports the findings of Anderson's study in which only 25% of those changing their behaviour are reported to have done so for health reasons. Hereby the non-health directed aspects of many behaviors of interest to health educators should not be overlooked.

2.2.4. Place of Residence

O'Mullane and Robinson (149) have shown that people staying in socially mixed areas tends to have better access and therefore have a more positive attitude to dental care, than those from a homogenous social area. Individuals from lower socio-economic groups, are apparently at a greater disadvantage, if they live in a predominantly working class area than those who live in more socially mixed area. (200) Indirectly, this has may have an effect on the attitudes and behaviour, as there would be a tendency for the better off persons to act as a role model to others and thereby, stimulate an environment of increasing health awareness.

In a study conducted in a socially deprived borough of London, Burt (44) has shown, that people hold different attitudes to those held traditionally by the middle class. The respondents regarded preventive dental attendance as a 'middle class' phenomenon. This behaviour is further explained by Blaikie.(33) He states that desirable dental habits and attitudes are inconsistent with the cultural values of the some lower socio-economic groups.

The urban/rural differences associated with place of residence is further illustrated in the results of the Adult Dental Health Survey (198). Not only is there a difference in the dental attitudes on a North/South geographical basis but also between city/innercity areas. In developing countries this is even further accentuated with most health care facilities

based in the metropolitan areas.

The provision of health care and the subjective experience of seeking that care, are all partly determined by the socio-economic structure of society, as well as on an area basis. The availability of good medical care tends to vary inversely with the need of the population served. (205) Skrimshire (186) notes that the level and quality of available medical manpower relative to need and demand is likely to be strongly affected by the environment and social class composition of the area.

This marked difference in the availability and type of health services in well to do and poor areas, are further entrenched by the discouraging attitudes of health staff to patients from poor areas. In terms of length of time of consultations, Cartwright, Lucas and O'Brien (47) have shown that these rates differ for people from different social backgrounds. The average middle class consultation rates were 6.6 minutes compared to 4.7 minutes for working class patients.

The inclination of communities that experience poverty and low status, in terms of the 'culture of poverty thesis', tends to develop, within their situation, a culture, characterized by a sense of powerlessness, passivity and fatalism. (165) Low levels of health becomes acceptable and the mistrust of modern medicine follows which is completely incompatible with a future oriented, preventive health view. Caution should be exercised, as this inference may be dangerous, since it tends

to invoke the 'all to often' explanation, that greater differences in preventive services are due to fundamental cultural differences. There is thus an ever present risk of creating an over-simplified stereotype to explain the differences.

The Blaxter/Paterson (34) and Pill/Stott studies (153,154) have shown important intra-class differences in beliefs and attitudes and have demonstrated that home ownership, as opposed to council tenancy, tends to be associated with an internal locus of control as opposed to a attitude of fatalism.

Socio-linguistic differences and 'social distance' (in terms of communication) between people coming from different areas of residence, are still very prevalent (92) and seemingly more important here is the response and attitude of the health professional to the health requirements of different communities. Apart from the attitudes of people from different areas of residence, the influence of individual personaltiy traits will be discussed in the following section.

2.2.5. Personality Traits

In an attempt to motivate and influence people to behave preventively, it is important to understand why people take preventive dental actions as few attitude studies explain why this behaviour occurs.

In a sample of 1000 subjects Williams(213) investigated dental practices in relation to personal characteristics which is more basic to beliefs. The variables under consideration were: locus of control; future time orientation, impulsivity; order and harm avoidance. He found that different variables were associated with toothbrushing as compared to regular dental attendance. This study clearly shows the complexity of the understanding of personal behaviours and care should be exercised in drawing general conclusions.

Personality is the result of psychological and emotional development. While certain traits such as psychosomatic disorders and delinquency have shown to contain an element of genetic input, the important factor in the development of most personalities is a social and environment interaction. (169) The inner self is a very individual perception but there are broad trends which can be identified e.g. locus of control and time preference have a marked influence on health behaviour.

Locus of control can be conceived as a continuum from a person with a high internal locus of control, having self control over their lives, to one of fatalism with a high external

locus of control. A person exhibiting the latter trait, often believes that the outcome of health, are based on chance, regards dental decay and tooth loss as a normal part of everyday life, rather than something that could be avoided.(117) The medical profession is also seen as a source of cure, rather than prevention. In contrast, internal locus of control, is shown to be associated with a belief in the efficiency of doctors, often holding the same middle class views as that of the profession and accepts medical activities and demands without question.

A study by Wurtele, (216) showed that where behaviours are performed in the absence of a health threat, the value an individual attaches to a healthy life, may be even more important in predicting behaviour than their beliefs about locus of control. A future oriented person will defer gratification for an action performed 'today', (36) whereas a present oriented person require immediate benefit if the action is to be seen as worthwhile.(175)

Suchman (192) combined the concepts of locus of control and time preference in his description of persons as being either parochial or cosmopolitan - the former being present oriented, with a high external locus of control. They tend to take a popular or traditional view over health matters and have a close interaction with their family and friends. In contrast, the cosmopolitan person are future oriented, have a high internal locus of control and often come from the same social background as people in the health profession. However most

people can be expected to lie somewhere inbetween these boundaries. These concepts are important to an understanding of health behaviour and how it affects the planning of dental health programmes for a community.

Conclusion

It is apparent that careful thought is required when using concepts of family attitudes, peer and social norms in the psychological perspective of attitudes and behaviours held by people. These concepts draw attention to complex array of social, economic and cultural differences in society. There are as many dangers in perpetuating simplistic social stereotypes, as in neglecting the importance of social differences in behaviour. The variety of alternative processes which may link the social position of individuals needs to be recognized, as well as how they respond to prevention and illness.

It is within this context that further attention is devoted on the determinants of preventive dental attendance behaviour in the following chapter.

CHAPTER THREE

DETERMINANTS OF DENTAL ATTENDANCE BEHAVIOUR

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3.1 INTRODUCTION

The factors which determine whether a person either regularly or irregularly seeks dental attendance are thought to be manifold and of a multivariate nature. The decision to visit the dentist is brought about in a complex way. The literature does not reveal many comprehensive reviews which include all these factors, though there are some which deal with variables such as financing, anxiety fear, perceptions, awareness of needs of dental treatment, experiences, availability and the accessibility of dentists. (9,79,131,198)

In the present review a selection of the literature is presented, with special emphasis on the social and psychological factors known to be important in predicting an individual's ability to accept and comply with dental care.

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3.2 Dental Attendance

The frequency of dental examinations should be related to an individual's susceptibility of dental caries, the life history of the disease, and the level of disease, that is, its prevalence and severity. In view of the findings of Adult Dental Health Survey (198), it seems that 6 monthly check-ups have engendered a false security in restorative dental care, with people having to return ever so often for the replacement of restorations. The findings (198) show that while only 43% of the population in the UK attend the dentist

regularly, the same percentage of people attend for trouble with their teeth and although 43% said they go more often because of increased dental awareness, 37% attended more often because of trouble with their teeth. It would be more appropriate for dentists to concentrate on dental health promotion (57) in the context of general health promotion, instead of treatment of disease by the engineering approach to the body, so that people will develop an appreciation for prevention and thereby strengthen the role of the dental personnel as facilitators of health, instead of generating dependency on the dentist.(98)

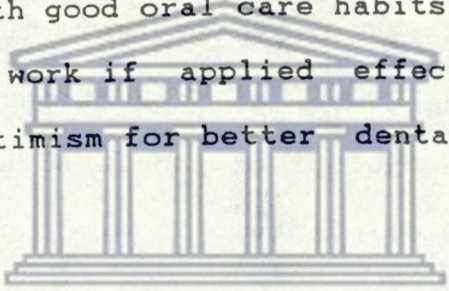
There are several categories of dental patients who have different dental visit patterns, with frequency and regularity of dental visits based on different needs.

- 1) dental visit once a year or half yearly check-ups (38, 58, 177, 178, 198)
- 2) symptomatic dental visits - e.g. irregular attender with painful tooth or emergency (179)
- 3) a visit as part of medical examination for an insurance policy (171, 173)
- 4) as recall appointment during the completion of treatment plan (48)
- 5) ordinary examination or referral.

The dental profession promotes the idea of 6 monthly visits, even though dentists are not in agreement on what constitute dental decay or have a firm diagnosis for periodontal disease. From within the profession calls have been made to lengthen

the re-call period, (178) as not only may patients be subjected to unnecessary over treatment (54) but prevention could be undermined, as it is not given a chance to work and added to this, is the high failure rate of dental restorations. 52% of the dental budget in the UK in 1981 was spent on restorative dentistry, of which more than half was spent on the replacement of restorations.

This is an important factor, because it is expected of patients to accept and comply with this type of treatment which has shown itself to be ineffective and inappropriate. (54,178) A study of the oral status of dentists children has shown that with good oral care habits and an appropriate diet, prevention can work if applied effectively and this gives reason for optimism for better dental health in populations. (3)



3.2.A. Needs versus Demands

A need for preventive, curative or rehabilitative dental measures exists when an individual has a disease or disability for which there is an effective and acceptable treatment. (177) Normative need for dental treatment (77) as expressed by the dental profession is often contrary to what the patient's definition of need.

The difference becomes greater when the person is from a different and lower social class than the dentist. In this case, the norms and the values of the person is quite

different to that of the practitioner. Behaviour, being determined by the environment from which the person comes, from including the familial definitions of illness. What may be regarded as a treatment need by a middle class person, may be taken as a norm by a lower social class person. (198) The health being perceived initially as a result of being able to continue work, (198) as well as previous experience, mechanisms to tolerate, ignore or even self-medicate the condition (217) may be adopted by a person.

The demand for dental care seems to increase. (74,80,198) It appears from national surveys that more and more people are visiting the dentist. (25,162,198) This realization may be deduced from the number of extractions per person (79) and the decrease in the number of people with no teeth e.g. in the UK the proportion of edentulous dropped from 37% (1968) to 29% (1978). (198)

In the WHO/USPHS International Collaborative Study (ICS) it was shown that the perceived need (22,79,101) and the user type were the most important predictors of utilization of dental services. (52) The literature indicates that most people in lower income groups, regard dental treatment as a luxury (33,34,193) rather than as a necessity. This may account for the delay in seeking dental care. (9,10,24,34,65,101,114,193) It is doubtful if people would go eventually because they perceive their health to be very favourable.

There exists a distinct discrepancy between what the public knows about dental behaviour and what people practice. The results of investigations show that the demand for dental care involves a varying part of the population. In the USA the proportion of the population who are regular attenders are 20-60% (9), UK 43% (198), Denmark 58% (174), and Sweden 42% (17).

Among the numerous factors which are determinants of regular dental attendance, Andersen and Newman (9) have identified one such determinant as a regular source of dental care, which they describe as an enabling factor, having an important effect on the way the family and the community approaches the uptake of dental services. (7,101,116,168) This factor will thus ensure a regular and continuity in the services available to the public.

There is generally a discrepancy between need defined by professionals and the expressed need by the people which is translated into attendance for care or information. The need of a population for dental services, requires knowledge of the state of their health, the existence of well defined standards of good health and a knowledge of what contemporary dentistry can do to improve ill health. However there is no consensus among dentists on what constitutes good dental health and which and which methods are most effective in achieving that state. Neither is there consensus on what constitutes the need for treatment. (177,192)

It could therefore be considered more useful if within the environment where people live, changes are made to improve dental health, so as to make it easier for healthier choices to be made i.e. the promotion of health which in itself will improve dental health e.g. sugar policy to decrease the intake of sugar by 50% in the UK or to make the structure of the dental services more preventive oriented. Cowell and Sheiham proposed a table of preventativeness (57) in which, in order of rank, environmental changes are most important. The use of dental services are ranked at stage two and is regarded as one of the components of behavioural change where the compliance (27,28) of the person is vital and the preventive dental health behaviour is easier, if performed in the context of general health.

3.2.B. Socio-demographic factors

The utilization of dental services are known to be related to age, gender, ethnicity and socio-economic status. People who are more likely to utilize dental services regularly are between the ages of 5 and 24 years, female, have a college or university education, are employed as a professional, are in a higher income group and live in urban areas.

3.2..B.i. Age

Age have been used as an explanatory variable in a large number of studies. (131,217) Results of studies that consider all age groups have typically reported utilization patterns in

an inverted U-shaped curve, with the very young adults having the highest use of services and a moderate decline in the use observed in middle age. (9,41,42,121,151,174,193) The height of the inverted U is at an early age.

Some of the age-related associations may be as a direct result of oral disease levels, the presence of teeth or previous experience with dentists. It would appear from the studies that people go to the dentist mostly during those years when there is the highest need of restorative rather than preventive care.

The young adult population is exposed to considerable health education and is likely to have had most if not all of their natural teeth whereas in the elderly utilization is low (198) because of edentulousness which may result in low felt need for dental care. (163,187) The relative number of female patients visiting a dentist declines slower with advancing age, compared with men. (32) Furthermore, delay in seeking medical care increases with age. Battistella (24) and Barenthin (17) found that the uptake of medical and dental care are greatest in the young age groups. The association between age and treatment seeking might differ from that between age and seeking preventive help, probably reflecting the effect of obtaining objective dental need. (166)

3.2.B.ii. Gender

Females tend to utilize dental services more than males

(61,89,158,174) but in some age groups and at certain education levels, the rate for females and males are similar. (177) It is conceivable that females are entering the labour force in proportions more like males, and the acquisition of values more similar to each other may account for the convergence of male/female dental care utilization patterns in recent years. (79) Women become edentulous at an earlier age than men. (25,143) The reason for the sex link, may be that males as a group have a lower threshold to perception of need of dental treatment. (78) It may also be that the satisfaction of males and females are derived from differing values held by either sex. Kegeles (106) noted that attaching a higher value to conservative appearance may make women more willing to accept the discomfort and to conquer the dislike for dental treatment.

3.2.B.iii. Race and Ethnicity

The most consistent finding regarding race/ethnicity is that a larger proportion of whites than non-whites use dental services. This finding may be somewhat clouded in certain studies, and depend on how persons either caucasian or black were classified. Nevertheless differences do exist with respect to regularity of dental attendance, the type of treatment received, (79) the purpose of the visit as well as the of available services. However Okada and Sparer (147) have shown comparable dental utilization rates for whites and blacks in North East USA.

3.2.B.iv. Education

The utilization rate of dental services, increases with the level of education. Furthermore, the level of education of the head of the household is an important predictor of how frequently family members will utilize dental services. (177) However, caution need to be excised, since it does not measure all types of education or experience for all the individuals in the family, neither their years of formal education. (79) There is evidence to suggest that once people enter into the system of receiving preventive dental care, the education and income differential disappears. (79,116) So far, we have gained partly insight into who are most likely to use dental services. The following section will deal with how and why people use/don't use dental services and how this relates to compliance, satisfaction and acceptance of preventive dental care as predictor variables in the social/psychological framework.

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3.3. Psychological determinants

3.3.A. Perception

Perception, motivation and learning are three interrelated and interdependent sociological explanations which have been proposed to explain some of the variation in the utilization of dental services. (177) Perception can be described as man's behaviour in accordance with the way in which he sees the world (131) and linked to this are two levels of measurement in the presence of dental symptoms (79) :

- 1) those which are clinically observed and measured ;
- 2) and those which are perceived and self reported.

Perceptions, especially those related to particularly negative attitudes and beliefs, affect people's responses to illness and utilization of health services. Factors such as fear, the belief in the inevitability of tooth loss, beliefs about the benefits and barriers all serve as deterrents to obtaining dental care.(177) Perception influences the regularity of preventive dental care, expectations as well as beliefs and may possibly also be affected by dental and possibly medical expenses, subjective assessment of the oral condition, attitude, personality traits, social environment and cultural factors.

3.3.A.i. Perception of dental treatment

Perception, suggested to be a learned process, is neither direct nor accurate, but selective and purposeful. (113) Perceived symptoms, constitute a major determinant of self-care or provider based care (1,9,51,78,152) and are a major reason for visits during the year. (140) In the ICS study, (79) perception of need (101) and having a preventative behaviour pattern, basically predicted treatment status. Better dental health status was found among those who were frequent utilizers, had no prosthetic need, were satisfied with their teeth, and had gone to the dentist for preventive treatment. (79,57) Lesser levels of dental health were found among those who did not go recently, had a prosthetic need, were not happy with their teeth, and if the most recent visit

were for symptomatic reasons. Although anticipation of dental treatment can be very frightening, (55,56) which substantiates the thought that perception includes a cognitive component, the different dental procedures are found to evoke reactions of varying strength.

The dental patient, can be said to be at a disadvantage because he cannot see or know what is happening, unless the dental informs him. He may feel completely helpless and this may be the focal point for objections to dental treatment, resulting in avoidance of seeking regular help. Perceived traumatic dental treatment, during childhood are possibly the cause for unconscious recollection in adults which may be triggered later in the actual and thus threatening dental situation. (184) Thus perceptions may not affect behaviour unless a cue or trigger acts on the person, who is in a state of readiness for action. (177) A positive trigger to action may be internal in the form of a symptom or external e.g. a poster or social pressure.

3.3.A.ii. Perception of the dentist

The personality of the dentist might be of as much importance as the dental treatment itself. Person perception focusses on the process by which feelings, opinions and impressions about persons are formed. The sensory information necessary, even conditional for perception, is often substituted by statements of others. Following from this, the perceived need for dental treatment is influenced by the dentist's attitudes and has

direct influence on the dental visiting potential which is determined by :

- 1) the level of aspirations ;
- 2) the number of remaining teeth ; and
- 3) the degree of economic and social resources. (163)

Patients are usually caught up in a situation of double avoidance conflict, i.e., the patient may have feelings of helplessness, vulnerability (89,121,178) and even sometimes hostility. Escaping from the situation, is often not possible because you are treated 'for his your good' and came by 'your own free will'.

The personal motives and emotional state of the patient, affect the formed perception of the dentist. In the inter-relationship between the dentist and the patient, both personalities and circumstances are involved. The dentist's conduct may become authoritarian and without empathy, even uncertain at times on the grounds of the patient's behaviour or on account of an unsolvable dental health problem. Reciprocally, the patient may develop an even more negative attitude and behaviour. The patient may also show more vigilance, triggered by the stress and consequently may notice the covert feelings of the dentist. The negative attitudes of the dentist about the patient's emotional aspect are viewed to be traumatic to the self perception of the patient and for this reason dental care might be avoided. An 'ideal' dentist has to meet the expectations of the patient, so as to make dental care and the experience thereof more acceptable (104,205)

The reactions of the patient may include transference, which is a tendency to respond to the dentist as one did earlier in life, to significant others. (183) Other reactions also shown are regression, escapism, disguise (210) or narcissism. (100) In short, instead of intellectually controlled activity, emotional states are exhibited. (2) Patients may indeed be deterred from seeking dental care if negative characteristics are attributed to dentist's. (104,205) Perception of the dentist's ability to communicate effectively are dependent on the social class of the patient, as dentists may either be expected to show an authoritarian attitude (33) or act friendly and show reassurance and understanding. (207) In the process of forming perceptions three factors are important :

- 1) the amount of relevant information to the perceiver ;
- 2) the extent of interaction between the perceiver and the other person ; and
- 3) the degree to which the relationship between both persons is established.

It could briefly be said, that what matters, is the nature and the frequency of the contact in relevant affairs. The personality (sec. 2.2.5) of both the dentist and the patient may interfere in the relationship. The information the patient has about the dentist is often impersonal, and that his acquaintance with the dentist is superficial is not unusual. Under certain circumstances, this may lead to the termination of the dentist-patient relationship or to the avoidance of dentists completely, because of a lack of understanding between the two parties.

3.3.A.iii. Two factors influencing perception are :

a. Medical experiences

b. Dental experiences

3.3.A.iii.a. Medical experiences

Hospitalization and surgery during childhood years, may affect the behaviour of children in the dental situation, as well as their compliance with dental care. Psychological stress which relates to the regressive effects of severe stress experience, can by exposure to any signs of mutilation (122) or annihilation in adult life, tend to reactivate the seemingly outgrown patterns of emotional response, which had originally been elicited and reinforced during stressful episodes of early childhood. Consequently, anxiety in a situation or event may seem trivial to the outsider and aroused feelings may be difficult to comprehend, yet these events, may be as traumatic as those which are better understandable events.

3.3.A.iii.b. Dental experiences

Both positive and negative dental experiences may influence the perception, motivation and expectation of the individual. Accentuated here, is the effect on dental anxiety and attendance patterns. Dental anxiety do have a negative effect on the demand for dental care, yet, many people who are fearful still visit the dentist regularly. (173) The previous dental experiences of a persons family, parents, siblings and

friends may be important determinants of the attitude and behaviour displayed at the first dental visit (13,102,107) Of great importance is the manner in which the visit is conducted by the dentist as well as, not so much fear in itself but rather how fear is dealt with by the dentist. The age at which the first visit takes place can have an important effect as well. (27,112) It is reported that if one does not visit the dentist before the age of thirteen, one is less likely to ask for preventative dental help. At the same time the age at the time of the first visit is less important with respect to needed dental care . (114)

The presence or the absence of the parent(s) in the dental surgery also affects the perception of the patient of the dentist and the dental care received. The parent gives security to young children and Venham (208) concludes that most parents and children prefer to remain together during the dental visit. Therefore, if the absence of parents has a detrimental effect, the dental treatment could be perceived as even worse by the child patient. (103) While attempting to characterize underutilizers of dental services, researchers have concentrated on specific characteristics such as fear, ignorance, neglectfulness, distrust and has neglected the socio-structural determinants such as availability of services and cost. Blaming unmotivated people or the 'poor' does not assist the the dentist, instead it does more harm than good. Labelling people and making them conscious of themselves as deviants may evoke the very behaviour which in itself is inappropriate. (28,177)

3.3.B. Satisfaction

The satisfaction of patients is based on attitudes and feelings towards the provider and the care provided. These attitudes are formed as a result of patient provider interaction or views instilled in the person by others. The level of satisfaction of the patient, can be used as a measure of outcome of dental care. (79) The goal for dental health, should be that each person develop and attain a level of oral health which gives him satisfaction, happiness and contributes to his well-being. (17,61,137,139,140) Satisfaction is interpreted differently by different people and Barenthin (17) has shown that the percentage of people with good oral health status, was not much higher than those with poor oral health status. Furthermore, Giddon et al (78) states that people can be made to feel satisfied without improving the dental condition. Satisfaction also depends on the confidence the patient has in the dentist. (15) Murray and Wiese (139) have reported three dimensions of satisfaction namely that the acceptance of dental care will depend on :

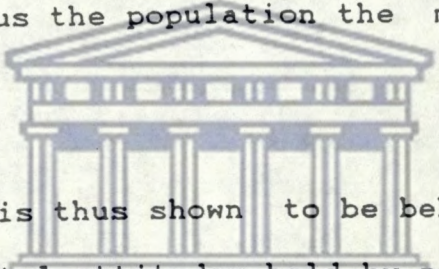
- 1) the cost of the service, which should be within the family budget ;
- 2) accessibility, in terms of social and physical distance and the time spent to get there ; as well as
- 3) the quality of service provided.

Bulman et al (42,43) and Barenthin (17) have shown that dental conditions as judged by the dentist made little difference as to whether or not individuals were satisfied. This points to the difference in the values and beliefs of the dentist and

those of their patients. (10)

The WHO/USPHS/ICS study points to the importance of :

- 1) involving consumers in discussion concerning the acceptability of dental care ;
- 2) that utilization of dental services does not reduce the incidence of dental disease ;
- 3) the availability and accessibility even to the best system does not ensure good utilization by the public ; and
- 4) that even a well organised, widely available school based dental service does not necessarily lead to a satisfactory level of oral health in adult life. (57,79) Furthermore the more edentulous the population the more satisfied they seem to be. (52)



Satisfaction is thus shown to be behaviour related. It may reinforce dental attitudes held by people and influence their motivation and future perception of dentists as well as dental treatment. Focus is directed on the psychological diversion of health i.e. attitudes and demands of patients with respect to providers and treatment and is brought about by more than one approach. (104,206,207)

Some patients needs friendliness and reassurance, especially people of low socio-economic status, whereas high socio-economic status groups would expect the dentist to be highly skilled and inform them of the procedure to be carried out on them.(170) Not meeting the specific demands will create dissatisfaction and even distrust, which according to Frazier

at al (75) may be reasons for not seeking care. The main reasons for dissatisfaction have been found to be dental fees, competence, location, personal characteristics and accessibility. Ben-Zira (29) suggests that the mode rather than the content of the practitioners' response influences the clients immediate satisfaction.



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3.3.C. Motivation

A person may be motivated to act in different ways. (170) Mckinlay (131) defines motivation as an analysis of man's needs in an effort to provide a basis for understanding behaviour. While the perception oriented would seem to be those who emphasise the rationality of man, motivation oriented individuals minimize rationality and emphasize aspirations, both at a conscious and unconscious level.

Mckinlay suggests that three major principles may be deduced from research on motivation. These are :-

1) The extent to which a person sees the problem as having serious consequences and a high probability of occurrence i.e. individual susceptibility, the extent to which a person believe that some course of action is open to him, which will reduce the threat, and will affect the preventive and therapeutic behaviour relative to a given health problem ;

2) Behaviour emerges out of the conflict among motives and the courses of action. Where motives themselves conflict and compete for attention, those that have the highest value or salience for the individual will actually be aroused ;

3) Health related motives may not always give rise to health related behaviour and conversely, health related behaviour may not always be determined by health related motives.

The first principle, which encompasses the Health Belief Model(HBM) was tested by Kegeles (105). He found that although

most people feel susceptible to dental disease, they do not consider it as serious. He also found that neither beliefs regarding seriousness, whether considered independently or together with other variables, nor belief in the benefit of taking action, were related to subsequent behaviour. However, belief in susceptibility did show some relationship to subsequent preventive visiting. (106,131)

Feelings of susceptibility have little motive strength in themselves and its low salience or value explains the low priority of dental care for some people. Belief in the efficacy of dental actions, tend to be positively associated with income and education. The HBM postulates that the readiness to act in taking voluntary asymptomatic health action, is determined by three factors :

- 1) The individual must feel susceptible to the disease ;
- 2) The individual must feel the disease is potentially serious in its affects on him/her ;
- 3) The individual must feel that a course of action that will be of benefit for preventing or alleviating the disease, is available to him/her. (28,131,148) Perceived susceptibility and severity may be regarded as the 'pull' towards health action and health related motivation as a 'push factor in compliance.

The second principle, which is frequently forgotten by dentists, probably explains a considerable amount in variation of utilization by income. The low socially economic groups are principally motivated by the need to exist and most of the

people would be concerned with the current day's problems and challenges (35,142,177) Their frequent life crises overrides considerations about health. It is important for health programmes to be based on patient own beliefs and psychological characteristics, instead of being oriented to the dentist view and system of values. (131) On examination of this principle, the following relations are seen:

- 1) Two motives may compete with each other for dominance. Often health motives are less salient not only in terms of their priorities, but also in terms of social approval ;
- 2) The available course of action open, may be either satisfactory or frustrating. If the latter applies, then even if the person is motivated relative to his health, action may still not be taken if it is unpleasant, painful or upsetting ;
- 3) There may be no course of action to satisfy the existing motives and consequently, a person may fail to see an effective means exist, to prevent a specific condition.

Therefore two likely outcomes may be :

- 1) the individual attempts to remove himself psychologically from the conflict situation, by becoming engaged in activities not satisfying his motives, but symbolically related to it ; or
- 2) marked increase in fear and anxiety, bringing about a state where he can no longer think objectively or rationally about the situation.

The third principle encompasses an important strategy, whereby dental health should be seen in the context of general health. Instead of focusing on the health of teeth, it would be better e.g. in teenagers to focus on appearance, body grooming and body image. The implications are :

- 1) public health methods should not wait for complete answers but rather act on the best dental care available, using the facts at hand ;
- 2) if people are given more accurate information on which to base their judgement, this may increase participation:
- 3) public health programs should fit in with people's value's. (61,167)

Motives denotes the priorities held by a person, which serve to activate and direct goal-oriented behaviour shown by the individual, because behaviour is often the result of conflicting goals.

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Applied to dentistry, the self-assessment of oral health and information available may initiate or arouse the perception of a need to visit the dentist, however dislike of treatment may overrule this urge to seek help. (170) For many people, toothache would be the first and only signal of something going wrong (155) and only under such conditions may they take action. Furthermore, people with a high inclination to use services will act under the slightest provocation, whereas individuals with a low inclination to use the service may regard it as a 'routine illness'. (204) The motives may be of a different nature: on the one hand, of importance might

be to prevent pain, to have a good cosmetic appearance , to be healthy in its full sense (88) and probably visits a dentist out of habit and long established behaviour patterns, or the achievement of the approval of significant others including self approval may be specified as relevant urges for preventive health behaviour. Yet, among these motives mentioned, a conflict may exist between the intention to seek preventive dental care and the tendency, if it exists, to avoid the dentist.

The motivation to seek dental help is not of the same nature as the motivation to avoid dental attention. Becker and Maiman (27) distinguishes between three different interacting dimensions in motivation :

- 1) to attain success or in reverse to avoid failure ;
- 2) the incentive value of a particular goal, i.e., how strong is the desire to reach the goal ;
- 3) the expectation of a successful outcome.

Increasingly attention is being directed at the importance of some cue acting on a person or a group in a state of readiness for action. (131) Health cues, thought to be present in mothers, are often aroused by different degrees of psychological readiness, to undertake a health action.

The mother, plays an essential role in defining the child's first illness and in this way this, the child learns which symptoms are important, as well as the indications of when to seek help.(27) Besides parental behaviour, which teaches the child how to behave and transmit dental values, it is found

that susceptibility, the probability of recovery, confidence in dentistry and in the dentist, form an underlying base for taking dental health action. (115,136)

In the assessment of motivation, personality characteristics of importance are ; locus of control i.e. one is able to control a potential disease ; harm avoidance ; a future orientation and a low risk attitude towards life show an association with dental health practices (213,214) It could be stated, that by affecting the motivation, differences in personality structure, may promote or hinder prevention.

'Poor' patients are significantly more often externals whereas 'good' patients appear to be internally oriented. Perhaps a general preventive orientation has to be present as a condition for seeking dental attention. (89) Ideally, motivation to preventive dental attendance, should be based on knowledge.

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A close relationship is found between motivation and cognitive factors (87) e.g. knowledge of what constitute good health; knowledge of how to maintain good health ; the desire to utilize this knowledge through an appreciation of the significance of health. Motivational factors might include amongst others 1) the body image 2) the significance of teeth 3) how people think about full dentures.

3.3.C.i. Body Image and Self Concept

Loss of teeth may be viewed as a distortion of the body and may result in diminished appreciation of self perception. (82) Signs of potential mutilation are closely related to fear. McDermott (129) states that children perceive the dentist as threatening the unimpaired body, as most of the work is done within the body and cause feelings of helplessness.

Linn (124) found that the presentation of self is reflected in the fact that most young adults rated dental appearance as very important, particularly in dating, making friends and for finding employment. Gochman (82) showed a relationship between self concept and perceived vulnerability of dental problems similar to the association of self-concept and medical conditions.

3.3.C.ii. The Significance of teeth

In terms of preventive dental health, teeth is valued differently not only at different ages, but by different groups in the same population. Since the teeth are located in an emotionally laden part of the body i.e. the mouth, it follows that to many patients, the maintenance, (115) the condition, (114) the number of teeth left in the mouth (171,174) and the presence of teeth (181) are essential for function and appearance. In the lower social classes, the tendency to delay the seeking of dental care, may in itself be a preventive mechanism, to avoid the loss of teeth, although

more often than not, it results in the reverse taking place. Since the majority of these people are present, passive oriented they end up having their teeth extracted, partly because of either emergency pain relief or due to a non-preventive attitude of the majority of dentists to lower class patients. Yet, the Pill and Stott study (153) indicates that this subgroup of the population do have preventive inclinations, but are seldom allowed to explain or given a hearing.

3.3.D. Attitude

The public's attitude is an important factor determinant in the loss of teeth, (181) which in itself is also an important indication of people's attitude and behaviour towards dental health. Corah (56) noted that real task of the dental profession, should not only be to promote a change of attitude, but also to influence and promote preventive health behaviour. An attitude can be described as an innate predilection to respond in a consistently favourable or unfavourable manner with respect to a given object. Fishbein and Ajzen (5) emphasize the evaluative consistency and specificity which is related to multiple behaviours at different points in time. (sec. 4.5)

Attitudes have 3 components : affective, cognitive and predisposition, that is, a readiness component. Furthermore, it possesses only a restrictive predictive value with respect to actual behaviour itself, whether by commitment, dissonance

or self perception. It fits together in a value system which can either give direction to the behaviour or form a frame of reference by which the stimuli may be judged. According to Fishbein and Ajzen (5) negative attitudes may form a barrier against a health action but may be overruled by other positive factors such as social criteria.

3.3.D.i. Affective Component

3.3.D.i.a. Anxiety and Fear

Fear can be viewed to be a reaction in response to a real threat, whereas anxiety is thought to arise from within a patient's psyche. (170) Many people fear going to the dentist to the extent that in some groups dental anxiety has become socially acceptable. (14) Past dental experience does have a strong influence (189) on patient behaviour and likewise, the anxiety of mothers do influence their children's attitude towards dental care. (13) It is important to distinguish between trait anxiety, which is the predisposition to be generally anxious and state anxiety, which is momentary transitory, with conscious feelings of tension and apprehension. (212) From the aetiological aspect, dental trauma may be the most important aspect in dental phobia. It is not so much the pain that causes fear, but the dentist's response and handling of a pain and stressful situation. Dentists perceive anxiety and phobias to be a significant problem in treating children, especially in dealing with uncooperative behaviour. Venham (208) has shown that child anxiety was sensitive to maternal anxiety, child personality

factors and medical experience. It would thus be difficult for an anxious person to be a good dental patient and to show compliance with expected dental behaviour. However, Schuurs et al (171) have shown that although anxiety and fear do have a negative effect yet people still visit the dentist regularly.

3.3.D.i.a.1 Parental Influence

There exists a relationship between maternal anxiety and cooperative behaviour of children. (13) Parents of anxious children (105) who are nervous themselves before a dental appointment, may be an indication of a parent child transference of anxiety through generations.

Venham (208) showed relationships between the child's acquisition of coping skills and stress tolerance and child rearing practices. He stated that a structured home environment, together with a responsive and self assured mother facilitate favourable health responses in the child. A positive relationship exists between socio-economic status and cooperative behaviour of children.

3.3.D.i.a.2. The Influence of School Dental Services

One of the goals of a school dental service should be to encourage regular dental attendance in the after school period. (3,149) If children received dental examinations at school, they are more likely to visit a dentist more

frequently as teenagers with a preventive intent. (115,174) In the Netherlands, recruits of the lower income social class, who did not use school dental services, attended private dental services more regularly, than those who used school dental services. The reason given was a better relationship between the private dentist and the non-users of the school dental service who received dental care from the private dentist. (170)

Ainamo and Holmberg (3) reported that caries were worse in the group who for the longest period had received free dental care at school. The WHO/USPHS ICS study(22) supported this finding and the results showed that children from structured school dental systems do not necessarily have better dental health as adults e.g. 36% of New Zealand adults aged 35-44 were edentulous, the highest figure recorded for all the countries who took part.

It seems clear that unless there is a follow-up programme after leaving school, young adults will neglect their oral health, unless they are highly motivated because if not, it would affect compliance with dental care negatively.

3.3.D.i.b. Pain

Pain and anxiety appear to be interrelated and may be synergistic. Furthermore, pain do have an emotional component, depending on the strength of the stimulus. Most people are afraid of pain, and more anticipation of pain brings about

more stress. When in pain, not everyone seeks relief by visiting the dentist, (137) and people who believe that dental treatment causes pain, are less inclined to make dental visits than those who believe otherwise. (10) A considerable number of people, think that dental treatment is painful, although the dental profession is probably not always aware of this.(106) If dentists are seen to hurt people, word would soon spread in the community and the result may be two-fold;

- 1) patients will not accept dental treatment because of fear
- 2) toothloss will become inevitable because patients will delay and put off dental treatment until they can't bear the pain any longer.

3.3.D.ii. Cognitive Component

This component is inferred from what people say they believe and think. However, it is distinct from opinion, which almost totally lack the feelings of a person. Fishbein and Ajzen (5) describes the effective component of an attitude as the major influence on the evaluation of the object of the attitude, thus excluding the cognitive component, which is the beliefs and expectations.

An attitude based on previous experience may change after new experience, as well as encountering new facts, and may at first cause the creation of doubt, which paves the way for later change. In this process evaluation seems to be of great importance. A person may thus have a favourable inclination towards the use of dental services but his belief about

exercising this attitude would depend on the importance of dental care to him, in terms of his priorities as well as the outcome evaluation, of how strongly the person believes he will benefit from going for care. Simultaneously, of importance, is whether the person thinks significant others think he should attend a dentist and how strong his motivation is to comply with this subjective norm. It is therefore important to distinguish between attitudinal change and knowledge change by education which has mainly directive properties and little dynamic functions,, and this is further illustrated by Haefner et al (88,89,90) that more knowledge is not necessary appropriate to change behaviour.

3.3.D.iii. Readiness to act

The sequence of attitude-behaviour is often inconsistent and depends on when attitudes are translated into action. Consequently,

- 1) the influence of attitude and social criteria on behaviour, may affect the intention to show a certain behaviour, which differ in their respective importance ; and
- 2) the intention to show a certain behaviour is not always in correspondence with the actual behaviour, as taking action demands rational behaviour (10,82) The readiness to act is enhanced when the reward or reaching the goal e.g. a set of functional teeth, master the expected inconvenience or pain and other avoidance tendencies. It may not be realized, that a motive for avoiding what is viewed to be a danger, is insufficient to cause a specific action. (105,106) A decision

not to visit a dentist may have counteracting advantages especially if the dentist is restorative oriented, which would in effect delay or avoid the adoption of a preventive dental behaviour by the patient. On the contrary, the patient might benefit in terms of dental health with reference to the Adult Dental Health Survey(198) since less teeth would be subjected to restorations. It must be emphasised that prevention can work effectively, only in a preventive environment, which is further aided if the patient is in a low caries susceptible group, in terms of the life history of dental caries. At the same time a habit of generating dependency(98) on the dentist is avoided, making the patient more sensitive to the cues of prevention, which is more advantages to dental health than being subjected to treatment.

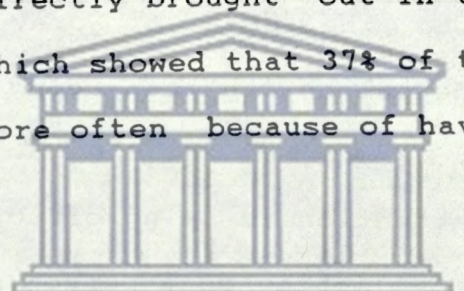
Increasingly attention is being directed to the importance of some kind of 'cue' acting on a person or a group in a state of readiness for action. It has been suggested that the variables that constitute readiness to act (such as a belief of susceptibility and severity) as well as other variables that define perceived benefits and barriers to taking action if some additional variable is not present.

Zola (217) has described five nonphysiological 'triggers' in patients' decisions to seek medical care. These triggers appear to have varying degrees of importance in different social strata and ethnic groups. The triggers are :

- 1) the occurrence of an interpersonal crises;
- 2) perceived interference with social and personal relations;

- 3) the presence of sanctioning;
- 4) perceived interference with vocational and physical activity; and
- 5) a kind of temporalizing symptomatology.

Rosenstock (1967) has pointed out, that the decision to utilize or under utilize health services, may in itself modify the beliefs held by a person e.g. if a person visits the dentist preventively, yet those very teeth treated, remains painful or become decayed, may lead the person to loose confidence, become apathetic, adopt a defeatist, fatalistic attitude. It may further result in avoiding care, if at all possible. This factor is indirectly brought out in the Adult Dental Health Survey (198) which showed that 37% of the UK population attend the dentist more often because of having trouble with their teeth.



The readiness to act preventively, result from an interaction of internal (values, beliefs and practices) and external (social environment) factors and is modified by its importance to the individual. Thus, this action, refers to the kind of views and motives of the individual with respect to illness and health and includes perceived vulnerability and may be stifled or dampened if no personal benefit is derived.

The practices, beliefs, values and norms of a person are influenced by his social environment; education and socio-economic level, the reference group and external factors as well as internal variables are involved in the 'readiness to act' component.

3.3.E. Cognitive factors

The value-expectancy theory (28) is the fundamental basis of many health behavioural theories, including the Health Belief Model and partly the Theory of Reasoned Action. It encapsulates two basic dimensions :

1) that behaviour is predicted from the value of the outcome to a person ;

2) the expectation that a given action, will result in that outcome. (27) It is with these dimensions as the underlying motivating force, that the involved cognitive factors will now be described.

3.3.E.i Dental knowledge

The assumption that most people possess a fundamental dental knowledge is possibly incorrect. Antonovsky and Katz (10) found that many people do not know how often to brush their teeth and Schuurs (137) found that the thought of dental caries being not inevitable, was as high as 90% in his sample.

Dental knowledge, of a visit to the dentist, is secondary to the experience of symptoms, and having more knowledge, does not necessarily lead to dental visits. A person has to recognise the direct need or reason for taking care of his

oral health. (75) Knowledge alone, might not be considered enough in enabling the preventive utilization of dental services in a significant way. (90,106) Ainamo and Holmberg (3) in a study of dentist's children points to the need to intensify dental health education and states that what matters is not what the public thinks to be good dental practice but rather the extent to which other factors e.g. income push them to convert that knowledge into practice.

The use of preventive dental services is a specific behaviour learnt by precept and example. (115) Younger children may follow the example from older siblings and playmates (90) and subsequently exerts a direct effect on the internalization of habits and attitudes early in life towards attendance for preventive dental care by information being internalised, when habit patterns are still being formed. (36) Another aspect is the lifestyle of the individual, which may have an influence on the dental health status, and not necessarily influenced or associated with the dentist.

The transmission of dental health knowledge is often prone to fear arousing methods being employed. Feelings may be sensitised, inviting complete rejection of such statements, especially if the communicator is aggressive.

Haefner (87,89) concludes that a high fear arousal appeal affected children of low income families positively, whereas low fear inducing communication was more effective in children of the middle class. In the use of fear arousal, the source,

trustworthiness of the message and the relevance are co-determinants and are also affected by the locus of control and the degree of anxiety. The impact of dental knowledge appears difficult to assess, since behaviour is an interaction of multidimensional components, interrelated in various ways. However, for an improvement in oral health, it seems necessary for the environment to be changed, to make dental habits more socially acceptable to a person thereby facilitating social norms as a vehicle to promote the uptake of healthier patterns of oral health.

3.3.E.ii. Expectations

Expectations are anticipations or predictions of future events based upon past experiences and present stimuli. It is influenced by motivation e.g. negative expectations are usually accompanied by a negative motivation. Since an expectation may be positive or negative a lack of motivation, could be reflected in a apathetic attitude, which could lead to or even cause negative expectations.

A common source of adverse reactions to dentistry, is negative expectations induced by others. The absence of the belief in the effect of dentistry, may account for the gross difference between the principle that one should take up dental care on a regular basis and the practice of it. This negative expectation may be reinforced by the dentists, blaming patients for their poor oral health status and giving no encouragement to support the ability to retain their teeth.

It may be the reason for many people becoming dentally discouraged, avoiding the dentist at all cost and eventually have all their teeth extracted, followed by the wearing of dentures.

3.3.E.iii. Beliefs (sec 4,1)

Beliefs are not part of attitudes because the affective component is absent. Most beliefs are based on the influence of prior information available to individuals. Inference drawn on the part of the individual, probabilistic rather than evaluative, is often involved in many situations, the essence of which are mostly based on descriptive beliefs.(179)

This concept is taken up in one of the most significant theories of preventive health behaviour i.e. the Health Belief Model (sec. 3.3.C.) Kegeles,(106) notes that the best predictors of future dental health behavior, is past behaviour, and that susceptibility leads to salience of good dental health as a goal.(10)

Perceived seriousness, may thus be of equal if not of greater significance than susceptibility as a belief in this model.(106) Individuals who are restricted by environmental barriers tend to develop an external outlook. An internal control person would ascribe it to fate or bad luck. The conclusion seems warranted that the health belief model, though reformulated and expanded (28) is only weakly or partly

supported.

3.3.F. Compliance

It can be defined as the agreement of patients not only to carry out or submit to professional advice on health matters but actually doing so. Becker et al (28) has noted that socio-psychological variables can serve as consistent predictors of compliance. Health can be viewed as part of health-illness continuum (10,182) or salutogenesis along which, depending on the disease level, different levels of compliance would be indicated, for the success of therapy .

It was common to find, that a large number of people in adverse conditions, still follow recommended therapy (27) and not all lower class individuals have a negative orientation towards prevention. (119) In most studies, (28) about 30% of the population follow the doctor/dentist's advice and the result of which may have an adverse effect on the quality of care.

It is not only important to measure attitudes and perception, but also to understand the meaning of such associations. This concept forms the underlying mechanism of the socio-behavioral compliance model (27) proposed to explain the individual health.

Haefner (89) notes four factors which may influence voluntary health action :

- 1) psychological readiness to act;

- 2) psychological barriers;
- 3) social and interpersonal influences; and
- 4) cues or stimuli that trigger a particular action.

Three important determinants of compliance are :

a) perceived susceptibility which depends on

- 1) the belief in the diagnoses of the profession;
- 2) estimate of susceptibility to previous illness
- 3) subjective feelings of vulnerability to other diseases and greatly influences the perception of susceptibility.

Becker (27) has shown that the motivation and perception of mothers, are very good predictors of their compliance to administer medicine to their children, and that mothers have different degrees of readiness of mothers to undertake health action. Furthermore, the incentive value of compliance depends on the magnitude of the threat posed by the child's condition

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b) perceived seriousness. The evidence suggest (10,28) that in asymptomatic individuals lower levels of perceived severity are not sufficiently motivating while high levels of perceived seriousness including fear are inhibiting. Kegeles states that faith in dentists also affect the strength of compliance with dental care procedures.

c) continuity of care (182) is closely associated with compliance with health care. A low income patient may not have access to dental care, and could consequently feel that the profession reinforces inequality in provision of services

leading to total rejection of the use of services and rather seeking for alternative forms of care.

The type of personnel used in dental care may also influence the uptake of services.(183) Zola (217) notes that those who seek care, may not always be representative of the people who needs medical care. It would appear that many people self-medicates a condition before reporting it to the physician and when they do present themselves, the treatment is abandoned when the symptoms disappear.

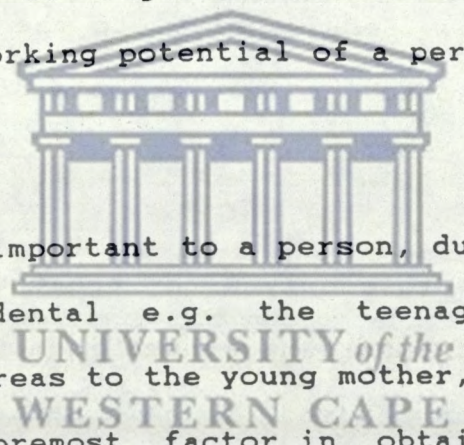
However, Rundell (168) states that the poor are often channelled into a provider network that does not encourage preventive care. Resultantly, to the patient, only symptoms need be attended to, in the absence of which no prevention is practised.

The motivation to comply with treatment is strongly affected by influence of important others in a person's life and if the environment can be used to help patients cope with disease, more importance would be attached to compliance with a preventive message.

3.4. Social Factors

The social environment of an individual, plays an important role not only in the way health and disease is defined, but also how the outcome is interpreted. Social pressure can promote or inhibit the use of dental services, depending on the customs, habits and traditions, social class group and the general state of health of the society.

Disease in one society, may be regarded as dis-ease in another or could even be regarded as the general accepted norm, because the working potential of a person is not affected. (34)



Teeth may be important to a person, due to priorities in life, other than dental e.g. the teenager may focus on body grooming, whereas to the young mother, her cosmetic appearance may be the foremost factor in obtaining employment or just being accepted in her social group.

The uptake of health care is greatly influenced, by the socialization of the individual and the interaction of and the influence on the life of a person during the process of socialization.

3.4.A. Socialization

Socialization, is primarily the transfer of knowledge,

essential for the survival and the formation of important attitudes. This process, describes how a child learns, to be a functional member of a particular society, and can be divided into primary and secondary phases.

Primary socialization, is mostly confined to the family circle, (13) with the mother (36) as the primary focus in giving direction to the shaping of the behaviour of the child.(see sec.2.2.1) These behaviours, e.g. daily exercise of oral hygiene or balanced diet intake, are prompted by the prime influence of the mother, (27) and through a process of internalization, later takes on a habitual nature.

On a broader level, informed shared expectations of society are imposed and shared by individuals as norms which becomes accepted by the immediate community. (see sec.2.2.2)

The uptake of dental care, is greatly influenced by this process. Depending on the value the family places on dental care, it has been shown that the parents own preventive dental behaviour, have a greater influence on the uptake of such care than income or education. (136)

At a later stage of development, secondary socialization, involves formal(teacher) and informal(peer groups) social influences on the child. The process takes place mostly outside the home, after the child has reached school going age. As the child is more receptive to dental health education at this age (61,167) it may be simpler and more

positive to establish healthy dental patterns of behaviour during this phase of childhood than to change or modify detrimental habits at a later stage.

Numerous studies (27,78,93,159) show that a child's dental health behaviour is related to the attitude of their parents and that the child's behaviour at the first visit is primarily affected by the mother's behaviour (60,74,79,112,129)

Kegeles(104) reported that knowledge about beliefs and attitudes of parents seems not to increase the understanding of why children make preventive dental visits. The home environment could be regarded as the centre of socialization (10,77,91,93,99,102,115,136) and may create the potential atmosphere to make the child more receptive to the dental health message of prevention. (126)

Socialization may also take place by the indirect effect of social influence,(28) that is, social pressure can stimulate the individual to take appropriate health action e.g. no smoking on the underground tubes, the Stanford Three Community study in the USA to reduce heart disease and the North Karelia programme in Finland to reduce smoking and to increase physical exercise.(157)

The acceptance of dental care has its origins primarily in the early childhood period. This would suggest that the family orientation towards dentistry is a vital and decisive factor as to whether compliance with preventive dental care would be

acceptable during the later years.

3.4.B. Social-cultural Factors

The descriptive socio-demographic approach to the utilization of health services has severe limitations. Although it describes certain broad trends, its explanatory power of the intervening variables and mechanisms is weak. (177) The findings of Rayner(159), Kriesberg and Treiman (115) indicates that the use of dental services is learned by example, particularly from the mother and more research in this field could prove valuable to the understanding of this behaviour.

Harris and Gruten (91) further analysed the concept of Health Protective Behaviour. It is primarily defined by the people instead of the health profession. Patients are regarded as producers instead of consumers of health. The study revealed that people were involved in many activities which they defined as necessary to stay healthy, e.g 70% ascribed nutrition and exercise to be the most important factors. Contact with health services was mentioned as important by only 18%.

A further dimension is shown in the Adult Dental Health Survey (198) where 47% of the UK population select their dentist on recommendation by family and friends, while only 30% selected the nearest dentist. The influence and importance of 'kinship' is well demonstrated and is further supported by the findings of a Finnish study (7) which showed that 34% of

the population seek dental care on the recommendation of friends.

In the Preventive Behaviour Model (10) a health-disease continuum, described as 'salutogenesis' is put forward, in which the family constitutes perhaps the most important social context within which illness occur.(126)

Informal health education which is often influenced by peer groups, although not scientifically valid, it is culturally acceptable. This indicates that the degree of the symptoms as defined by the family, friends, community, is very influential on the individual, consequently, the cost of and access to services need to reach a certain threshold of acceptance which would be specific for a particular society before seeking care. (28,182)

O'Mullane and Robinson (149) concluded in their study that the availability of services are more important than the social attitudes of schoolchildren. However the culture, the value system of society, peer, reference groups and the nature of an individual's past experience, play no lessor important role in the decision making process to seek care. (75)

The dental experience of the individual family members and their attitudes towards dentistry have a modifying effect on dental attendance.(9) Frandsen (74) states that oral health status is highly dependent on personal behaviour and classified patients into three groups :

- 1) pain ;
- 2) rehabilitative ; and
- 3) the preventive oriented.

Depending into which category a patient falls, the dentist needs to be socially sensitive, because not only of the different orientations, but also the different societal backgrounds. (65)

Okada and Wan (148) have further shown that cultural bonds can be so strong, that even with the introduction of Medicaid in some states of USA, only the existing dental problems were are treated, with very little uptake of any of the preventive health services. It is thus clear, that unless an activity performed including health, is of high salience to people, no positive response could be expected, illustrating that the social environment, is an important influence on the process of care seeking and the choice of dentist. (7)

3.4.C. Socio-economic factors

There is a close relationship between social class and the utilization of dental services : the higher social class uses dental services more frequently than the lower social groups. (193) Even if the direct cost barrier is removed (43,107,142) class differences still persists. In Sweden, after the introduction of a national dental health insurance, class differences were undiminished. (17)

Income: Family income remains an important predictor of

attendance for dental care even if the financial burden is reduced (42,43,76,107,118,168,174,204,213) This tends to indicate that socially determined patterns of behaviour associated with a high income are often related to high status occupations and a good educational background as these three factors are positively associated with each other.

The effect of income can also be seen in a drop in dental attendance among school leavers e.g. in the UK, where dental services are free only while being a student at school (170) and a Scottish study(195) has shown that young mothers wait until they are pregnant or go for dental treatment during the nursing mother stage during which dental care services are free of cost.(34)

Occupation: A direct relationship exists between occupation status and the frequency of dental visits. Members of professional families are more likely than manual workers to go for preventive dental visits, spending more money on care (9,79,177,191) for example, 10% of the individuals in the USA accounted for three-fourths of the total dental expenditure and 18% of the individuals accounted for three-fourths of the total visits to the dentist. (9)

In order to do social justice, it would be important important for appropriate services to be made available to the lower socio-economic groups. Costs may therefore affect the utilization by : either

- 1) the price of the service is considered high ;or

2) the amount of disposable income for buying the service is low.

Residence: (see sec.2.2.4)Proportionately more persons in the urban than in rural areas visit the dentist and attend more frequently too. This is especially true of developing countries where most of the services are located in town centres causing problem of access to the rural people with the added problem of a poor transport systems.

3.4.D. Social Networks

Social networks are playing an increasingly important role in the uptake of dental services. The importance of the social definition of attitudes and values applicable to symptoms, and its influence exerted on the adoption of the sick-role have significant effects on the definition of health and the need for health care. (133) Low income individuals do not feel responsible for the causation of their illness but blames it too external factors over which the individual has no control.(10,133,182) This is borne out by the tendency to accept illness, become despondent, taking on a fatalistic attitude and finally regard toothloss as inevitable. It has also been shown that people living alone for example, one parent families can't afford to adopt the sick role because of resultant income loss as well as no family support. In married couples the partner can lend support making it easier to enter the sick role. (see sec.2.1.1.c)

3.4.D.i. Significant others

Mechanic (133,135,170) considered that a given illness has certain characteristics which will be perceived by the person and by associated significant others. (177) These characteristics are; commonality - the frequency with which the disease occurs in the population, relative predictability - of the outcome of the illness and the amount of threat or loss as a result of the illness. These characteristics can be grouped under 'illness recognition' and 'illness danger'. When a symptom is both easily recognised and devoid of danger, it can be classified as part of routine illness.

Suchman, (193) maintained that the sequence of stages and decision making levels in the illness behaviour and care seeking process are :

- 1) the decision that something is wrong (symptom experience and recognition);
- 2) the decision that one is ill and needs professional care (assumption of the sick-role):
- 3) the decision to seek medical or dental care ;
- 4) the decision to transfer control to the dentist (dependent patient role) ;
- 5) the decision to relinquish the patient role (recovery and rehabilitation).

Arluke states that the adoption of the sick role (12) is greater among lower socio-economic groups due to greater ill-health, as well as being residential in an environment which is characteristic of high risk factors to ill-health.

This finding is supported by that of the Black Report. (200)

Schuurs (170) observes that indirect risk prevention behaviour, including dental health behaviour, is found to be related to social networks, in which the father's position in society may be of great importance.(83) A person may thus experience the subjective feeling of sickness, which is an essential motive to seek dental care, but is not sufficient in itself, for the actual uptake dental services.(158)

Individuals tend to adopt habits and lifestyles of their role model and if this tendency is very strong, the subjective norm may influence a person's decision to seek or reject dental health services. Consequently, the motivation to comply with significant others, may set a norm at individual or societal level which it is expected to be observed.(10)

3.4.D.ii. Social Mobility and Inequality

The Adult Dental health Survey (198) shows an average attendance figure of 43% for the dentate adults of the UK. However, Social Class I and II attendance figures are 56% compared to that of social class IV and V of 28%.

Beal and Dickson (26) reports that the social mobility, in marriage for downward mobile mothers is less favourable than for upward mobile mothers. An unexpected finding was that the upward mobile mothers from social class III to I and II had more favourable attitudes to dental health than the static

class I and II mothers.

Holt et al(95) study add's another dimension i.e. urban mobility and showed that a high proportion change their place of residence frequently. Further evidence, for this phenomena is found in the 1981 CENSUS for the Bloomsbury Area, (37) where in the last year, 30% of the residents have moved address.

This may be advantages to the lower social class groups, if they move from a predominantly homogenous social class area to a mixed social class area, since the level of health services would be much improved as more dentists tend to practice in the higher social class areas.(198)

The inequality of dental services to different social groups in society have been reported in several studies.(22,44,52,75, 89,107) Okada and Wan (148) showed that where dentist do mostly extractions, there is less time for prevention, for the minority in these groups who look after their teeth. They conclude, that it would be unreasonable to expect of the majority of the people living in poverty, to develop sustained enthusiasm for a dental preventive programme.

In disadvantaged groups, of more importance is the prevention of pain and Schuurs (170) reported that poor patients not only have more serious dental problems, but that they also have different value systems.(65,161) This illustrates that a majority of the lower social class groups do not internalize

attitudes and behaviours which is taken for granted by middle class members, because it is not of relevance to them.

Van Groenestijn et al(206,207) showed that for the uptake of dental services by higher social class groups, information, explanation and professional skill are important, while for the lower social class groups, reassurance and friendliness are the prime factors. However, deterrents to dental care are cost of procedures in higher social class and roughness and pain in the lower class groups. Furthermore, higher social class persons are more future and active oriented, whereas lower social class persons often have a present and passive orientation, which is congruent with nonpreventive beliefs they hold.

It could be said, that focus of prevention is incompatible with the value systems of the lower social class groups and this may in part explain the lower dental attendance rates.(193) Blaikie (33) reports that not all lower social class individuals are nonpreventively inclined but that dental care is regarded as a luxury rather than as a necessity.(33,34,193)

It is interesting to note that after 15 years of fluoridation in a region of New Zealand, Colquhoun reports(53) still a significant correlation between dental treatment given and social class. Burt (44) showed in a study, conducted in a borough of London he found that the concept of a 'regular dentist' or family dentist was regarded as a middle class

phenomena by the majority in the sample.

Rise (163) reported in Norway that although there were an improvement in dental service use for the different social class groups between (1973-1983), equalization of the uptake of services have not been achieved in different social groups. An increased supply and availability of dental services, have rather improved the intra-group than eliminating the existing intergroup differences in use of services.

It is evident that the inequality in dental services has a multifactorial aetiology and any attempts to address this question should be done in the existing social environment framework of lifestyles and values of social groups or individuals instead of imposing on people dental behavioural norms which are contrary or in conflict with their way of life.



3.4.D.iii. Lay referral systems

There is a great difference between lay and professional assessment of dental needs. (17,43) Antonovsky and Kats(10) states that consulting significant others and the determinant role of salience, are two important predispositions for seeking dental care.

For a health care system to be effective it has to satisfy the values of the patient (91,161) and this will prevent the profession from victim blaming people or label unresponsive

individuals as being deviant.(2,131)

The lifestyle of a person usually follows the framework of reference of a person's health values (18,33,81,131) which supports the view that few people apply clinical criteria for the assessment of their oral health status, instead, social and psychological influences are of greater relevance. (17,58,137)

3.5. Conclusion

The uptake and the acceptance of dental care is dependent on a variety of factors. From the studies reviewed it is evident that the decision to seek dental treatment is strongly influenced by the social environment of a person as well as the social norms upheld by the society a person comes from. In the industrialized countries, at present, a process of tertiary socialization is advocated for people to unlearn the unhealthy habits e.g. less sugar intake, eating healthy foods and more regular exercise.

McDermott (129) states that dental experience has far reaching implications for personality growth, as it introduces the child to the concept of temporary discomfort in order to achieve long term benefits. The motivation and intention behind visits to the dentist would be quite different though essential in the uptake of dental care as compared to dental treatment.

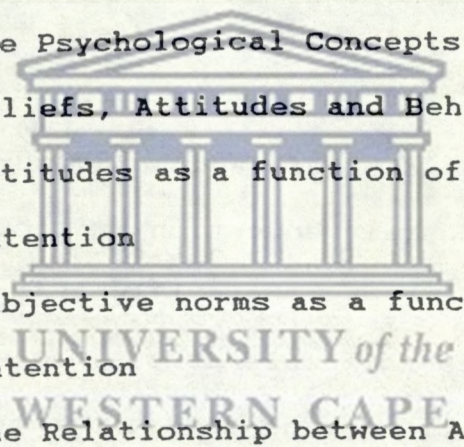
While it is evident that dentally disadvantaged people are to be found more often in the lower social class groups, a caring profession should treat the 'total person' and not restrict itself to the physical treatment of symptoms as is prevalent under the current system in dentistry, with an over emphasis on the restorative philosophy, generating a dependency on the dentist instead of acting as facilitators of dental health.



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CHAPTER FOUR

A PSYCHOLOGICAL CONCEPT OF HUMAN BEHAVIOUR

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- 4.1 The Psychological Concepts of Knowledge, Beliefs, Attitudes and Behaviour
 - 4.2 Attitudes as a function of Behavioural Intention
 - 4.3 Subjective norms as a function of Behavioural Intention
 - 4.4 The Relationship between Attitudes and Subjective norms as a function of Behavioural Intention
 - 4.5 The Theory of Reasoned Action

4.1 The Psychological Concepts of Knowledge, Beliefs, Attitudes and Behaviour

Knowledge

In modern society, knowledge has become the prerogative of experts and no more so than in medicine. (63,132) Since knowledge is fact and acquired through education or observation, experts have interpreted it and taken selected pieces of information, which are then disseminated to the general population. This is hoped to result in a desired behaviour, which will become acceptable within the social context of the individual.

The knowledge, attitude and behaviour (K.A.B.) approach has been used in dental education without successfully changing behaviour. (36) It has been illustrated by Liddell and Dewar (123) that among female nurses, an increase in knowledge of health risks, of smoking do not automatically lead to a change in health behaviour and this finding is further supported by a report of the Bloomsbury Health Authority (37) which shows that 38% of student nurses are active smokers.

Information is a necessary, but not a sufficient condition to change behaviour and it's value is further lessened by inappropriate, inaccurate, contradictory, incomprehensible and badly communicated health programmes. (180) Brown and Margo (41) states that health education is based on the following three principles :

1) the most important variable of health status is the individual lifestyle and behaviour ;

2) the individual is responsible to seek care when sick and to maintain his/her own health and prevent the onset of disease and

3) health behaviour can change without necessarily changing the social framework of the environment. However, Etzioni (66) questions this approach, in that it tends to overlook the nature of the societal constraints on the individual. Knowledge does not directly influence health behaviour. It appears that the basis of behavioural decisions, is not in fact associated with knowledge but with beliefs.

Beliefs

A behavioural belief is a personal feeling that an action will have a certain outcome and differs from knowledge, in that it may or may not be based on true fact. (5,70)

In terms of a value-expectancy theory, (27,165) beliefs could instead be based on the behavioural outcome. Consequently, a person may believe that attending the dentist preventively will prevent toothache (behaviour), which at the same time would prevent discomfort and absence from work (behavioural outcome) and that his family thinks he should visit the dentist preventively. (normative belief)

Fishbein and Ajzen (5,70) in showing the importance of beliefs as a determinant of behaviour, demonstrate that a person may have a considerable number of beliefs about a potential object

or behaviour, but is only able to consider a limited number of these beliefs at any one time. These are referred to as salient beliefs and do have an important role in behavioural decisions. Salient behavioural beliefs are associated with attitude formation, while salient normative beliefs are people's perceptions about what others desire of them.

Attitudes

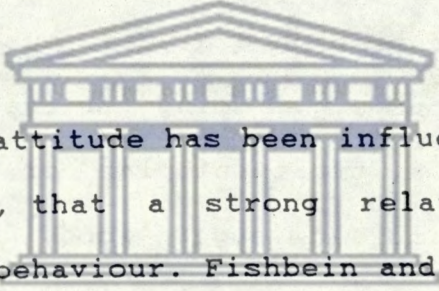
Attitude-behaviour consistency remains a perennial problem in the social sciences. (125) The psychological concept of attitude may not be easy to define. Although definitions of attitude vary considerably, there is a general agreement that a person's attitude towards some object constitutes a predisposition on his/her part to respond to the object in a favourable or unfavourable manner. (70)

Thurstone (202) maintained that attitudes should be regarded as indices i.e. a degree of liking or disliking an object, instead of as being implicit predictors of behaviour. The concept of attitude has played a significant role in the development of social psychology. (5,70)

By the late 1960's attitudes were specified in terms of theoretical and operational definitions which quantified research in this field in more discreet terms. Fact is not necessarily reflected in attitudes, but of greater importance is the context of the situation in which the object or the behaviour is viewed. (72)

Attitudes are multidimensional and generally consist of three components. Fishbein and Ajzen (1975) conceptually distinguishes the three components of the traditional attitude concept as affect, cognition and conation and specifies a recursive causal chain structure underlying it.

Cognition represents a person's beliefs about an object; affect, a person's feeling towards that object and conation is a behavioural tendency or desire towards that object. In further research, Rosenberg (1955) found a strong association between cognition and affect and a similar interaction between affect and conation has been reported by Fishbein and Ajzen. (1975)



This view of attitude has been influential in the development of the opinion, that a strong relationship exists between attitude and behaviour. Fishbein and Ajzen conclude that all components of attitude are represented by an evaluation of a psychological object, to which they confine the term attitude. This object, could either be a behaviour or the target of that behaviour i.e. the behavioural outcome.

The authors have stressed that attitude must be acknowledged as a predictor of the overall behaviour and not as a predictor of specific behaviour. Attitudes therefore, to a behavioural outcome would differ in different circumstances. In this context, it is important to consider the concept of behaviour before assessing the role of attitudes as precursors and determinants of that behaviour.

Behaviour

The behavioural outcome of such a behaviour as keeping fit, can only be achieved as a result of several individual behaviours, e.g. daily exercise, swimming, running and eating healthy food, being performed at the same time. This example illustrates that behavioural categories exist, consisting of various related behavioural actions. The attitude towards the target, in this case of keeping fit, will be a function of the attitudes to each of the individual behavioural actions necessary to achieve the target. (73)

Behaviour, that is considered as a single act criterion, e.g. visiting the dentist once a year, must be differentiated from repeated actions e.g. going for repeated visits during the completion of a treatment plan or from multiple preventive acts e.g. eating low sugar food, and daily toothbrushing. Behaviour which is of a multiple act category, (73) will have correlations which are high, however, behaviour which is of a single act criteria result in low correlations with attitude scores. (5) Fishbein and Ajzen concluded that the main problem lay in the selection of relevant or valid single act criteria and failure to find interaction between attitude and single act criteria could not be regarded as evidence for the exclusion of a such a relationship.

The attitude towards an object, should therefore be related to multiple act criteria, as there may be little correspondence between attitudes and any single behaviour. The best predictor of a single act may be the person's intention to perform the

specific act. Consequently, Fishbein and Ajzen have developed the Theory of Reasoned Action (5) to understand predict behaviour. The two major factors considered as a function of the intention to perform or not to perform a behaviour, are the attitude towards that behaviour and the subjective norm.

4.2 Attitudes as a Function of Behaviour Intention

Behaviour intentions are the pivotal concept of the Theory of Reasoned Action(5). Attitude formation and change are viewed as the result of information. Concurrently, the information value of the belief is thought to be processed into an effective, evaluative dimension.

In previous research Thurstone (202) reported that attitudes were influenced by previous experience and accepted that attitudes can be measured, but are incapable of predicting behaviour. After developing a value-expectancy model of attitudes, Rosenberg (165) used it to describe the attitudinal affects as those attitudes expressed towards the object which were associated with the attainment of important values.

The attitudinal component is considered by Fishbein and Ajzen(5) to be the favourable or unfavourable evaluation of a particular behaviour and, while a person may only have one attitude towards a behaviour, several beliefs may be held about the behaviour. In considering the attitude of nurses to smoking, the theory of cognitive dissonance (69) encapsulates the beliefs expressed by these nurses in their behaviour where

the knowledge link between cigarette smoking and their own behaviour is suppressed, while emphasizing the benefits gained from smoking. (123) The individual evaluation of independent but related beliefs, may thus lead to the development of dissonant attitudes and behaviour.

In the context of the Theory of Reasoned Action, (5) there is a consistency in the relationships between beliefs, attitudes and behaviour, because, a salient belief about a behaviour, if not considered within the context of other beliefs, associated with that behaviour, cannot be expected to be an indicator of the attitude towards that particular behaviour. It follows that an attitude can be considered as a function of the sum of the salient beliefs together with the measure of the effect of each of those beliefs, namely the outcome evaluation. (5,70)

Knowledge is not necessary for the prediction of behaviour intention, although an effective measure of salient beliefs may be required to understand attitudes. Although attitudes related to a behaviour can be measured directly on a visual analogue scale, it is not in itself sufficient to determine a behavioural intention accurately. It is necessary to have a complementary normative component in order to predict the behaviour accurately.

4.3 Subjective Norms as a Function of Behaviour Intention

The effects of social factors is conceived in the

Ajzen/Fishbein model(5) to be represented by the perceived or subjective norms. Drawing on reinforcement decision making and exchange theories, it assumes, that people are motivated to conform to their subjective norms and that social factors are important.

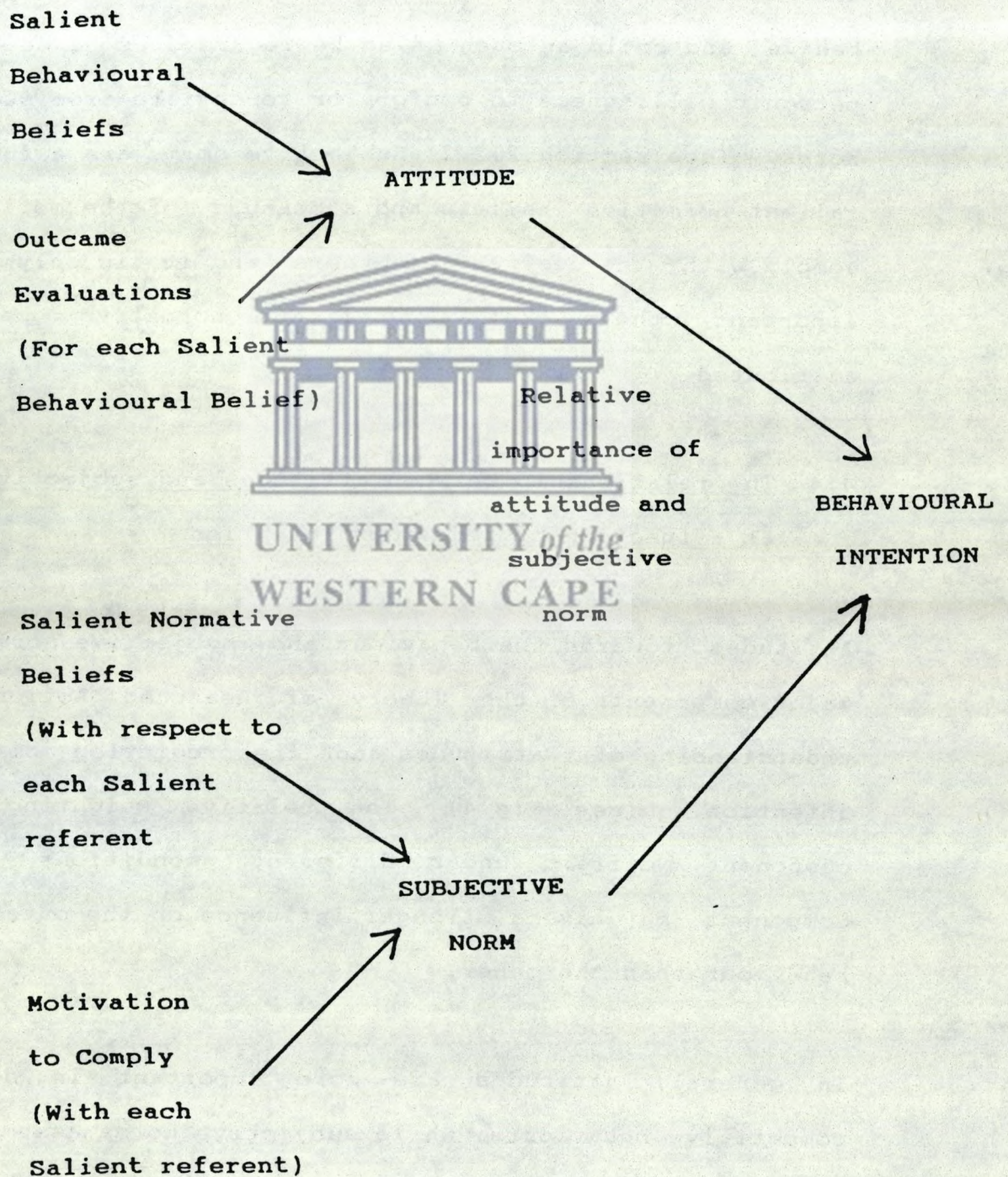
Subjective norms are described as people's general belief, of how most other people, important to them, feel they ought to behave and could as such also be regarded as a measure of a person's willingness to conform or to deviate from such social norms. (see section 2.2.2) Subjective norms are a function of salient normative beliefs and a measure of the motivation to comply with the desires of others and it is only to these important others that a salient normative belief is attributed.

4.4 The relationship between attitudes and subjective norms as a function of behaviour intention

Attitudes towards the behaviour and subjective norms are the major components of the Theory of Reasoned Action in the understanding of attitudes and the prediction of behaviour intention. (see Fig.4) The relative weighting to each component differs under different conditions, i.e. one component may have a stronger influence on the outcome of the behaviour than the other.

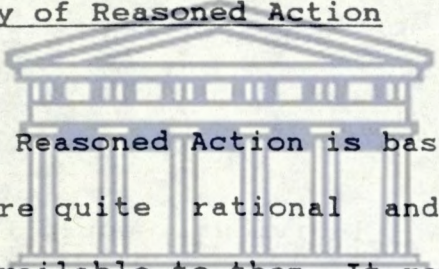
In general, attitudes are more important in determining competitive behaviours, while subjective norms assume greater

Fig. 4 The Relationship between Attitudes and Subjective Norms as a function of Behavioural Intention



importance in cooperative behaviours. This model is only operational, if all the salient behavioural beliefs and the salient normative beliefs, salient to the target group have been included in rank of priority. It is for this reason, that while it may be good at predicting behaviour intention of the population, it is less likely to be accurate at the individual level. The implication is, that in the questionnaire construction, the salient beliefs or referents of some individuals may be omitted, if it is not common to the majority of the population.

4.5 The Theory of Reasoned Action



The Theory of Reasoned Action is based on the assumption that human beings are quite rational and make systemic use of information available to them. It rejects the view that human social behaviour is controlled by unconscious motives or overpowering desires, nor can it be characterized as a thoughtless, impulsive or an erratic change of mind. Fishbein and Ajzen argue that people consider the implications of their actions, before they decide to engage or not to engage in a given behaviour.

The ultimate goal of this theory is to understand attitudes and to predict behaviour, which in this project is preventive dental and medical health behaviour in relation to compliance and acceptance of health care. The theory assumes that most actions of social relevance are under volitional control and

consistent with this assumption, the theory views a person's intention to perform or not to perform a behaviour as the immediate determinant of the action, although unforeseen events may cause the person not to perform the actual intention.

The model identifies two determinants of intention,

1) Attitudes towards the behaviour (which is personal in nature) is the individual's positive or negative evaluation of performing a behaviour;

2) Subjective norm (reflect social influence) is the person's perception of the social pressure exerted on him to perform or not to perform the behaviour in question. (see Fig.4)

In general, an individual would accept and comply with preventive dental care, if he/she evaluates it positively and when he/she believes that important others think they should do so.

Attitudes and Subjective norms are both functions of beliefs of different kinds. The beliefs that underlie a person's attitude are termed behavioural beliefs, which result in either a favourable or unfavourable attitude towards the behaviour. Furthermore, a person who believes that most referents (important others) with whom (s)he is motivated to comply, think (s)he should perform the behaviour will perceive the social pressure to do so. In this way, subjective norm may exert pressure to comply with and accept dental care.

A basic tenet, in the understanding of this theory, is that a person's attitude toward's the behaviour, does not include traditional attitudes e.g. attitudes toward's objects, persons or institutions, but is rather directed at the behaviour itself. Factors including personality characteristics, demographic variables, social role and status, socialization and kinship patterns, are regarded as external variables.

The model views external variables as having an effect on behaviour only to the extent that it influences the determinants of the behaviour. This influence is neither stable nor predictable. There are two ways in which the external variables may be effected ;

1) they may influence the behavioural or normative beliefs or affect the measures of these beliefs.

2) Alternately, they may influence the relative importance of the attitude and the subjective norm in predicting behavioural intention. (see Fig. 5)

Knowledge, though an external variable, may if acquired by a person, change the attitudinal component of the behavioural intention in a positive way. This takes place at a cost of discrediting the old beliefs, which will be superseded by the new ones. A basic tenet of the group support theory, illustrates how current salient referents are either changed or replaced by new ones if the normative component is modified.

Salient referents varies at different age levels.

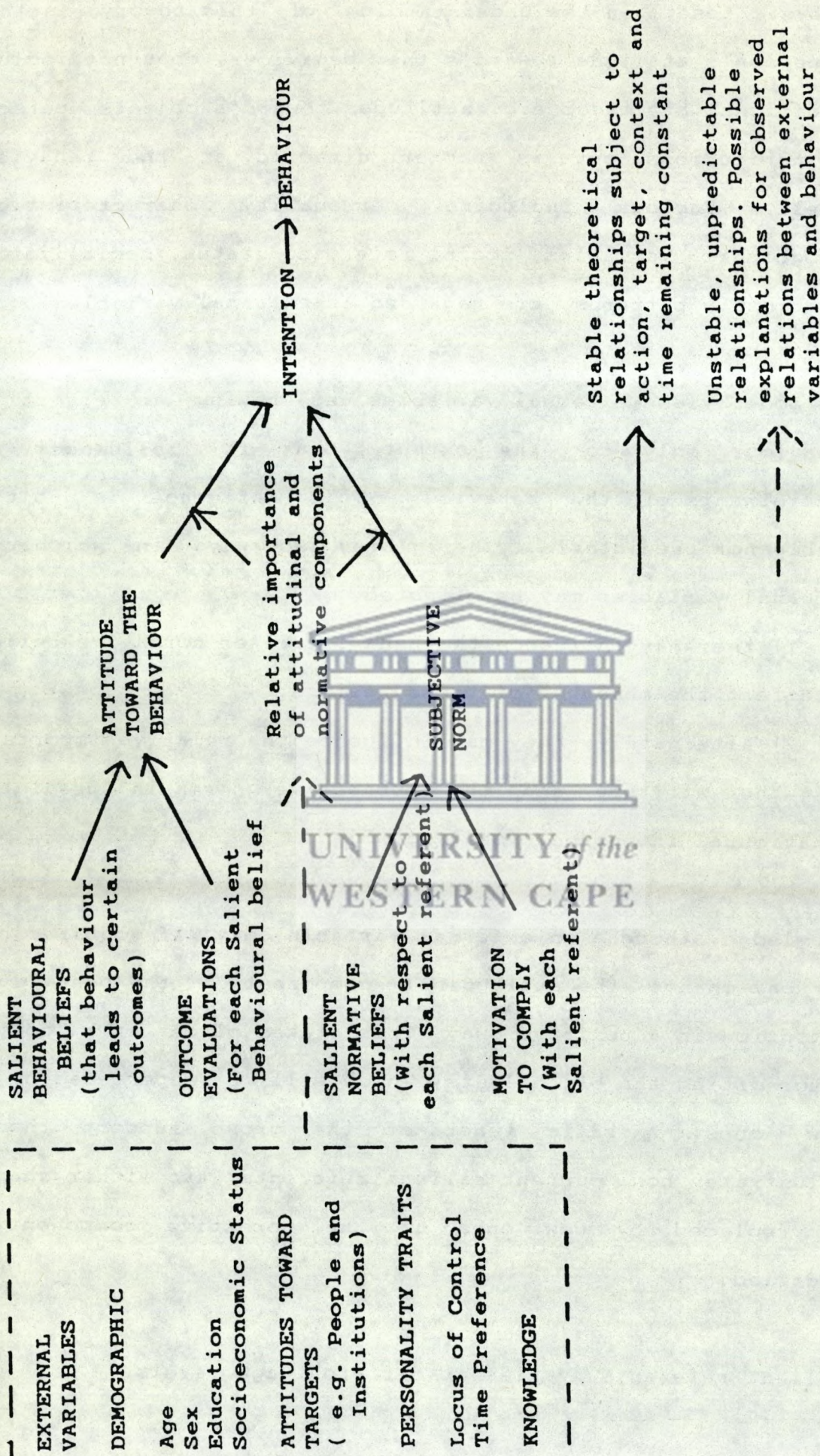


Fig. 5 The Theory of Reasoned Action

The majority of parents, play a decisive role in influencing the behaviour of children, whereas peer groups may be more appropriate, if adolescents are the target of education. In the uptake of preventive dental services, the role of the family is very important (126) and the influence it exerts on family members. This illustrates the pivotal aspect of primary and secondary socialization as a basis to the psychological understanding of health behaviour.

Behaviour intentions are thus a necessary although not sufficient immediate cause of behaviour. The effect of intentions is said to be contingent on three conditions, which if met, make it both a necessary and sufficient cause of behaviour. The conditions are ;

1) The extent to which the behaviour intentions and the behaviour correspond in action, target, context and time ;

2) The stability of the intentions. The authors agree that while intentions are not completely stable, as well as present intentions not always being an accurate predictor of future intentions, the prediction can be maximized by shortening the time interval between the measurement of the intention and the behaviour itself;

3) volitional behaviour. Fishbein and Ajzen (5,70) states that intentions only predict behaviour which is under volitional control, and is defined as behaviour which does not require skills, abilities and the cooperation of others. It only requires motivation i.e. intention.

The Theory of Reasoned Action has been applied successfully to predict many human behaviours. This theory is not restricted to a specific behavioural domain unlike most other explanations of behaviour.(5)

One of these studies, are that of Marsh and Mattheson (128) who analysed attitudes and behaviour in relation to smoking by Marsh and Mattheson. The authors claimed that smoking was a reasoned action because of the strong relationships between attitudes and behaviour intention.

Attitudes and beliefs fell into six main dimensions. these were life enhancement, self esteem, social rejection, affect control, health threat and financial outcome. The independence of affect control, which contained items of short term difficulties e.g. feeling ill at ease, whereas health threats were of a nature that is more meduim to longterm.

Smokers were prepared to loose 'affect control' by giving up smoking in favour of expected gains e.g. life enhancement. Marsh and Mattheson demonstrated that subjective norms e.g. 'setting a good example to children' and 'approval of those closest to a me' were the more influential aspects of the normative component than e.g. 'my behaviour will offend other people'.

In a six month follow-up postal questionnaire, the relationship between attitudes and behaviour were reassessed. It appeared that the attitude profile of the confident

intender to give up smoking, were quite different to the confident non-intender and that unmeasured variables could be influential in changing a non-intender to an intender.

In a second study, Hoogstraten and Ter Horst (96) describes the stimulation of the demand for dental care in Holland among irregular and non-attenders. The study essentially compared three conceptual frameworks of health behaviour analyses. These were ; the Ajzen/Fishbein model, the Health Belief Model and Parson's theory of sick role behaviour relating to the Rights and Obligations for receiving dental care.

The 329 subjects of the study had not received any dental care or a dental fitness certificate within the previous two and a half years. In view of this background, i.e. applying for dental treatment and acquiring a dental fitness certificate were the two behaviour criteria used. The effectiveness of communication based on the Ajzen/Fishbein model, were compared with that of the Health Belief Model as well as the belief that knowledge of Rights and Obligations is a prerequisite for seeking dental care.

In all, 47% of the sample applied for treatment. No control subjects applied. Fifteen months later, 70% of the applications had obtained a dental fitness certificate. The authors conclude that the Ajzen/Fishbein model, provides a valid tool to understand attitudes toward dental behaviour and it's relations in seeking dental treatment. Two assumptions of the Theory of Reasoned Action were supported in the study ;

- 1) the relevance of behavioural beliefs and
- 2) the irrelevance of demographic variables.

The author's of the second study conclude, that following the work of Bentler, Speckart (30) and Triandis (203) who suggested that past behaviour contributes to the prediction of behaviour, the correlation between this measure of past dental behaviour and whether or not the subjects required a dental fitness certificate, suggests that including previous behaviour to the Ajzen/Fishbein model may increase it's power to predict dental behaviour of non-dentally fit persons.

In this study, the Theory of Reasoned Action will be used to gain an understanding of the attitudes and normative components salient to the intention for mothers of young infants to take up preventive medical and dental services for their children.



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CHAPTER FIVE

PREDICTION OF BEHAVIOURAL INTENTION OF MOTHERS TO TAKE THEIR CHILDREN FOR A CHECK-UP :

- A) TO THE DENTIST IN THE NEXT 6 MONTHS
- B) TO THE DOCTOR IN THE NEXT 4 WEEKS

The Purpose of the Study

- 5.1 Method
- 5.2 The Development of the Questionnaire
 - 5.2.1 Exploratory Interviews
 - 5.2.2 In-depth Interviews
- 5.3 Questionnaire Design
- 5.4 Study Area
- 5.5 Pilot Study
- 5.6 Selection of Mothers
- 5.7 Conduct of the Study
- 5.8 Data Analysis

THE PURPOSE OF THE STUDY

This study will use the Fishbein/Ajzen model of Reasoned Action to examine the preventive health behaviour intentions of mothers of young children. The subjects will also be divided into two age groups and the attitudes and the subjective norms, that may predict intention to visit the dentist/doctor preventively will be investigated for each age group.

The aim of the study is to see whether there is any relationship between beliefs and attitudes held by mothers, on preventive dental and repeated medical visits, and to examine the role of important others in the mothers background as possible stimulis to preventive health behaviour. In order to do this, the following objectives of the study can thus be stated :

- 1) To determine whether there are differences in attitudes to the uptake of dental and medical preventive services in mothers of different age groups.
- 2) To ascertain if the two health behaviours, namely visiting the dentist and the doctor are related in any way.
- 3) To observe whether visiting the doctor does exert any influence on the uptake of dental preventive services.
- 4) To determine the relative importance of specific attitudinal and normative beliefs held by mothers of young

children about dental attendance behaviour.

5) To determine the relationship of attitudes and subjective norms with respect to specific beliefs and referents (important others) with regard to dental attendance behaviour.

6) To determine whether the behaviour intention to visit the dentist preventively can be predicted by Fishbein/Ajzen model.

5.1 Method

The method of questionnaire design developed by Ajzen and Fishbein (5) was used to assess the behaviour under examination.

5.2 The Development of the Questionnaire

5.2.1 Exploratory Interviews

Initially a few exploratory interviews were conducted with ten mothers. The interviews were conducted at the Somers Town Family Health Clinic (the main base for the conduct of the study) and all these mothers fulfilled all the criteria necessary to be included in the main sample. These mothers either attended the Health Clinic or Community Dental Clinic in Somers Town. (see Appendix D1 and Section 5.4). The interviews were conducted in a leisure and relaxed atmosphere which enabled the investigator to :

- 1) practice the interview technique, allay fears and develop a manner of ease and comfort of talking to respondents ;

- 2) to explore the origins, complexities and the ramifications of the attitudes area in question, in order to decide more precisely what is to be measured ;
- 3) to obtain vivid expressions of such attitudes from the mothers in a form that might make them suitable to use as statements in the attitude scale (150)
- 4) to obtain a broad spectrum of beliefs held by mothers about preventive dental and medical attendances.

The respondents were told that all information given by them would be held strictly confidential and would only be used for the purpose of this study including any extension of this research. In preparation for the in-depth interviews, the interview techniques were adjusted (144,145) to obtain most information from the target group and refined accordingly. (143) Extreme caution was taken to avoid three types of expectational errors by the interviewer;

- 1) attitude-structure expectations - answers given early in the interview not taken as indication of persons attitudes neither expected it to be consistent ;
- 2) role expectations - the interviewer tried at best not to be biased by the impression gained of the interviewee in terms of social type, age, and personality if later confronted with doubtful, ambiguous and marginal answers;
- 3) probability expectations : not to expect a certain distribution of opinions or characteristics among

respondents. (138)

After retesting the technique the study proceeded to the next stage. (143)

5.2.2. In-depth (semi-structured) Interview

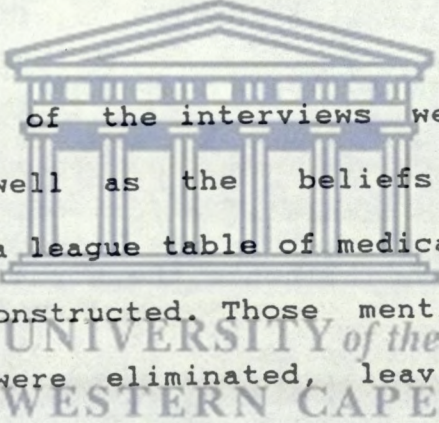
In order to develop and construct the questionnaire, a more in-depth interview with fifteen mothers, (regular attenders at clinic) elicited more specific beliefs about preventative dental and medical attendance behaviour. The interviews were conducted by the investigator, with mothers, in the context of the normal clinical attendance setting i.e. while mothers were waiting for either the health visitor or the doctor and dentist to attend to their children.

It was tried to simulate a form of general conversation and not to disrupt or influence the normal working pattern of the clinic. Furthermore, it was hoped to have the survey seen by the mothers as part of their preventive visit instead of something special or different so as. Using this method, a counter productive effect on the response of the mothers would more likely be prevented.

All mothers approached responded favourably to the interviews. The sample of this study comes predominantly from Social Class V, and caution was exercised to avoid adopting a victim blaming or harassing attitude during the interview. Instead, the mothers were cordially approached in a reassuring and an

understanding manner, the effect of which was to obtain as accurately as possible their deep felt beliefs and referents on the subject. The objective thus was to avoid the mother telling interviewer "what she feels he wants to know".

This technique was employed to avoid response sets of social desirability (where mother tries to show herself in better light) and of acquiescence (giving assent instead of dissent where she feels so inclined. (150) The confidentiality of the conversation was reinforced at different times, with all views expressed recorded on audio-tape, to which there was no objection.



The recordings of the interviews were then transcribed and examined as well as the beliefs and referents noted. Consequently, a league table of medical and dental behavioural beliefs were constructed. Those mentioned by fewer than 5 respondents were eliminated, leaving ten salient dental beliefs and nine medical behavioural beliefs. Transcription of the normative beliefs revealed seven salient normative referents for both the dental and medical data. The salient behavioural and normative beliefs formed the fundamental basis for the construction of the questionnaire.

5.3 Questionnaire design

In their method for questionnaire design, Ajzen and Fishbein claimed that it is essential to state in exact terms the behavioural intention in terms action, context, target and

time. The questionnaire was designed to investigate the dental/medical intentions, beliefs and subjective norms related to preventive uptake of medical and dental services.

The 4 parts consist of ;

- 1) General intentions (including dental and medical)
- 2) Dental data
- 3) Medical data
- 4) General information on mother and child(see Appendix A1)

Respondents were deliberately not told that this is a dental behavioural study, since this may have biased the answers given and the investigator was identified as the project researcher instead of being introduced as a dentist.

An independent questionnaire was completed by the Health visitors, based at the clinic.(see Appendix A2) The objective was to measure their perception of the dental health behaviours of the mothers whom they care for at the clinic and at home. The answers of both the mothers and the health visitors will be compared to see if any associations exist on related aspects of health tabled in both questionnaires. This information will give a clear indication of the importance and type of health messages, the health visitor communicates to the mother. For the Report on the Health Visitor Questionnaire see Appendix A3.

The behaviour to be predicted is the intention to make a

preventive visit to the dentist in the next 6 months, both for the mother and the child. This recall interval for dental check-ups was selected, not only because of the very topical nature of the subject at present in the dental profession, but also since there are no charges involved to patients for this item and secondly, most health education literature and training of allied health workers, e.g. health visitors suggest, a pattern of 6 monthly visits to the dentist. More importantly, most of the mothers reflected in the interviews, that they were familiar with 6 monthly recall visits to the dentist. Similarly, the interviews revealed that some mothers came as frequent once a week to the clinic, while others came less frequently. The medical behaviour in question, is thus the intention of the mother to take the child for a preventive visit in the next 4 weeks. The decision was taken to assess dental health behaviour in the context of general health behaviour and this was a fundamental part of the questionnaire design.

Both medical and dental beliefs ranged from :

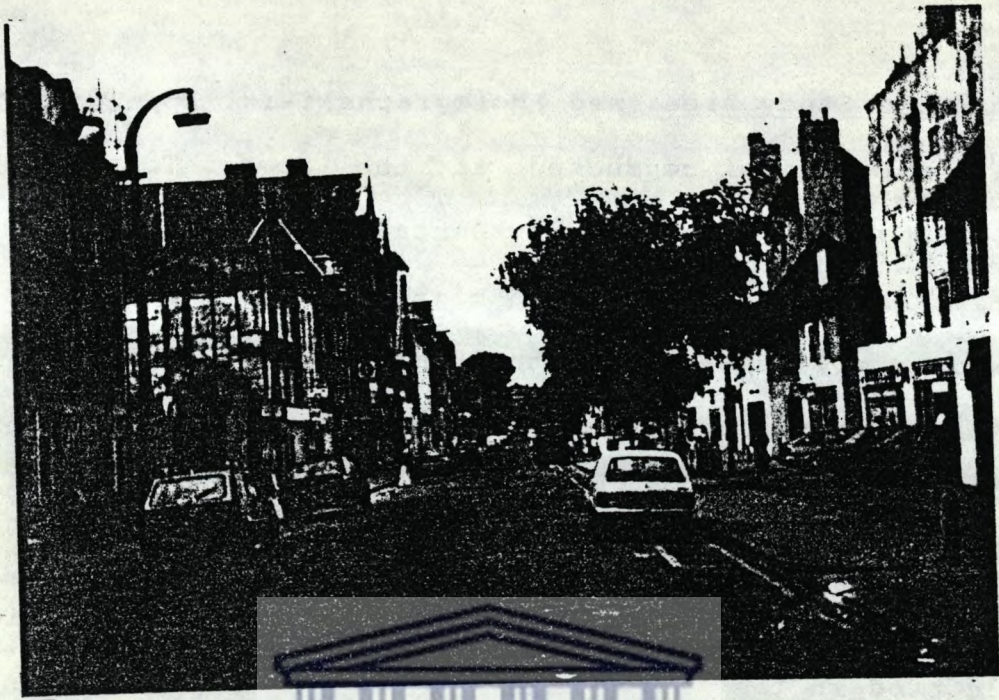
- 1) the organisation and efficiency of preventive health services ;
- 2) the attitude of personnel (doctor, health visitor, dentist) ;
- 3) access to the clinic ;
- 4) the waiting period before being attended to at the clinic ; and
- 5) the effect of having an interpreter for the Bengali people.

An outline and description of the study area will now be presented, to give an overall view of the living environment of the study sample.

5.4 The Study Area (see Photographs i-ix, Appendix D1 & D2)

The study was conducted at the Somers Town Family Health (STFHC) and the Community Dental Clinic (CDC). The catchment area served by the health clinic, though difficult to define accurately, is based on the Family Practitioner Committee area of three general practitioner (GP) attached health visitors and the working wards of three geographically attached health visitors. The health visitors are all who are based at the Health Clinic. The working area of the health visitors are located in the wards of Somers Town, St Pancras and part of Regents Park. (see Appendix D2) These wards form part of the Bloomsbury Health Authority (37) and the total population served is 117,829. (Bloomsbury, Health For All 2000 Report based on the 1981 Census) There are 5 single handed GP practices and 1 Health centre to serve the 3 geographical health visitor appointed areas.

The population of Somers Town is - 5,956, St Pancreas, - 4,801 and Regents Park - 8,440. The catchment area, served by the medical and dental clinics constitutes 16% of the population served by this health authority. The majority of the mothers in this sample comes from Social Class IV and V. In terms of the social class structure of this health authority 16% of the people comes from these two groups. An assessment of the



(i)

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(ii)

levels of deprivation, revealed the highest recording for all the wards in the Bloomsbury area, was in Somers Town, St Pancras and Church street. (see Appendix D2) Furthermore, Somerstown is recorded as one of the most deprived area in relation to the other wards in England.

The boundaries of Bloomsbury encompass part of two local Authorities ; that is, the Eastern part of the City of Westminster and the Southern half of London Borough of Camden. The total surface area is 6.25 sq miles. In addition, Bloomsbury attracts a large number of commuters, tourists and shoppers. There are also a large number of University and other Higher Education establishments. Against this background, a recent Report of the Archbishop of Canterbury Commission on underprivileged areas (UPA)1985,(11) indicates a high level of unemployment, decayed housing, substandard education, poor medical provision and social intergration.(156)

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Approximately 6% of the population (36,5% of the migrant population) live in overcrowded accomodation. A third of the food premises in the area were classified as being in an appalling state. Homelessness is now estimated at least 2000 of whom 75% live either rough or in hostels. There is also a large number of priority homeless households in company council owned accomodation or they may stay with friends or relatives. 40% of pensioners (1 in 5 people are over the age of 65) live alone .



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SERVICES PROVIDED
Family Planning
FREE PREVENTIVE
Antenatal Clinic
CHILD HEALTH CLINIC

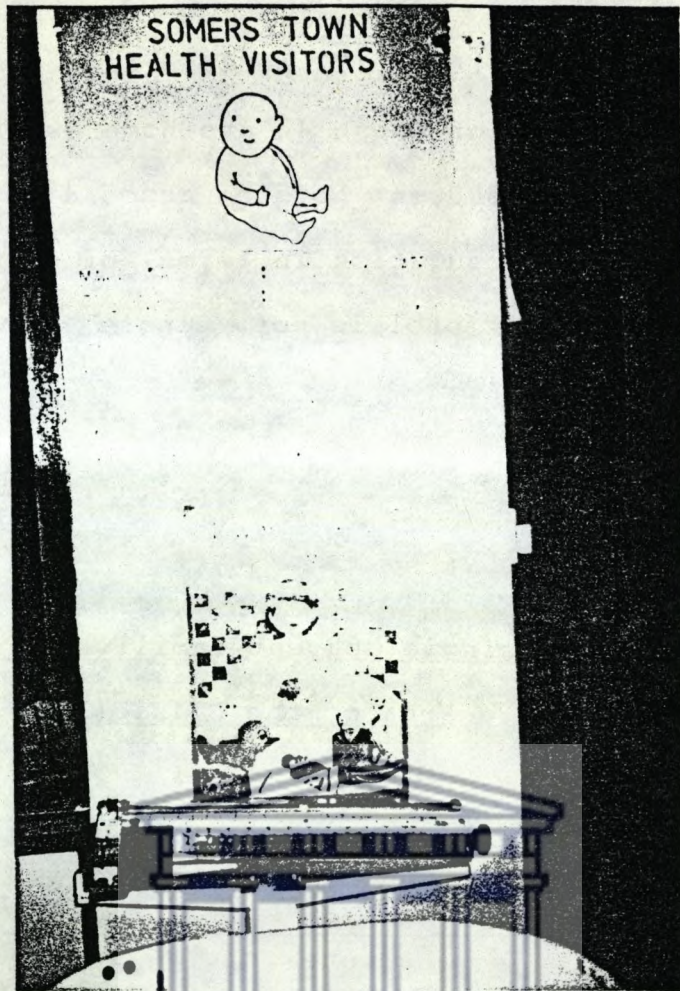
Elderly Advice
Services
Community
Nursing
Health

For Somers Town itself, 3,173 persons are economically active, (2,319 households) of which 42 are home owners, 1,658 live in council homes and 508 in housing association accomodation. A breakdown of the population in terms of origin of person can be seen in , and a profile of single parent families is illustrated in Fig A.

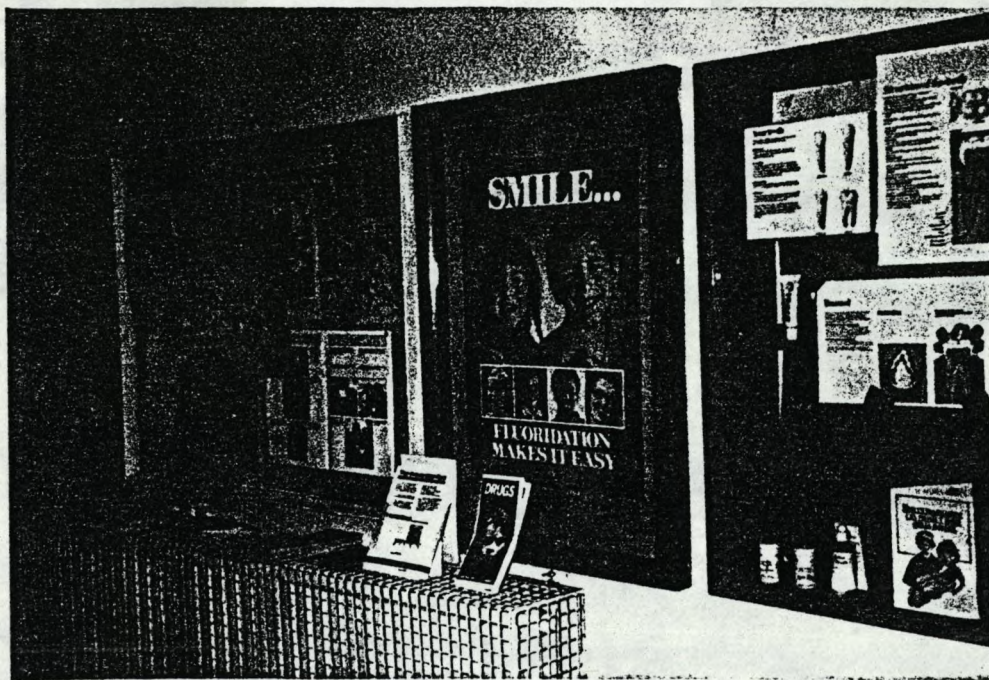
Fig.A : Number of single parent families in the Catchment Area of the Clinic(37)

	Male				Female			
	T	E/A	F/T	P/T	T	E/A	F/T	P/T
Somers Town	8	8	6	5	146	60	36	22
St Pancras	4	4	8	3	143	67	60	40
Regents Park	6	5	6	7	135	69	54	39

Key : T = total number per 100
 E/A = economically active
 F/T = full-time employed
 P/T = part-time employed



(v)
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(vi)

U.C.A

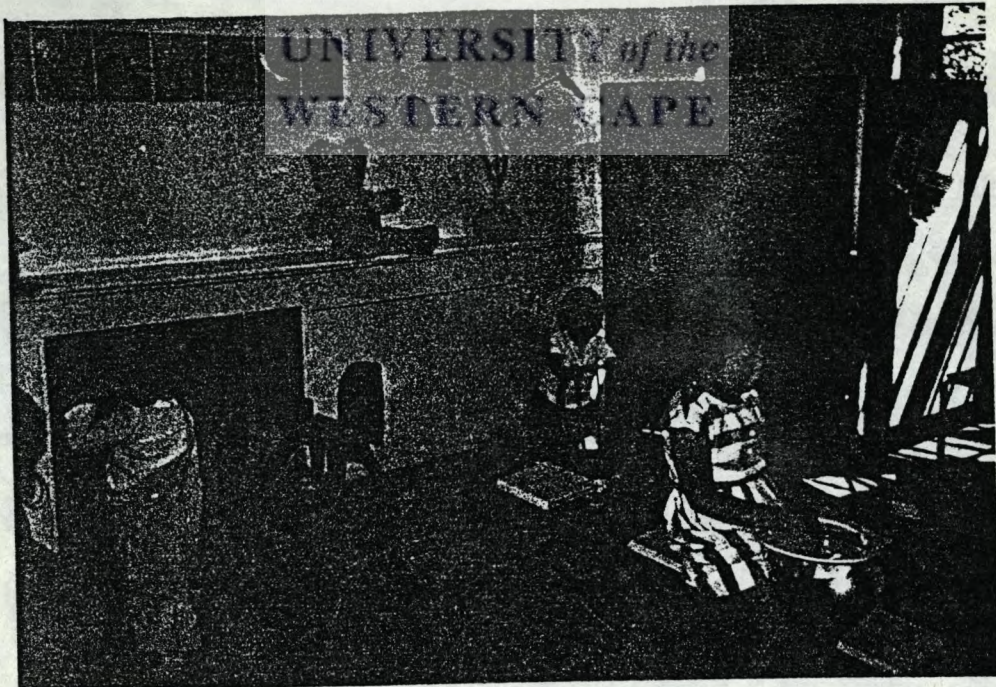
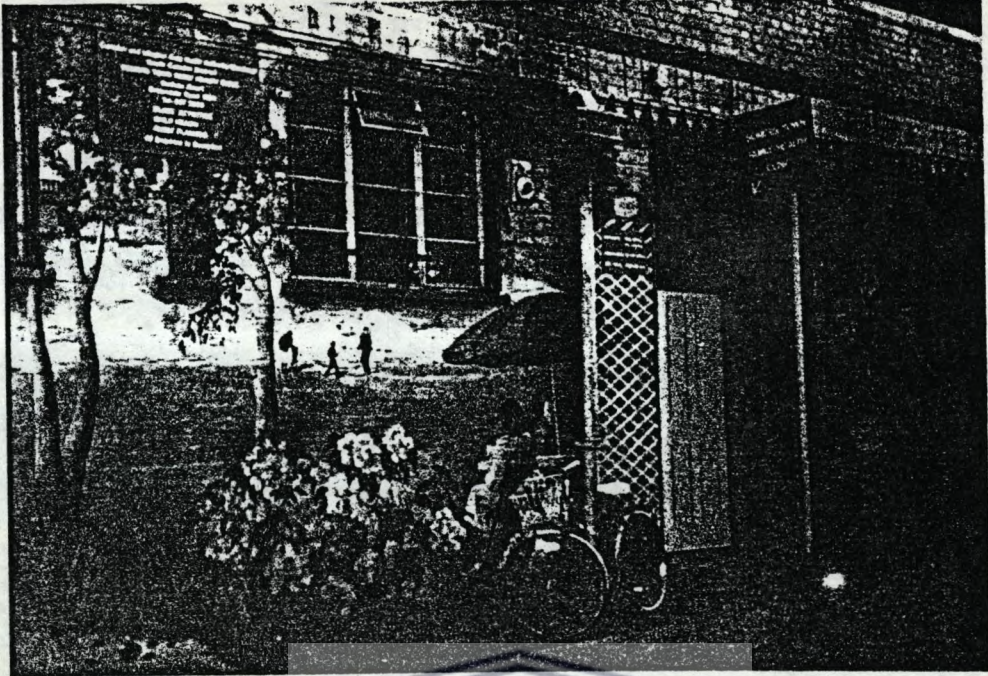
The number of children under 4 years of age in the catchment area of the clinic is shown in Fig.B

Fig.B : The number of children under 4years in the Catchment Area of the Family Health Clinic (37)

	Male	Female	Total
Somers Town	171	190	361
St Pancras	173	158	331
Regents Park	138	114	252
			844

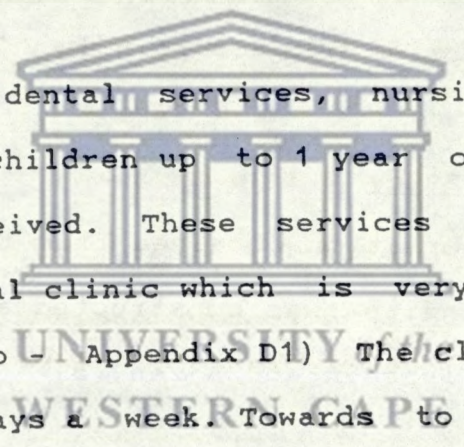
The number of families served by all the Health Visitors excluding the elderly consist of an average of 600 families. These consist mainly of frequent attenders at the clinic. Nearly all mothers in the catchment area go to University College Hospital maternity unit for their confinement. After delivery, the family are visited by a health visitor and this is a statutory regulation. The health visitor may either be GP attached or geographically based. Mothers could then attend the Somers Town Health Clinic for height and weight checks, dietary advice, (once a month), general medical advice, immunization, boosters, vaccinations and even to obtain processed milk. (see photograph iv)

An important observation to note, is that although the



(viii)

majority of the residents are of English descent, there are a number of ethnic minority groups holding quite different health views, as was observed during the in-depth interviews. It was found that while the country of origin of such mothers differed, most of the children were born in England. The family may consequently consist of children who are 1st or 2nd generation English. This feature may have important effects on the uptake of health services due to different cultures and value orientations to medicine. During the first year all infants are contacted to arrange vaccinations and immunizations. The latest figures for the uptake of these services in the Study area can be seen in Appendix C2,C3.



In relation to dental services, nursing mothers (that is, mothers with children up to 1 year old) do not pay for any treatment received. These services are available at the community dental clinic which is very near to the health clinic (see map - Appendix D1). The clinic is served by one dentist two days a week. Towards the end of this study there has been a change of dentist rendering the service.

The reason for selecting Somers Town as the study area are the following :

According to the Report on a study of areas of Deprivation in the UK, Somers Town, is one of the most disadvantaged areas on a national and local level. It would therefore be of interest to examine the preventive health behaviour of mothers living under very extreme living conditions (see Appendix D2

for criteria of Deprivation Study). The general accepted norm for low income groups in relation to 'health matters' is a 'dont care' attitude and it would be interesting to see if this was so, since it will hold important implications for the delivery of health services in this area. Furthermore, at the time the study was conducted, the dental services was supplied by a member of staff of the postgraduate department. It was tried to effect the community development approach(97) to the services, and the result of the study may be an indication of the perception of the mothers utilizing the preventive dental services.

In view of this background information, the pilot study was planned and carried out accordingly.

5.5 The Pilot Study

Using the information obtained from the in-depth interview, a pilot questionnaire was constructed according to the methods described by Fishbein and Ajzen.(5)

The pilot sample consisted of 20 mothers. They were of similar age and socio-economic background as those who were to take part in the main study. The questionnaire was completed in the presence of the investigator at the health clinic. The mothers were asked their views on the design, ease of understanding of the language, ease of reading and any general comments they felt necessary to make. These comments were noted, and the method recommended by Fishbein and Ajzen were followed (see section 5.8)

The comments which were felt to be useful were incorporated into the questionnaire, so that improvements in question format, wording and understanding could be made before the study commenced. Using this method the questionnaires were assessed, improved and developed into the final form which was administered in the study. (see appendix - A1)

The changes made to the questionnaire, after completion of the pilot study were directed at the following major points ;

- 1) Intentions to visit the dentist. It was decided to include a question, on the intention of mothers to attend the dentist, in addition to a similiar question for taking the child to the dentist to avoid confusion;
- 2) For the time context, two questions were asked ;
 - a) dental attendance in the next and
 - b) every 6 months, to have the same relative context for intention and the salient beliefs. The same was done for questions on medical attendance.

5.6 The selection of mothers

In order to reduce experimental error to a minimum, the study was confined to the catchment area of Somers Town Health(STFHC) and Community Dental Clinic(CDC). A sample of 100 mothers, were selected from those presently attending the medical and dental clinic for preventive health services. The selection were drawn from the patient lists of health visitors, who

may either be GP or geographically attached. All health visitors are based at the STFHC.

The age range of mothers was 16-30 yrs and were predominantly social class V. (out of an average of 600 mothers with young children who attended the clinics for various medical and dental services were taken up in the sample. The sample was restricted to current attenders of health services as in Social Class V group. These people may offer trend /indication of why they seek preventive services as they do at present and compliance in care offered.

5.7 The conduct of the study

The study was carried out in April to June 1986. Permission was obtained from the offices of District Dental Officer, for the borough. The interviews, as well as the completion of the questionnaire were carried out at the STFHC and CDC. As some mothers came for repeated medical visits for their children, an average of 5 to 6 mothers completed the questionnaire at a clinic session, in the presence of the investigator (while waiting for their turn to be seen by the doctor or health visitor). It was tried to assimilate the completion of the questionnaire, as part of the health visit and not as a separate entity. Names were not included on the questionnaire for ethical reasons and to allow the investigator to obtain social sensitive information which otherwise would not have been possible. It is important to note that confidentiality would be of the highest order.

For the ethnic minority groups eg. Bengali had an interpreter who acted as facilitator to completion of questionnaire for these mothers, always attend with their whole family, including the husband, whereas English mothers attend alone. The investigator thus supervised the completion of the questionnaire at each clinic session and was available for clarification and explanation of any aspect of the questionnaire if deemed necessary by the mother.

5.8 Data Analysis

To convert the data contained in the visual analogue scales into numeric form, the following method was used. The grades both for dental and medical intentions and salient behavioural beliefs were scored from 1 to 7 as follows ;

Extremely likely	7	Can't Say	4	Very unlikely	3
Very " "	6			Quite " "	2
Quite, " "	5			Extremely " "	1

The grades for salient medical and dental normative beliefs were scored from 1 to 5. The most positive answer were scored the highest numerical value.

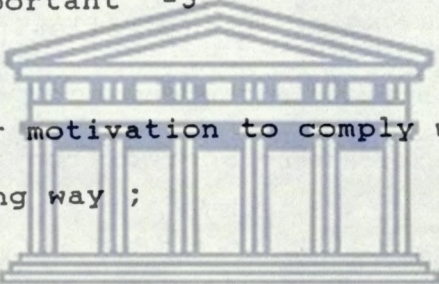
Absolutely must	5
Preferably should	4
May/may not	3
Preferably should not	2

Absolutely must not 1

The grades for the outcome evaluations for both medical and dental data were scored from +3 to -3 in the following way ;

Extremely Important	+3
Quite " "	+2
Slightly " "	+1
Can't Say	0
Slightly Unimportant	-1
Quite Unimportant	-2
Extremely Unimportant	-3

The grades for motivation to comply were scored from +2 to -2 in the following way ;



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Definitely Wants to	+2
Probably Wants to	+1
Can't Say	0
Probably Don't want to	-1
Definitely Don't want to	-2

To each salient behavioural belief there is an associated measure of effect, namely the outcome evaluation. The two scores multiplied together form the attitude score for that belief (see Appendix B1 and B3). Similarly for each referent, a score representing the normative belief is multiplied with the motivation to comply score which gives the subjective norm

score for a particular behaviour. (see Appendix B2 and B4) the attitude score ranges from -21 to +21 and subjective norm scores ranges from -10 to +10 for both the medical and dental data. A neutral outcome evaluation or a neutral motivation to comply is given a zero score.

Summation of the individual attitude scores gives the final score representing a person's attitude to preventive dental visit behaviour. Similarly, summation of the individual subjective norm scores will give an indication of the importance of the influence of important others in a person's life with respect to decisions on dental and medical attendance patterns. (see Appendix B1 - B4)

In this analysis it should be noted that inconsistent beliefs will only have a small effect on the final attitude, when summated with the combined weight of the majority of the beliefs supporting the attitude.

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The transformed data were then subjected to stepwise regression analysis. This allowed the analysis of the effect of the dependent variable - the behaviour intention - on the independent variables which includes the attitudes, subjective norms, salient behavioural and normative beliefs.

Statistical Analysis - All raw data collected were transformed into numeric form, using the method described in the Appendix (B1-B4) This data program were formatted, screen designed to

accomodate all the data on a QL-20 Sinclair Computer.(see Appendix H) All data were then transferred to the main frame computer, of the University of London Computer Centre, on which SSPS-x program were used for further analysis. The Ajzen/Fishbein model is basically a regression model and the structural equation and causal diagram of this theory is shown in Appendix I.

The regression analysis were used to find out which are the attitude and subjective norm predictor variables of Intention in this study. A correction factor was applied to the regression values,(87) obtained in the study, since the number of mothers in the two groups were not the same.(see Appendix J).

Factor analysis was used to search for the underlying structures, that may more parsomoniously describe the relationships between the various attitudes and subjective norms respectively.




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CHAPTER SIX

RESULTS

The Sample

- 
- 6.1 A Prediction of Intention to visit the dentist using the Theory of Reasoned Action of Fishbein and Ajzen
- 6.1 B Prediction of Intention to visit the doctor using the Theory of Reasoned Action of Fishbein and Ajzen
- 6.1 C Analysis of the Dental and Medical data in 2 Age groups of mothers
- 6.2 Analysis of the mean scores for Attitudes to each belief and Subjective norms to each referent
- 6.3 Factor Analysis of Attitudinal and Normative data

The Sample

The sample consisted of 100 mothers with children aged up to 5 years, who attends either the Somers Town Family Health(STFHC) or the Community Dental Clinic(CDC). The mothers completed a questionnaire at the respective clinic, while waiting either for medical or dental care for their children.

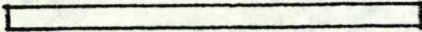
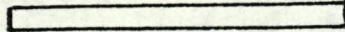
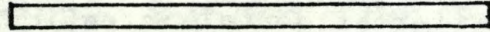
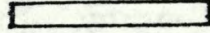
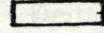
The mothers were allocated into 4 age groups, with biggest category in group 3 i.e. 35% of the mothers aged 25-30yrs. 39% of the mothers were aged below 26 yrs. and 61% aged 25+ yrs. The mean age of the mothers were 23.8±0.94yrs. The age distribution of all the mothers are shown in Fig.6A.

Fig. 6A : The Age distribution of mothers in the Sample

Key	Age Group	n(%)
1	16+yrs	10(10)
2	20+ "	29(29)
3	25+ "	36(36)
4	30+ "	25(25)
		<u>100(100)</u>
Mean (\bar{x}) Age \pm S.D.		
23.80 \pm 0.94years		

The children, were allocated into 5 age groups. The biggest group consisted of 31 children aged 1-2 yrs in group 3. 49% of the children were aged up to 1 year and 53% were aged 1year and over. The mean age of the children were 18 \pm 1.22 months.(see Fig.6B)

Fig. 6B : The Age distribution of the children of mothers in the sample

		<u>n(%)</u>
Key : 1 = up to 6mths	1 	27(27)
2 = 6mths+ - 1yr	2 	22(22)
3 = 1yr+ - 2yrs	3 	31(31)
4 = 2yrs+ - 3yrs	4 	13(13)
5 = 3yrs+	5 	7(7)
		<hr/> <u>100(100)</u>
Mean (\bar{x}) Age \pm S.D.		
18 \pm 1.22mths		

Thus 49% of mothers qualified for free dental treatment under the nursing mother scheme for community dentistry.

The mothers, come predominantly from Social Class V, based on the 1981 census, and they accounted for .09% of the total female population for Somers Town, over the age of 16 years. Furthermore, the sample consisted almost entirely of mothers, who at the time the study was conducted, attended the health services (medical and dental) for preventive care.

There is no control group, as the main purpose of the study is to look at the factors determining the intention to take up preventive health behaviour and to look at the relationships between medical and dental attendance patterns.

6.1(A) Prediction of Intention to visit the dentist using
the Theory of Reasoned Action of Fishbein and Ajzen

Dental Data

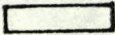

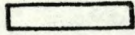
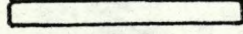
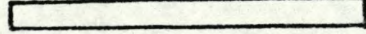
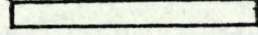
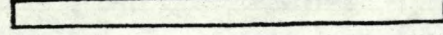
Five different dental intentions were tested in the study i.e. 1 main and 4 sub intentions, related to the preventive uptake of dental care. The dental intentions are :

- Intention 1 (Int.1) = to take your child to the dentist
for a check up in the next 6 months
- " " 2 (Int.2) = to take your child to the dentist
every 6 months
- " " 3 (Int.3) = to buy the child sweets this week
- " " 4 (Int.4) = to visit the dentist (i.e. the mother)
regularly every 6 months
- " " 5 (Int.5) = to give your child health drinks today
(Int.5 was regressed against both medical and dental data)

The dental data will be shown in Figs. 7A,7B,7C,7D,7E,7F,7G and Tables 1,2 and 3.

67% of the mothers, were likely to take their child to the dentist in the next 6 months,(Int.1) of which 28% were extremely likely to do so. Of the remaining 33% of mothers, 18% were unlikely to perform Int.1 and 15% could not say.(see Appendix A1) The frequency distribution of Int.1 is shown in Fig.7A. The mean ($\bar{x} \pm$ S.D.) score for Int.1 was 5.04 ± 1.78 .

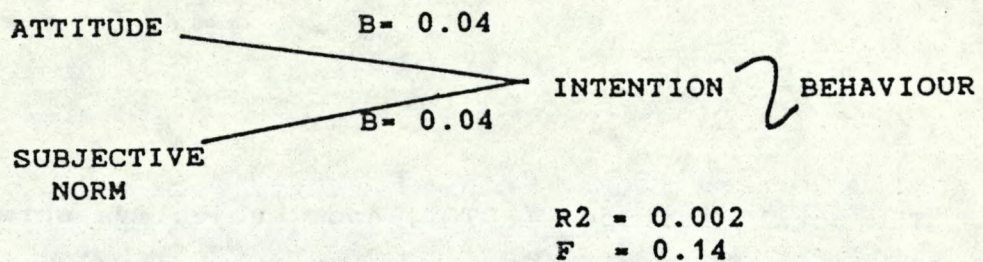
Fig. 7A : The Frequency distribution of the Intention of mothers to take their children to the dentist for a check-up in the next 6 months (Int.1)

	n(%)	Key :
1 	7(7)	1 = Extremely Unlikely
2 	3(3)	2 = Very Unlikely
3 	8(8)	3 = Quite Unlikely
4 	15(15)	4 = Can't Say
5 	23(23)	5 = Quite Likely
6 	16(16)	6 = Very Likely
7 	28(28)	7 = Extremely Likely
	<u>100(100)</u>	

Mean (\bar{x}) Intention Score \pm S.D.
 5.04 \pm 1.78

The total attitude (ADTOT) and subjective norm (NDTOT) as a function of Int.1. (Fig.7B) accounted for a total variance of less than 1% ($R^2=.002$, $F=0.14$) of which ADTOT ($B=0.04$) was the larger component and for NDTOT, ($B=0.04$)

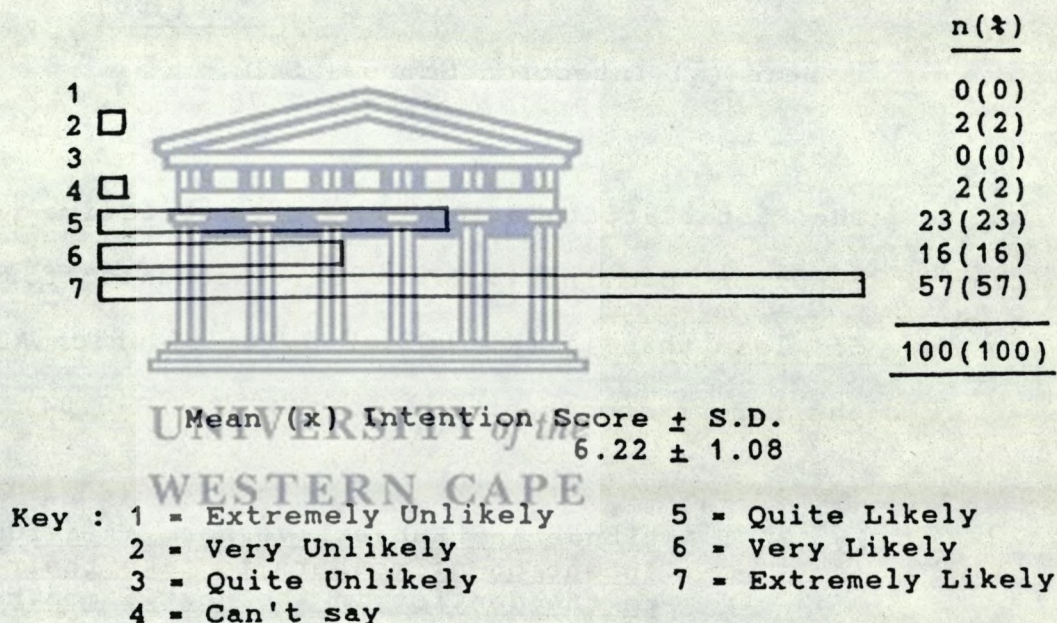
Fig. 7B : Attitude and Subjective norm as a function of the Intention of mothers to take their children to the dentist in the next 6 months(Int.1)



Key : B = Beta weight
 R2 = Measure of the variance predicted by the regression equation
 F = Test of Significance of R2

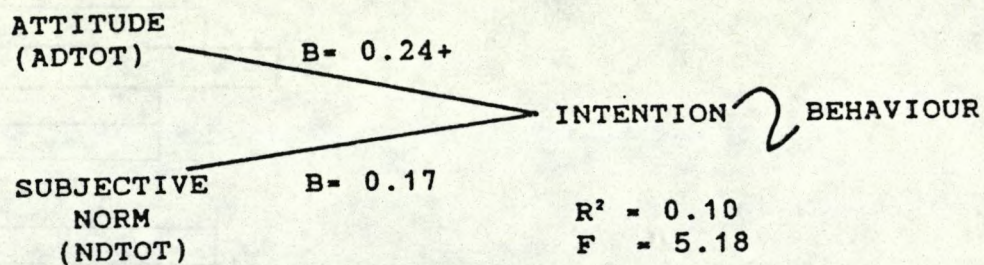
57% of the mothers were extremely likely to take their child to the dentist every 6 months, (Int.2) with another 39% extremely to do so, also, 2% of the mothers were unlikely to perform Int.2 and 2% could not say. The frequency distribution of Int.2 is shown in Fig.7C. The mean ($\bar{x} \pm$ S.D.) score for this intention was 6.22 ± 1.08 .

Fig. 7C : The Frequency distribution of the Intention of mothers to take their children to the dentist for a check-up every 6 months (Int.2)



The total attitude (ADTOT) and subjective norm (NDTOT) were regressed as independent variables against Int.2 (dependent variable). The total variance accounted for was 10% ($R^2=0.10$, $F=5.18$, $p<0.5$) with ADTOT ($B=0.24$) as the major component. NDTOT had a beta value of 0.17. (Fig.7D)

Fig. 7D : Attitude and Subjective norm as a function of the Intention of mothers to take their children to the dentist for a check-up every 6 months (Int.2)



Key : + $p < 0.05$
 B = Beta Weight
 R^2 = Measure of the variance predicted by the regression equation
 F = Test of Significance of R^2

Within the context of preventive health behaviour, the analysis of three additional dental intention showed the following ; (see Fig.7E for frequency distribution of Int.3,4 and 5)

- 1) 57% of the mothers were likely to perform Int.3, of whom 14% were extremely likely to so. 32% were unlikely to perform Int.3, and 11% could not say. Int.3 had a mean ($\bar{x} \pm S.D.$) score of 4.37 ± 2.06 .
- 2) 63% of the mothers were likely to perform Int.4, 27% unlikely to do so and 10% could not say. The mean ($\bar{x} \pm S.D.$) score for Int.4 was 4.79 ± 1.86 .
- 3) 36% of the mothers were extremely likely to perform Int.5, with an additional 44% likely to do so. 13% were unlikely to perform this behaviour, and 7% could not say. The mean ($\bar{x} \pm S.D.$) intention score was 5.53 ± 1.7 .

Key :

- A = to take her child to the dentist in the next 6 months
- B = to take her child to the dentist every 6 months
- C = to buy sweets this week
- D = to visit (the mother) the dentist every 6 months
- E = to give your child health drinks today

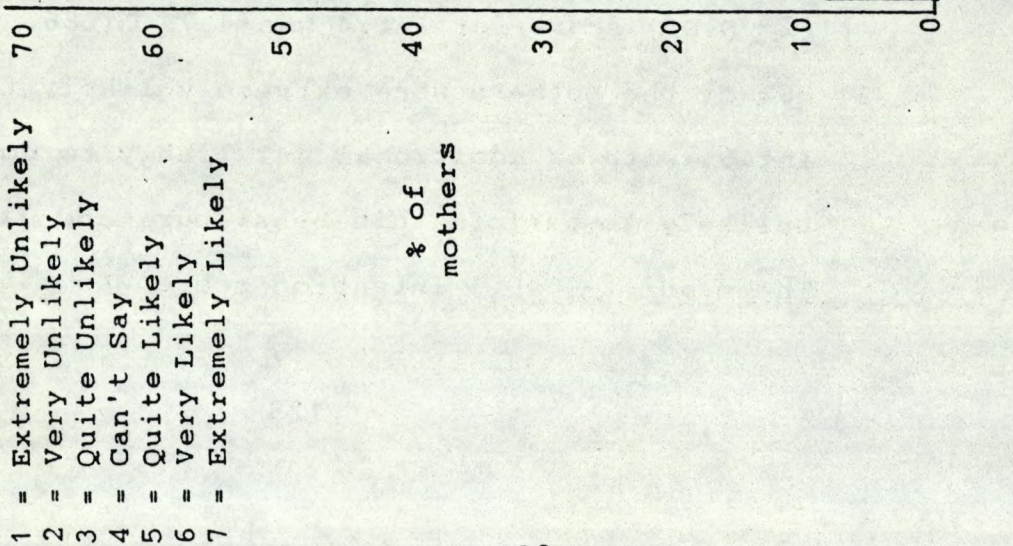


Fig.7E : Frequency distribution of dental intentions of mothers

Int.3,4 and 5 were regressed against independent variables ADTOT and NDTOT (see Table 1).

Table 1 : Attitude and Subjective norm as a function of Intention 3,4 and 5

	Beta value		R ²	F
	Attitude	Subj. norm		
Int.3	0.29	0.17	0.13	7.02 +
Int.4	0.004	0.09	0.01	0.39 NS
Int.5	0.03	-0.01	0.001	0.05 NS

Key : + = $p < 0.05$
 NS = Non Significant, $p > 0.05$
 subj. = Subjective
 Int. = Intention
 R² = Measure of the variance predicted by the regression equation
 F = Test of Significance for R²

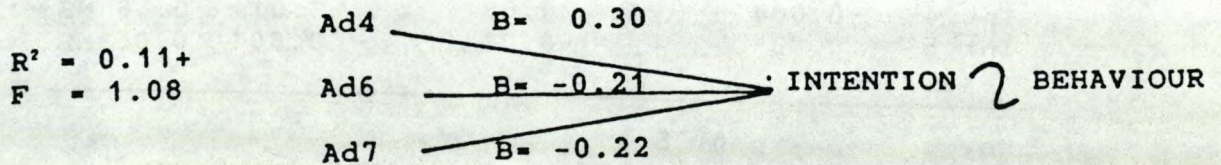
In Table 1 it is shown that prediction for Int.3 was the highest with $R^2=0.13$, $F=7.02$ ($p < 0.05$). ADTOT was the major component of Int.3 ($B=0.29$) as well as for Int.5 ($B=0.03$) Only 1% of the variance was predicted for Int.4 and for both Int.4 and Int.5, the prediction did not reach level of significance ($p > 0.05$)

Dental attitudes toward the behaviour (see Appendix B1)

To determine, if any individual attitude, concerning a specific belief was a better predictor, than the total attitude score, ten separate attitude scores (Ad1 to Ad10) were entered into the regression equation (for separate attitudes see Appendix A1) as independent variables against the main dental intention (Int.1) as well as Int.2,3,4, and 5. The total variance accounted for by the 10 attitudes for Int1

was 11% ($R^2=0.11$, $F=1.08$, $p<0.05$) of which Ad6 (Attitude associated with the belief that the dentist will discover early decay) (see Fig.7F) was the main component ($B= -0.21$) as well as showing an inverse relationship to the intention.

Fig.7F : Attitudes associated with specific beliefs as a function of Intention of mothers to take their children to the dentist in the next 6 months (Int.1)



Key : + $p<0.05$

B = Beta Weight

R^2 = Measure of the variance predicted by the regression equation

F = Test of Significance of R^2

The other attitudes (see Appendix A1) which contributed to the variance, were Ad4 ($B=0.3$) and Ad7 ($B= -.22$).

The total variance for the 4 additional dental intentions, (Int.2,3,4, and 5) are shown in Table 2. Of the 4 intentions,

Table 2 : The Total Variance for the 4 associated Sub-intentions Predicted by Individual Dental Attitudes

Intention	Total Variance(%)	R^2	F	B	Main Components
Int.2	19	0.19	2.06	0.40	Ad10++
Int.3	9	0.09	0.90	0.23	Ad10
Int.4	20	0.20	2.18	0.36	Ad10+
Int.5	5	0.05	0.44	-0.15	Ad10
				0.15	Ad6

Key : ++ $0.001<p<0.01$

+ $p<0.05$.

B = Beta Weight

R^2 = Measure of the variance predicted by the regression equation

F = Test of Significance of R^2

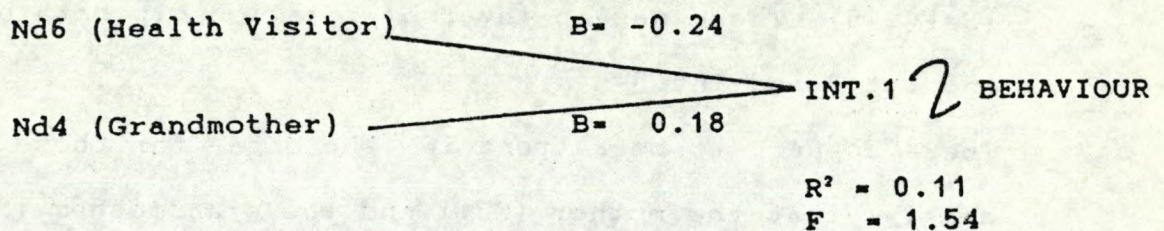
(For Ad6 and Ad10 see Appendix B1)

Int.4 had the highest variance of 20% ($R^2=0.20$, $F=2.18$, $p < 0.05$) and the best predictor was Ad10 ($B=0.36$). The same predictor (Ad10) accounted for 19% ($B=0.40$) of the variance for Int.2 ($R^2=0.19$, $F=2.06$, $p < 0.01$), 9% ($B=0.23$) of the variance of Int.3 ($R^2=0.09$, $F=0.90$, $p < 0.05$) and together with Ad6 ($B= 0.15$), Ad10 ($B= -0.15$) accounted for 5% ($R^2=0.05$, $F=0.44$) of the variance of Int.5. These findings are shown in Table 2. It is interesting to note, that, an inverse relationship was shown between Int.5 and Ad10.

Dental subjective norms to the behaviour intention

The individual subjective norms (Nd1 - Nd7) regarding specific referents (important others) (see Appendix B2) were regressed as independent variables against Int.1. The total variance accounted for by the 7 subjective norms were 11% ($R^2=0.11$, $F=1.54$) of which Nd6 (subjective norm with respect to the Health Visitor) was the major component. It showed an inverse relationship with Int.1 ($B= -0.24$), (see Fig.7G)

Fig. 7G : Subjective norms to Individual referents as a function of the Intention of mothers to take their children to the dentist in the next 6 months (Int.1)



Key : B = Beta Weight
 R^2 = Measure of the variance predicted by the regression equation
 F = Test of Significance of R^2

The only other important referent in the equation was Nd4 (the grandmother) and is illustrated in Fig.7F.

The prediction of Int.2, 3, 4, and 5 with Nd1-Nd7 as independent variables were very low, the highest being 7% for both Int.2 ($R^2=0.07$, $F=.98$) and Int.4 ($R^2=0.07$, $F=1.02$). This is illustrated in Table 3.

Table 3 : The Total Variance for the 4 associated sub-intentions Predicted by Individual Dental Subjective norms

Intention	Total Variance(%)	R ²	F	B	Main Components
Int.2	7	0.07	0.98	0.18 0.16	Nd1 Nd4
Int.3	6	0.06	0.83	-0.22 0.13	Nd6 Nd5
Int.4	7	0.07	1.02	0.17	Nd4
Int.5	6	0.06	0.88	-0.19	Nd6

Key : B = Beta Weight
 R² = Measure of the variance predicted by the regression equation
 F = Test of Significance of R²
 (For Nd1, Nd4, Nd5 and Nd6 see Appendix B2)

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The major predictors for the intentions were : for Int.2 were Nd1 (B=0.18) and Nd4 (B=0.16), for Int.3, Nd6(B= -.22) and Nd5 (B=0.13), for Int.4, Nd4 (B=0.17) and for Int.5 - Nd6 (B=-0.19) There was an inverse relationship both between Nd6 and Int.3 and Int.5.

There appear to be a trend in the data, for these referents, namely, that the mother (Nd1) and the grandmother (Nd4) seemed to be important sources of referents. For Int.3, it appears that to the mother, the husband/partner (Nd5) advice has greater salience than that of the health visitor (Nd6)

For the total sample, 89% of the variance for the Int.1, as

reported in the questionnaire, was not predicted by any component of the Fishbein/Ajzen model.

6.1(B) Prediction of Intention to visit the doctor using the Theory of Reasoned Action of Fishbein and Ajzen

Medical Data

Three different medical intentions were regressed against both the total medical attitude (AMTOT) and subjective norm (NMTOT) scores. The medical intentions are :


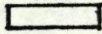
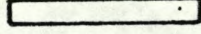
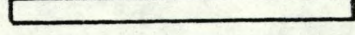
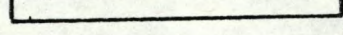
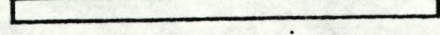
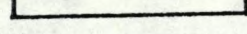
Intention 6 (Int.6) = to take your child to the doctor in the next 4 weeks(main intention)

" " 7 (Int.7) = to take your child to the doctor every 4 weeks

" " 5 (Int.5) = to give your child health drinks today

The medical data will be shown in Fig.8A,8B,8C,8D,8E,8F,8G and 8H and Tables 4 and 5.

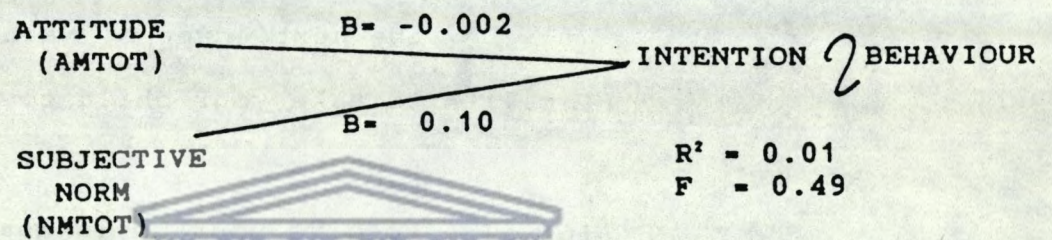
Fig. 8A : The Frequency distribution of the Intention of mothers to take their children to the doctor in the next 4 weeks (Int.6)

	<u>n(%)</u>	
1 	4(4)	1 = Extremely Unlikely
2 	6(6)	2 = Very Unlikely
3 	7(7)	3 = Quite Unlikely
4 	21(21)	4 = Can't Say
5 	19(19)	5 = Quite Likely
6 	28(28)	6 = Very Likely
7 	15(15)	7 = Extremely Likely
	<u>100(100)</u>	

Mean (\bar{x}) Intention Score \pm S.D.
4.89 \pm 1.6

62% of the mothers, were likely to take their children to the doctor in the next 4 weeks, of whom 15% were extremely likely to do so. 17% were unlikely to perform this intention, and 21% were not sure. The frequency distribution of Int.6 is shown in Fig.8A. The mean ($\bar{x} \pm$ S.D.) score for Int.6 was 4.89 ± 1.6 .

Fig. 8B : Attitude and Subjective norm as a function of Intention of mothers to take their children to the doctor in the next 4 weeks(Int.6)



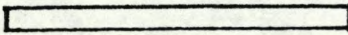
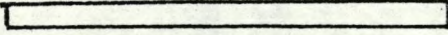
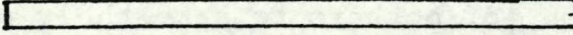


Key : B = Beta Weight
 R^2 = Measure of the variance predicted by the regression equation
 F = Test of significance of R^2

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The total attitude (AMTOT) and subjective norm (NMTOT) as a function of Int.6 (see Fig.8B) accounted for only 1% of the variance. ($R^2=0.01$) of which subjective norm was the largest component. ($B=0.10$) However, 40% of the mothers were extremely likely to take their child to the Health Clinic to see the doctor (including the health visitor) every 4 weeks (Int.7), with a further 49% being likely to perform this intention. Only 6% of the mothers were unlikely to go and 2% were not sure. The frequency distribution of Int.7 is shown in Fig.8C. The mean ($\bar{x} \pm$ S.D.) score for Int.7 was 5.95 ± 1.12 .

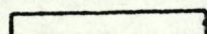
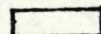
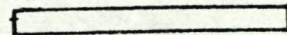
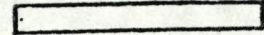
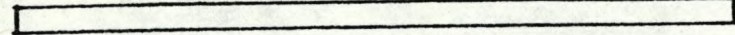
Fig.8C : The Frequency distribution of the Intention of mothers to take their children to the doctor every 4 weeks(Int.7)

	<u>n(%)</u>	<u>Key :</u>
1	0(0)	1 = Extremely Unlikely
2	0(0)	2 = Very Unlikely
3 	6(6)	3 = Quite Unlikely
4 	2(2)	4 = Can't Say
5 	23(23)	5 = Quite Likely
6 	29(29)	6 = Very Likely
7 	40(40)	7 = Extremely Likely
	<u>100(100)</u>	

Mean (\bar{x}) Intention Score \pm S.D.
5.95 \pm 1.12

A question on past medical attendance behaviour, of taking the child for repeated medical visits in the past, (see Fig.8D) was asked independently, later in the questionnaire. 47% stated that they would just take their child for symptomatic visits i.e. just when the mother feels it is necessary and of the remaining 53%, at least 37% said they attended the clinic once every 4 weeks.

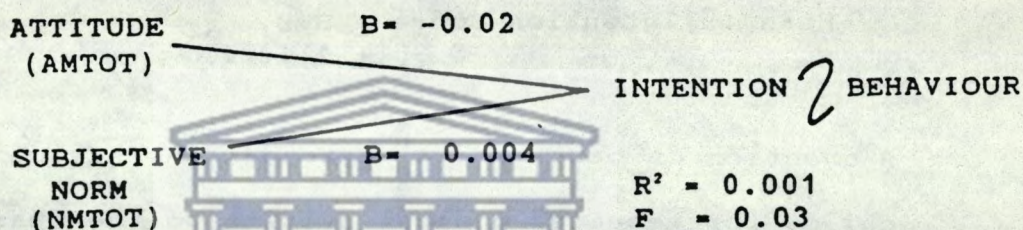
Fig.8D : Past Health Clinic Attendance Behaviour reported by the mothers for their children

	<u>n(%)</u>	<u>Key :</u>
1 	13(13)	1 = every 2 weeks
2 	6(6)	2 = " 3 "
3 	18(18)	3 = " 4 "
4 	16(16)	4 = " 5 "
5 	47(47)	5 = "Just when I feel it is necessary"
	<u>100(100)</u>	

Mean (\bar{x}) Intention Score \pm S.D.
3.78 \pm 1.43

The use of health services seemingly depends on what the mothers perceive as a need for treatment and consequently the use of the service. Total attitudes (AMTOT) and subjective norm (NMTOT) were very weak predictors of Int.7, with the variance less than 1%, (see Fig.8E). There was however, a slight inverse relationship between the behavioural beliefs (AMTOT) and Int.7 This may lend support to the high number of symptomatic visits.

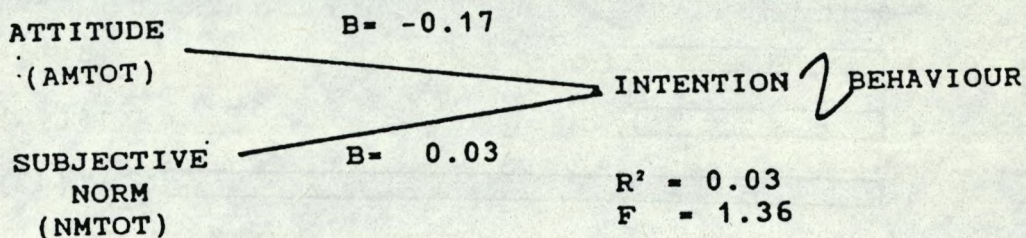
Fig.8E : Attitudes and Subjective norms as a function of Intention of mothers to take their children to the doctor every 4 weeks (Int.7)



Key : B = Beta Weight
 R^2 = the measure of variance predicted by the regression equation
 F = Test for Significance of R^2

AMTOT and NMTOT only accounted for 3% of the variance of Int.5. ($R^2=0.03$, $F=1.36$) and AMTOT were inverely related to Int.5. (see Fig.8F)

Fig.8F : Attitudes and Subjective norms as a function of Intention of mothers to buy their children sweets this week (Int.5)



Key : B = Beta Weight
 R^2 = Measure of the variance predicted by the regression equation
 F = Test of Significance of R^2

The frequency distribution of the intentions, (Int.6, Int.7 and Int.5 is illustrated in Fig.8G.(see p.140) It shows that :

64% of the mothers were likely to take their child to the doctor in the next 4 weeks, (Int.6) with only 12% extremely likely to perform this behaviour. However, 40% of the mothers were extremely likely to perform Int.7, with an additional 52% likely to do so. Whereas 20%, of the mothers, could not say whether they would (not)perform Int.6 only 2% expressed the same for Int.7. Intention 5 and Int.7 both showed a similiar trend, tending towards high extremely likely scores.



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Key:
 A = Intention of mother to take the child to the doctor in the next 4
 B = Intention of mother to take the child to the doctor every 4 weeks
 C = Intention to give your child health drinks today

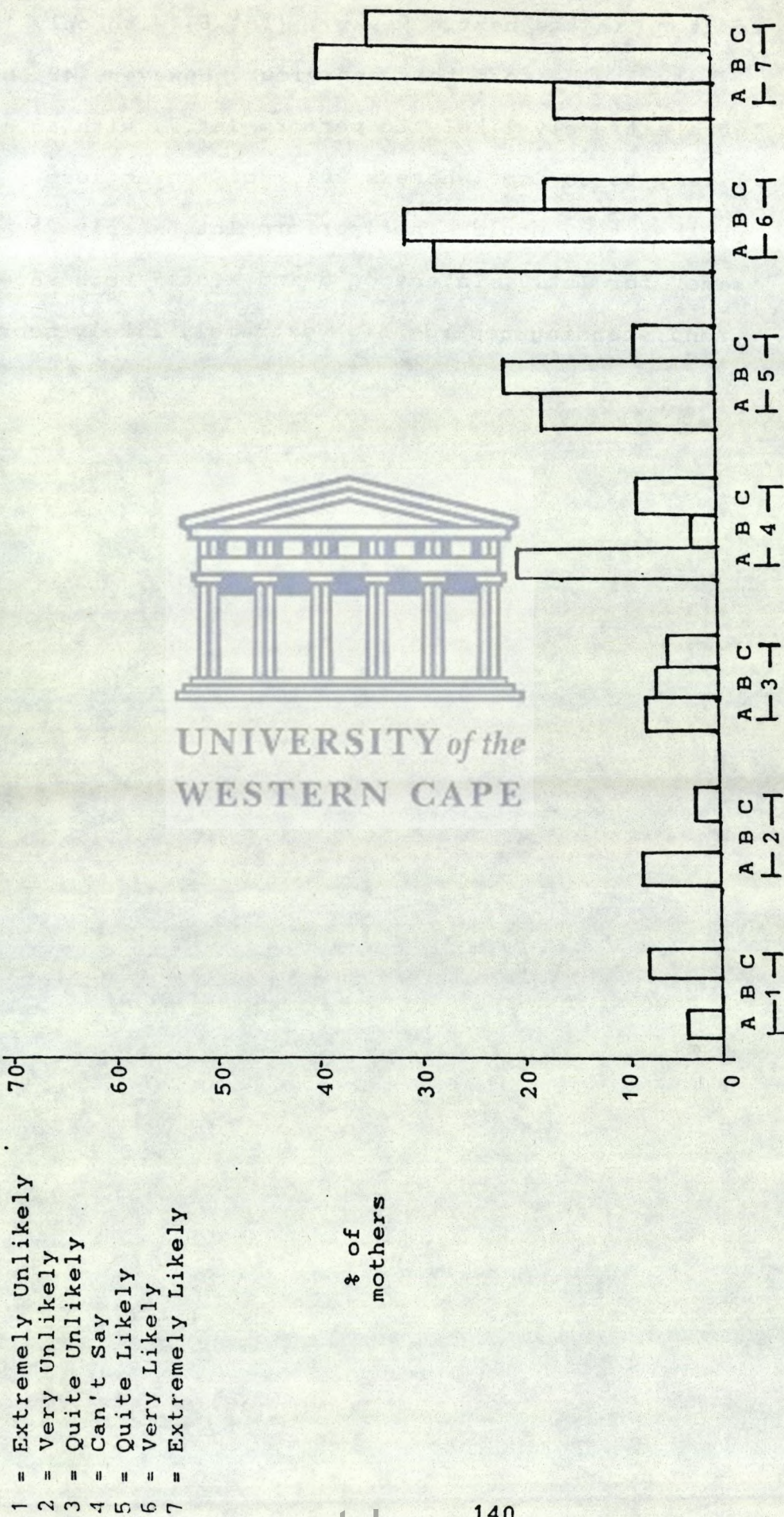
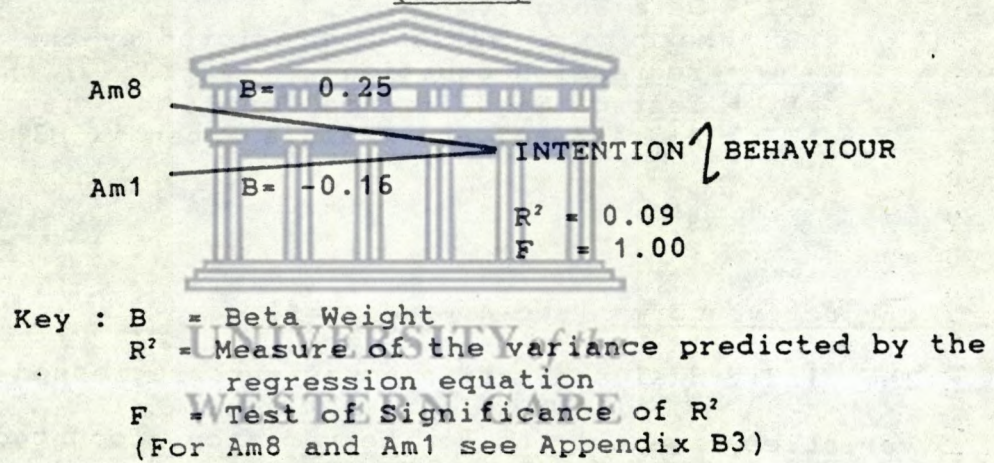


Fig.8G : Frequency distribution of medical intentions of mothers

Attitudes towards the behaviour (see Appendix B3)

To determine if any individual attitude concerning a specific medical belief was a better predictor, than the total attitude score, 9 separate attitudes (Am1-Am9) were added into the regression equation, as independent variables against the main intention medical intention, Int.6, as well as Int.7 and 5. The total variance accounted for Int.6 was 9% ($R^2=0.09$, $F=1.0$) with Am8 ("taking the child to the clinic will show how much I love the child") as the major component. ($B=0.25$) (see Fig.8H)

Fig.8H : Attitudes associated with specific beliefs as a function of Intention of mothers to take their children to the doctor in the next 4 weeks (Int.6)



The next highest attitude, was Am1 ("the belief that the child will remain healthy") and showing an inverse relationship ($B = -0.16$). The total variance accounted for by the 9 medical attitudes for Int.7 and Int.5 is shown in Table 4. 14% of the variance ($R^2=0.14$, $F=1.67$) in Int.7 was accounted for by a significantly inverse relationship with Am5 ($B = -0.33$, $p<0.01$) and Am7 ($B=0.29$, $p<0.01$) was significantly, positive

associated. Am8 ($B = -0.31, p < 0.05$) and Am3 ($B = -0.24, p < 0.05$) accounted for 18% ($R^2 = 0.18, F = 2.23$ and $p < 0.05$). Both these attitudes were inversely related to Int.5.

Table 4 : The Total Variance for the 2 associated sub-intentions Predicted by Individual Medical Attitudes

Intention	Total Variance(%)	R ²	F	B	Main Components
Int.7	14	0.14	1.67	-0.33++ 0.29++	Am5 Am7
Int.5	18	0.18	2.33+	-0.31+ -0.24+	Am8 Am3

Key: ++ 0.001 <math>p < 0.01</math>

B = Beta Weight

R² = Measure of variance predicted by the regression equation

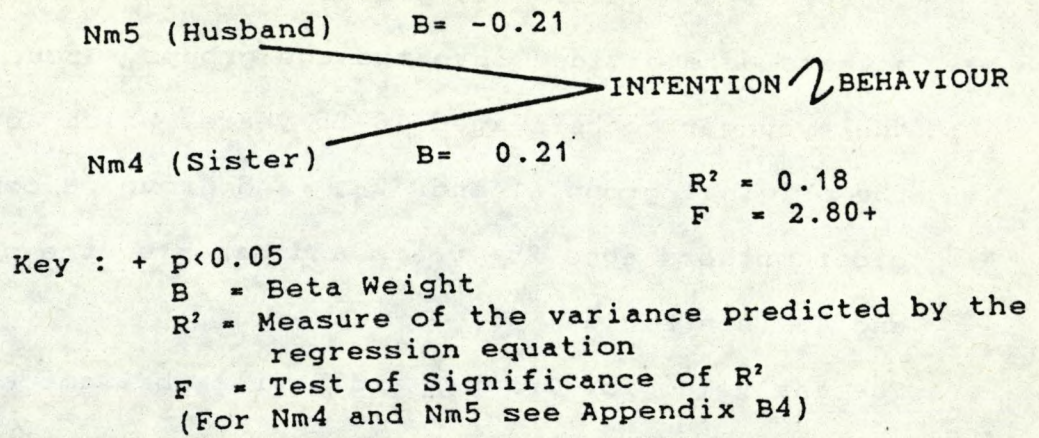
F = Test of Significance for R²

(For Am3, Am5, Am7 and Am8 see Appendix B3)

Subjective norms (see Appendix B4)

The individual subjective norms were regressed as independent variables against Int.6. The variance accounted for ($R^2 = 0.18, F = 2.8, p < 0.05$) was significantly greater, than for total subjective norm scores, (see Fig.8I) though not extremely high. The main normative components, accounting for the prediction, were Nm5 ($B = -0.21$) and Nm4 ($B = 0.21$). The effects of individual referents on Int.7 and Int.5 is shown in Table 5. 20% of the variance ($R^2 = 0.20, F = 2.81, p < 0.01$) was accounted for by Nm7 ($B = 0.34$) and Nm1 ($B = -0.19$), whereas for Int.5, Nm1 ($B = -0.20$) accounted for 8% of the variance ($R^2 = 0.08, F = 1.09$).

Fig.8I : Subjective norms to individual referents as a function of Intention of mothers to take their children to the doctor in the next 4 weeks (Int.6)



For the total sample, 82% of the variance of the Int.6 as reported in the questionnaire was not predicted by any component of the Fishbein/Ajzen model.

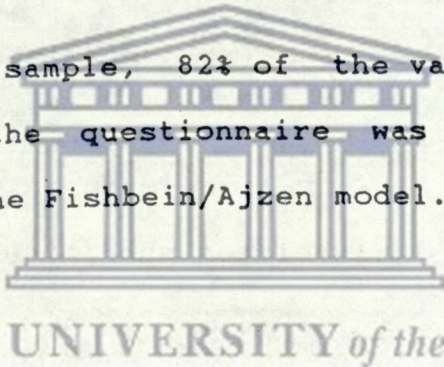


Table 5 : The Total Variance for the 2 associated sub-intentions Predicted by Individual Medical Subjective norms

Intention	Total Variance(%)	R^2	F	B	Main Components
7	20	0.20	2.81++	0.34 -0.19	Nm7 Nm1
5	8	0.08	1.09	-0.20	Nm1

Key : ++ $0.001 < p < 0.01$
B = Beta Weight
 R^2 = Measure of the variance predicted by the regression equation
F = Test of Significance of R^2
(For Nm1 and Nm7 see Appendix B4)

6.1(C) Analysis of the dental and medical data in 2 Age groups of mothers

To see if the level of prediction could be improved, the mothers were divided into two age groups. Group A consisted of the younger mothers aged 16-25 years, which actually comprise the original group 1 and 2 ; and Group B consisted of the older mothers aged 25+ years and makes up the original group 3 and 4. (see Fig.6A)

The analysis for Group A and B will be same as for the total sample, in terms of ;

a) dental data, for the main intention (Int.1) followed by analysis for the associated sub-intentions(Int.2,Int.3,Int.4 and Int.5)

b) medical data, For the main intention (Int.6) followed by analysis for associated sub-intentions (Int.7 and Int.5).

a) Dental data (Int.1)

There was a significant improvement in the prediction of intentions for both the young and older mother groups. (see Table 6)

In comparison to the total attitude (ADTOT) for all the subjects, the prediction for Int.1 improved as follows ;

For Group A, improvement from <1% to 19% ($R^2=0.19$, $F=4.17$, $p<0.05$) with ADTOT as the major component ($B= -0.44$, $p<0.01$). For Group B, improvement from <1% to 20% ($R^2=0.20$, $F=7.07$, $p<0.01$) with ADTOT once again as the major component. ($B=0.44$, $p<0.001$).

In terms of the individual attitudes, (Ad1-Ad10), the

Table 6 Regression Analysis for each Age Group (16-24/25+) yrs
independently. (Dental Data)

Dependent Variable	Independent Variable	Total Attitude Score(ADTOT) Total Subjective Norm(NDTOT)	Ad1 - Ad10 Attitudes to each belief (see Appendix B1)	Nd1 - Nd7 Subjective Norm to each Referent (see Appendix B2)
Intention 1	Mothers (16-24) yrs.	+ADTOT B=-.44** R ² = .19 F = 4.17*	+Ad10 B= .49+ +Ad7 B= -.41+ R ² = .45 F = 2.28*	+Nd6 B=-.46* +Nd7 B= .43 +Nd5 B=-.31 R ² = .34 F = 2.28*
Intention 1	Mothers (25+) yrs.	+ADTOT B= .44*** +R ² = .20** F = 7.07**	+Ad1 B= .51** +Ad4 B= .34 R ² = .39** F = 3.32**	+Nd5 B= .52*** +Nd1 B=-.41 R ² = .30** F = 3.30**

Notes: + Only variables found to be significant in regression equation are given

Key: B₂ = Beta Weight
R² = Measure of variance predicted by the regression equation
F = Test of Significance of R²

*** p<.001 (NS) Not significant p>.05
**.001<p<.01
*.01<p<.05

Ad1 = Attitude to belief child's teeth will remain healthy
Ad4 = Attitude to belief child will not fear dentist
Ad7 = Attitude to belief child find dental treatment acceptable
Ad10 = Attitude to belief regular dental visits preferred than pain visits.

Nd1 = Subjective Norm towards desires of mother
Nd5 = Subjective Norm towards desires of husband/partner
Nd6 = Subjective Norm towards desires of health visitor
Nd7 = Subjective Norm towards desires of dentist

prediction for Int.1 improved as follows ;

For Group A, the variance was 45% ($R^2=0.45$, $F=2.28$, $p<0.05$) and in Group B, the variance accounted for was 39% ($R^2=0.39$, $F=3.32$, $p<0.01$). A significant trend was demonstrated, showing a better regression line fit, for analysis of the data in 2 age bands. The major components for the attitudes (Ad1-Ad10) for Group A was, Ad10 ($B=0.49$, $p<0.05$) and Ad7 ($B= -0.41$, $p<0.05$). For Group B, Ad1 ($B=0.51$, $p<0.01$) and Ad4 ($B=0.34$, $p<0.05$) were the major predictors. (see Table 6).

In terms of the individual subjective norms, the prediction For Int.1 were as follows ;

Group A, variance accounted for was 34% ($R^2=0.34$, $F=2.28$, $p<0.05$). For Group B, the variance was 30% ($R^2=0.30$, $F=3.3$, $p<0.01$). Whereas the main normative components for Group A were the health visitor (Nd6, $B= -0.46$, $p<0.05$) and the dentist (Nd7, $B= 0.43$, $p<0.05$), the mother (Nd1, $B= -0.41$, $p<0.05$) and the husband/partner (Nd5, $B= 0.52$, $p<0.001$) were the main components for the older mothers. (see Table 6)

Dental data - analysis of associated sub-intentions

(Int.2, Int.3, Int.4 and Int.5)

Further analysis of dental Int.2,3,4 and 5 for the two age groups showed the following ; (see Table 7 & 8)

Intention 2 (see p.126)

For the total attitude and subjective norms (ADTOT/NDTOT)-the variance dropped by 3% to 7% in Group A, whereas for Group B there was a significant improvement from 10% to 11%. For the individual attitudes (Ad1-Ad10) - the prediction

Table 7 Regression Analysis for the young mother age group (16-24) yrs., for dental intentions 2, 3, 4 and 5.

Dependent Variables	Independent Variables	Total Attitude Score (ADTOT) Total Subjective Norm (NDTOT)	Ad1 - Ad10 Attitudes to each belief (see Appendix B1)	Nd1 - Nd7 Subjective Norm to each referent (see Appendix B2)
Intention 2	Mothers (16-24) yrs.	ADTOT B= .26(NS) R ² = .07 F = 1.41	Ad10 B= .41(NS) R ² = .27 F = 1.02	Nd4 B= .24(NS) R ² = .09 F = .42
Intention 3	"	+ADTOT B=-.33* +NDTOT B= .32 R ² = .17* F = 3.57*	Ad3 B=-.35(NS) R ² = .17 F = .58	Nd1 B= .37* R ² = .24 F = 1.36
Intention 4	"	ADTOT B= .28(NS) R ² = .10 F = 1.97	Ad10 B= .35(NS) Ad8 B=-.34(NS) R ² = .24 F = .89	Nd3 B= .35(NS) R ² = .13 F = .66
Intention 5	"	NDTOT B= .17(NS) R ² = .04 F = .85	Ad2 B=-.25(NS) Ad8 B=-.24(NS) R ² = .14 F = .47	Nd7 B= .27(NS) R ² = .08 F = .40

Notes: + Only variables found to be significant in the regression equation.

Key: B₂ = Beta Weight
R² = Measure of variance predicted by the regression equation
F = Test of Significance of R²

For Ad2, Ad3, Ad8 and Ad10 see Appendix B1
For Nd1, Nd3, Nd4 and Nd7 see Appendix B2

*** p < .001
** .001 < p < .01
* .01 < p < .05

(NS) Not significant p > .05

improved significantly from 1% to 27% in Group A, with Ad10 ($B=0.41$) as the major component and from 1% to 20% in Group B with Ad10 ($B=0.40$) as the main component.

For the individual subjective norms (Nd1-Nd7) - the variance improved from by 2% to 9% in Group A, with Nd4 ($B=0.24$) as the major component, and by 5% to 12%, in Group B, with Nd1, ($B=0.23$) the main independent variable. (see Table 7 & 8)

Intention 3

For the total attitude and subjective norms (ADTOT/NDTOT) - the variance improved significantly by 4% to 17% for both ADTOT ($B= -0.33$, $p<0.05$) and NDTOT ($B=0.32$, $p<0.05$) for Group A, but for Group B, a nonsignificant improvement from 1% to 3%.

For the individual attitudes (Ad1-Ad10), the prediction improved from 9% to 17%, with Ad3 as the major component, but inversely related, in Group A. ($B= -0.35$) and in Group B, a significant improvement from 9% to 25%, with Ad10 ($B=0.40$) and Ad6 ($B= -0.44$) as the major components

For the individual attitudes (Nd1-Nd7), the variance increased significantly from 6% to 24% in Group A, with Nd1 ($B=0.37$) as the main component, and in Group B from 13% to 19%, with Nd5 ($B= -0.24$) as the main component.

Intention 4

For the total attitude (ADTOT) and subjective norm (NDTOT) - the variance improved from 3% to 10%, with ADTOT ($B=0.28$) as the main component, in Group A, and from 3% to 23% in Group B, significantly for both ADTOT ($B=0.31$, $p<0.01$) and NDTOT ($B=0.33$, $p<0.33$)

For the individual attitudes (Ad1-Ad10), the variance improved

Table 8 Regression Analysis for the older mother age group(25⁺) years, for dental intentions 2,3,4 and 5.

Dependent Variables	Independent Variables	Total Attitude Score (ADTOT) Total Subjective Norm (NDTOT)	Ad1 - Ad10 Attitudes to each belief (see Appendix B1)	Nd1 - Nd7 Subjective Norm to each referent (see Appendix B2)
Intention 2	Mothers (25 ⁺)yrs.	ADTOT B= .23(NS) NDTOT B= .23(NS) R ² = .11* F = 3.85*	Ad10 B= .40* R ² = .20 F = 1.23	Nd1 B= .23 R ² = .12 F = .99
Intention 3	"	ADTOT B= .21(NS) R ² = .04 F = 1.28	+Ad10 B= .40* +Ad6 B=-.44 R ² = .25 F = 1.65	+Nd5 B=-.24* R ² = .19 F = 1.08
Intention 4	"	+ADTOT B= .31** +NDTOT B= .33** R ² = .23*** F = 8.7	+Ad10 B= .43* R ² = .26 F = 1.73	Nd3 B=-.26 R ² = .25* F = 2.56
Intention 5	"	ADTOT B= .17(NS) R ² = .04 F = .06	Ad6 B=-.41 R ² = .17 F = 1.01	Nd5 B= .29* R ² = .17 F = 1.57

Notes: + Only variables found to be significant in the regression equation

Key: B₂ = Beta Weight
R² = Measure of variance predicted by the regression equation
F = Test of Significance of R²

For Ad6 and Ad10 see Appendix B1
For Nd1, Nd3 and Nd5 see Appendix B2

*** p < .001

** .001 < p < .01

* .01 < p < .05

(NS) Not significant p > .05

from 20% to 24%, in Group A, with Ad10 ($B=0.35$) as the main component, and from 20% to 26% for Group B, with Ad10 ($B=0.43$, $p<0.05$) as the main predictor.

For the individual subjective norms (Nd1-Nd7), the variance improved from 7% to 13%, with Nd3 ($B=0.35$) as the major component, in Group A, and significantly from 7% to 25% in Group B, with Nd3 ($B= -0.26$, $p<0.05$) as the main predictor.

Intention 5

For the total attitude (ADTOT) and subjective norm (NDTOT), the improvement in the variance was very small, 1% to 4%, in Group A and the same for Group B.

For the individual attitudes (Ad1 to Ad10), the variance increased from 9% to 14%, in Group A, with Ad2 ($B= -0.25$) and Ad8 ($B= -0.24$) as the main predictors and from 5% to 17% in Group B, with Ad6 ($B= -0.41$) as the main predictors.

For the individual subjective norms (Nd1-Nd7), the variance improved from 2% to 8% in Group A, with Nd7 ($B=0.27$) as the main predictor and from 6% to 17%, in Group B, with Nd5 ($B=0.29$) as the main predictor.

b) Medical Data (Int.6)

In comparison to the total attitude (AMTOT) score there was no significant improvement in the variance i.e. $R^2=0.01$, (see Table 9) however, the beta value improved from -0.002 to 0.01 in the younger mothers for Int.6, as well as a non-significant improvement of R^2 to 2% in the older mothers. In terms of the individual attitude scores (Am1-Am9), there was a nonsignificant improvement in the variance for Int.6

Table 9 Regression Analysis for each Age group (16-24/25⁺) yrs. independently for Intention 6. (Medical Data)

Dependent Variable	Independent Variables	Total Attitude Score (AMTOT) Total Subjective Norm (NMTOT)	Am1 - Am9 Attitude to each belief (see Appendix B3)	Nm1 - Nm7 Subjective Norm to each Referent (see Appendix B4)
Intention 6	Mothers (16-24) yrs.	AMTOT B= .09(NS) R ² = .01 F = .17	Am7 B= .24(NS) R ² = .17 F = .67	+Nm7 B= .32* R ² = .30 F = 1.93
Intention 6	Mothers (25 ⁺) yrs.	NMTOT B= .14(NS) R ² = .02 F = .56	+Am8 B= .31* R ² = .14 F = .92	+Nm1 B= .33* R ² = .22* F = 2.18

Notes: + Only variables found to be significant in regression equation.

Key: Am7 = Attitude to belief repeated medical visits is unpleasant
 Am8 = Attitude to belief repeated medical visits shows mother's love for child
 Nm1 = Subjective Norm toward desires of mother
 Nm7 = Subjective Norm toward desires of doctor

*** p<.001

** .001<p<.01

* .01<p<.05

(NS) Not significant p>.05

B₂ = Beta Weight

R² = Measure of variance predicted by regression equation

F = Test of Significance of R²

to 17% in the younger mothers, with Am7 (see Appendix B3) as the major component ($B=0.24$) and for Group B the variance accounted for improved to 14%, with Am8 (see Appendix B3) as the major component. ($B=0.30$, $p<0.05$)

The normative data (Nm1-Nm7) showed an improvement in the prediction for both age groups. (see Table 9)

In Group A mothers, variance increased from 9% to 30% ($R^2=0.30$, $F=1.93$, $p<0.05$), with Nm7 as the main component ($B=0.32$, $p<0.05$) and in Group B, the variance increased to 22%, with Nm1 as the main component. ($B=0.33$, $p<0.05$).

It would appear that if taken separately, the prediction using the Fishbein/Ajzen model improves in the 2 age groups.

Medical data - analysis of associated sub-intentions

(Int.7 and Int.5)

Further analysis of medical Int.7 and 5 showed the following for the two age groups : (see Table 10)

Intention 7 : (see p.135)

For the total attitude (AMTOT) and subjective norm (NDTOT) there was an increase in the variance from <1% to 6% for Group A, the main predictor was NMTOT($B= -0.24$), for young mothers and increase of <2% in the older mothers, once again with NDTOT($B=0.13$) as the main predictor. (see Table 10)

For the individual attitudes (Am1-Am9), the variance increased from 14% to 17%, with Am7($B=0.24$) as the main predictor, in Group A, whereas for Group B, the increase was from 14% to 32%. with Am5($B= -0.52$, $p<0.001$), Am7($B=0.38$, $p<0.01$) and

Table 10

Regression Analysis of medical intentions 7 and 5
for mothers in age groups 16-24 and 25+ years independently.

Dependent Variables	Independent Variables	Total Attitude Score (AMTOT) Total Subjective Norm (NMTOT)	Am1 - Am9 Attitude to each belief (see Appendix B3)	Nm1 - Nm7 Subjective Norm to each referent (see Appendix B4)
Intention 7	Mothers (16-24) yrs.	NMTOT B = -.24(NS) R ² = .06 F = 1.09	Am7 B = .24(NS) R ² = .17 F = .67	+Nm7 B = .41* R ² = .26 F = 1.55
Intention 7	Mothers (25+) yrs.	NMTOT B = .13(NS) R ² = .02 F = .49	+Am5 B = -.52*** +Am7 B = .38** +Am1 B = .32 R ² = .32* F = 2.68*	Nm7 B = .35** R ² = .24* F = 2.38*
Intention 5	Mothers (16-24) yrs.	+AMTOT B = -.44** R ² = .21* F = 4.87	Am1 B = -.28(NS) Am7 B = -.27(NS) R ² = .42* F = 2.33	Nm1 B = .31(NS) R ² = .15 F = .83
Intention 5	Mothers (25+) yrs.	NMTOT B = -.10(NS) R ² = .01 F = .25	+Am2 B = .40* R ² = .22 F = 1.61	Nm3 B = -.24 R ² = .09 F = .74

Notes: + Only variables found to be significant in the regression equation

Key: B₂ = Beta Weight
R² = Measure of variance predicted by the regression equation
F = Test of significance of R²

For Am1, Am2, Am5 and Am7 see Appendix B3
For Nm1, Nm3 and Nm7 see Appendix B4

*** p < .001

** .001 < p < .01

* .01 < p < .05

(NS) Not significant p > .05

Am1(B=0.32, $p < 0.05$) as the main predictors.

For the individual subjective norms (Nm1-NM7), the variance increased from 20% to 26%, in Group A, with Nm7 (B= 0.41) as the main predictor and from 20% to 24%, in Group B, with Nm7 (B=0.35) as the main predictor.

Intention 5

For the total attitude (AMTOT) and subjective norm (NMTOT), the variance improved significantly from 3% to 21% in Group A, with AMTOT (B= -0.44, $p < 0.01$) as the main component and in Group B, a drop by 3% to 1%. (see Table 10)

For the individual attitudes (Am1-Am9), the prediction improved significantly from 14% to 42% ($p < 0.05$), with Am1 (B= -0.28) and Am7 (B= -0.27) as the major predictors in Group A, whereas the prediction improved from 18% to 22%, in Group B, with Am2 (B=0.40) as the major component.

For individual subjective norms (NMTOT), the prediction improved from 8% to 15%, in Group A, with Nm1(B=0.31) as the main component and by 1% to 9% in Group B, with Nm3 (B= -0.24) as the main component.

6.2 Analysis of Mean Scores of attitudes to each belief and subjective norm to each referent

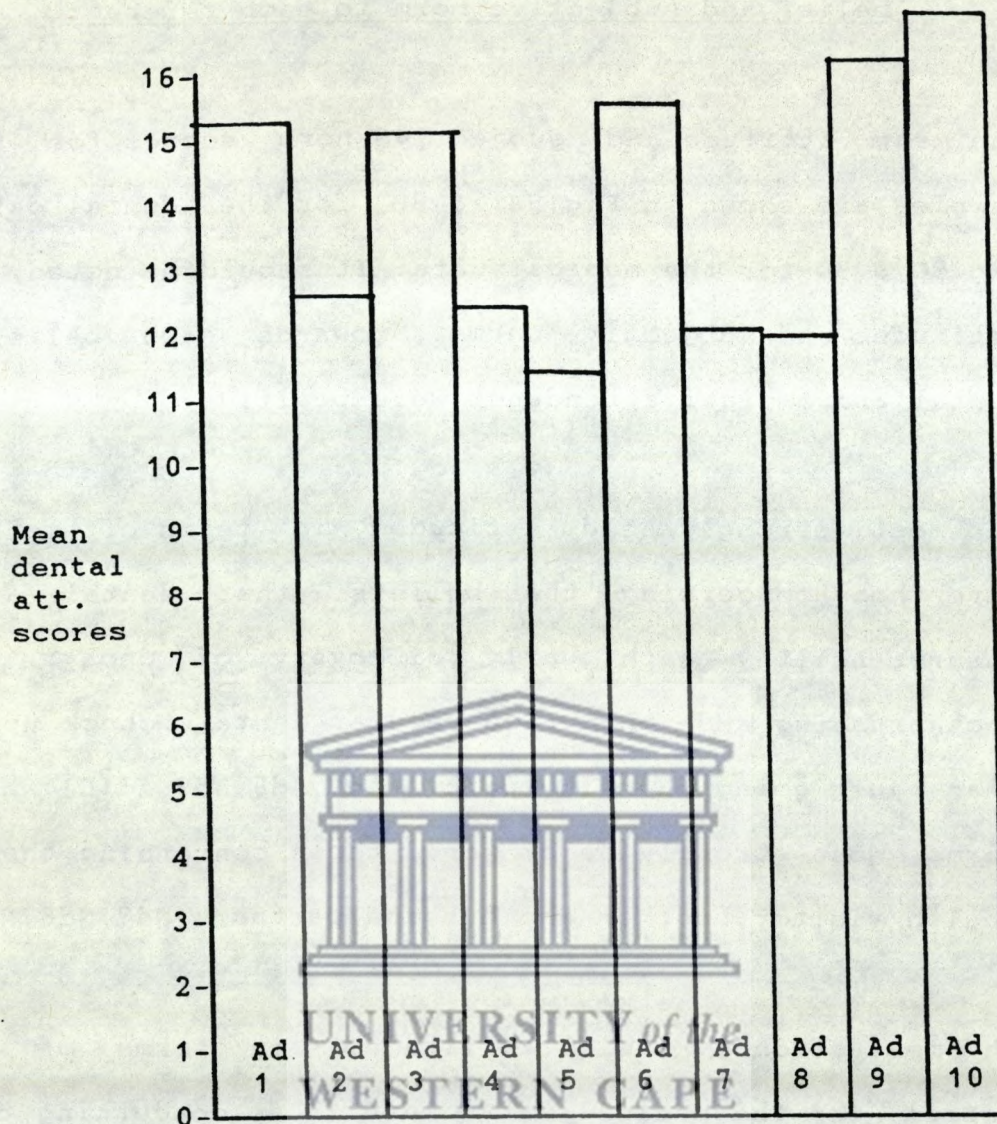
The mean attitude and subjective norm scores for the whole sample are shown in Fig.9A & 9B, for the dental data and in Fig.9C & 9D for the medical data. It should be noted, that all attitudes and subjective norms, towards each belief, about dental and medical attendance were positive.

The most strongly held attitudes, in terms of mean scores, were those concerning the beliefs, that dental attendance ensures healthy teeth, early discovery of decay, encourage toothbrushing and encourage regular dental check ups, rather than just going when in pain. (Ad1,Ad6,Ad9,Ad10) whereas the norms most strongly held, were those concerning the dentist, health visitor, mother and husband/partner. (Nd7,Nd6,Nd1,Nd5)

The most strongly held attitudes, in terms of the mean scores, for the medical data, were those concerning the health of the child, growth in terms of height and weight (Am1,Am2, Am3) whereas the lowest held attitudes were those concerning access to the clinic and the unpleasantness of waiting at the clinic. (Am4,Am7) The subjective norms strongly held were those of the mother, husband/partner, health visitor and the doctor. (Nm1,Nm3,Nm5,Nm7)

In terms of the mean attitude and subjective norm scores for the 2 age groups, not a very big differences was found. Both groups tend to follow the same trend in terms of mean scores. (see Fig.9E)

Fig.9A : Mean Dental Attitude Scores - All Subjects

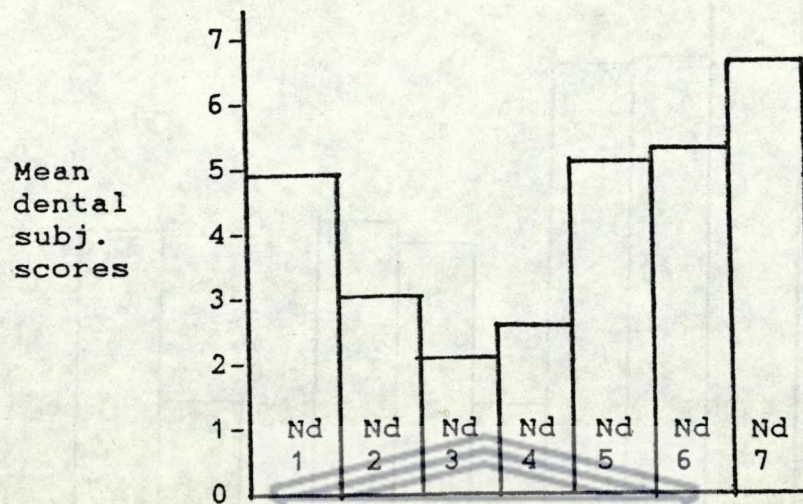


Key : (for Ad1 - Ad10 see Appendix B1)

Att. = Attitude
 (\bar{x}) = Mean attitude score
 S.D. = Standard deviation

Att	(\bar{x})	S.D.
Ad1	15.2	5.8
Ad2	12.5	6.5
Ad3	14.9	6.0
Ad4	12.4	6.6
Ad5	11.4	7.4
Ad6	15.5	6.9
Ad7	12.0	7.9
Ad8	11.7	7.0
Ad9	15.8	6.3
Ad10	16.6	5.7

Fig.9b : Mean Dental Subjective norm Scores - All Subjects



Key : (for Nd1 - Nd7 see Appendix B2)

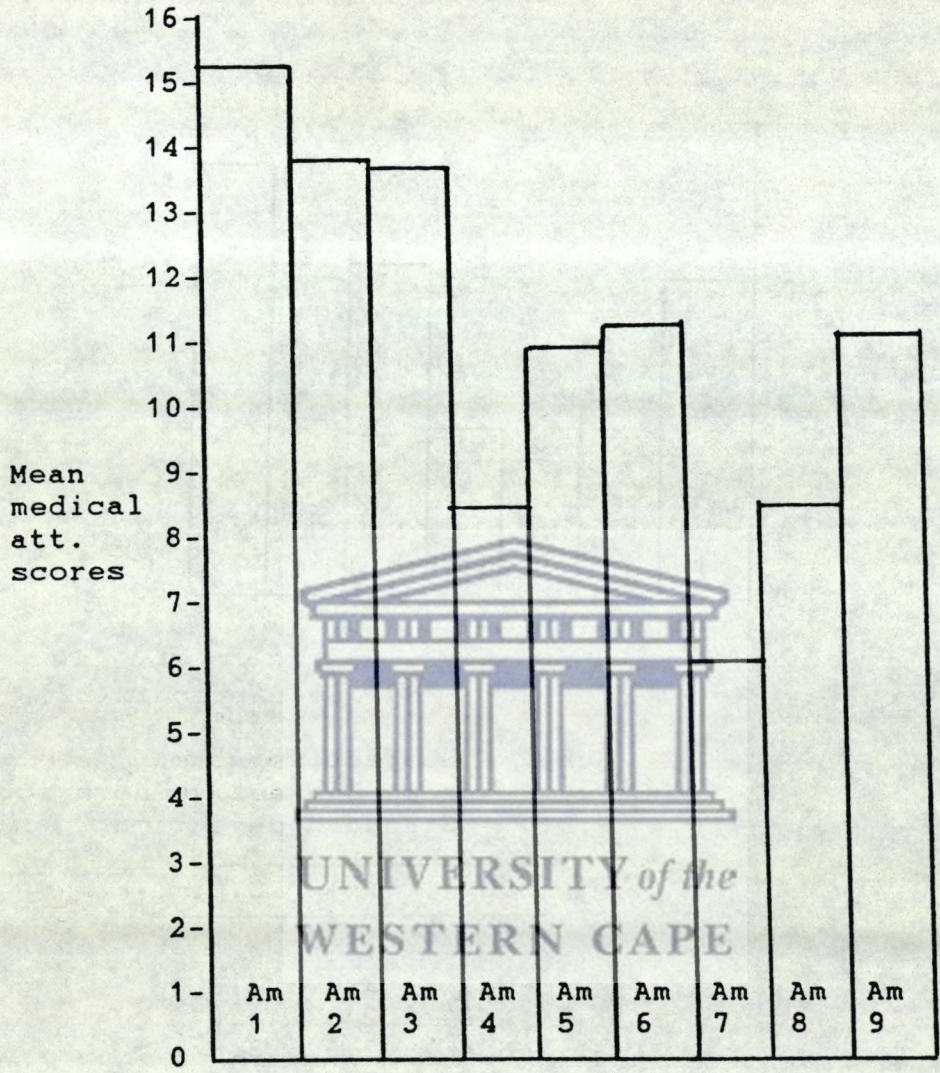
Subj. = Subjective norm

(\bar{x}) = Mean Subjective norm score

S.D. = Standard deviation

Subj.	(\bar{x})	S.D.
Nd1	4.8	4.2
Nd2	3.0	4.6
Nd3	2.1	4.6
Nd4	2.6	3.9
Nd5	5.1	4.8
Nd6	5.4	4.8
Nd7	6.6	4.3

Fig.9c : Mean Medical Attitude Scores - All Subjects

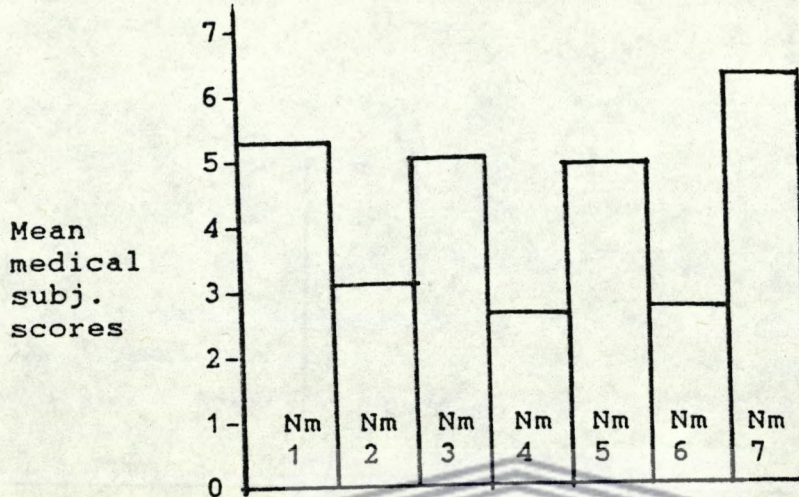


Key : (for Am1 - Am9 see Appendix B3)

Att. = Attitude
 (\bar{x}) = Mean attitude score
 S.D. = Standard deviation

Att	(\bar{x})	S.D.
Am1	15.2	6.3
Am2	13.8	7.6
Am3	13.6	8.9
Am4	8.4	9.2
Am5	10.9	8.9
Am6	11.2	7.7
Am7	6.0	8.2
Am8	8.4	9.4
Am9	11.1	7.7

Fig.9D : Mean Medical Subjective norm Scores - All Subjects



Key : (for Nm1 - Nm7 see Appendix B4)

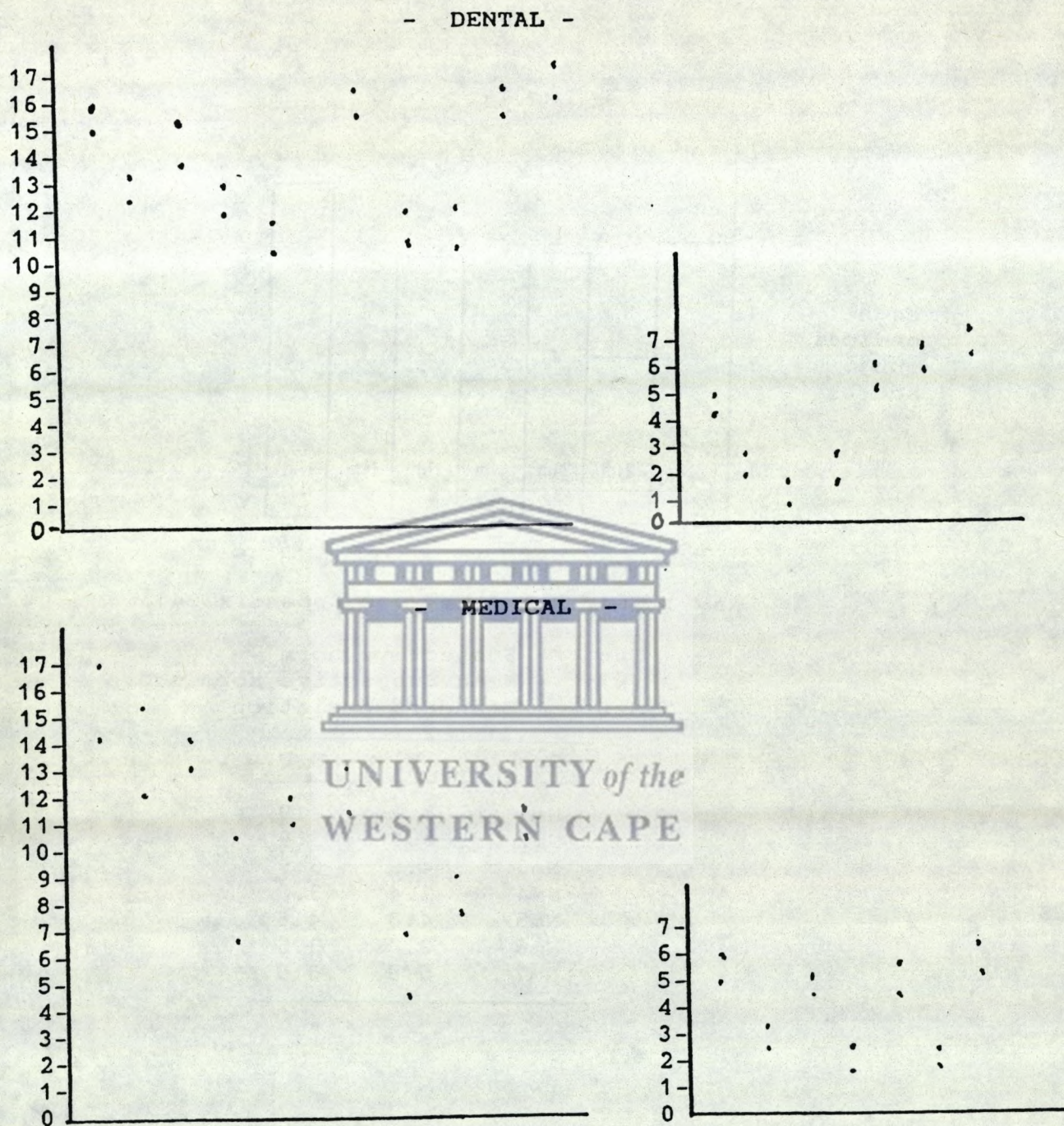
Subj. = Subjective norm

(\bar{x}) = Mean Subjective norm score

S.D. = Standard deviation

Subj.	(\bar{x})	S.D.
Nm1	5.2	3.9
Nm2	3.0	3.9
Nm3	4.9	3.9
Nm4	2.4	3.6
Nm5	4.8	4.6
Nm6	2.4	3.6
Nm7	5.9	3.9

Fig.9E : Mean Attitude and Subjective norm Scores for mothers in 2 age groups A and B (see p.144)



Key : Ad1 - Ad10. see Appendix B1
 Nd1 - Nd7 " " " B2
 Am1 - Am9 " " " B3
 Nm1 - Nm7 " " " B4

mothers aged 16-24 years

mothers aged 25+ years

6.3 Factor analysis of Attitudinal and Normative Data

- 1) Dental Data
- 2) Medical Data

1) Dental Data - the analysis of the dental data will be shown in Figs.10A,10B & Tables 12A,12B,12C and 12D. The factor analysis were performed specifically in terms of Intention 1 only, i.e. the main dental intention.

The attitude and subjective norms with respect to each belief and referent (important other) were analysed to see, if the patterns shown in the data for the 2 age groups could be further substantiated. Data from the total sample of 100 mothers were used for this investigation and a correlation matrix of attitudes and subjective norms were produced for both the dental and medical data. (see Table 11A)

Strong correlations were found for both the attitudes and subjective norms.(Table 11A) From the correlation matrix, a principle component analysis was performed, to further demonstrate these patterns in the data.

The principle component analysis of the dental data showed the following.(see Table.12A)

Attitudes - 59% of the variance in the attitude data was accounted for by two dimensions of affect,(A and B) which is shown in Table 12B. Another factor (eigen value 0.91) did just not reach significance and account for a further 9% of the variance. No other factor accounted for more than 7% of the

Table 11A : Correlation Matrix : Dental Attitudes and Subjective norms associated with specific beliefs and referents
(see opposite page for Key.)

	Ad1	Ad2	Ad3	Ad4	Ad5	Ad6	Ad7	Ad8	Ad9	Ad10	Nd1	Nd2	Nd3	Nd4	Nd5	Nd6	Nd7
Ad1																	
Ad2	+++ .52																
Ad3	+++ .54	+++ .44															
Ad4	+++ .38	+++ .43	+++ .55														
Ad5	+++ .43	++ .32	+++ .53	+++ .55													
Ad6	++ .32	++ .27	+++ .53	+++ .56	+++ .48												
Ad7	+++ .45	+++ .39	+++ .44	+++ .61	+++ .49	+++ .59											
Ad8	+ .22	+++ .33	++ .26	+++ .42	+++ .41	+++ .39	+++ .39										
Ad9	++ .28	+++ .36	+++ .40	++ .26	+++ .38	+++ .42	++ .32	+++ .49									
Ad10	+++ .33	+++ .07	++ .24	+++ .41	+++ .36	+++ .42	+++ .40	+++ .44	+++ .61								
Nd1			++ -.19														
Nd2																	
Nd3																	
Nd4																	
Nd5																	
Nd6																	
Nd7																	



Table 12A : Principal Components Analysis - Dental Attitudes

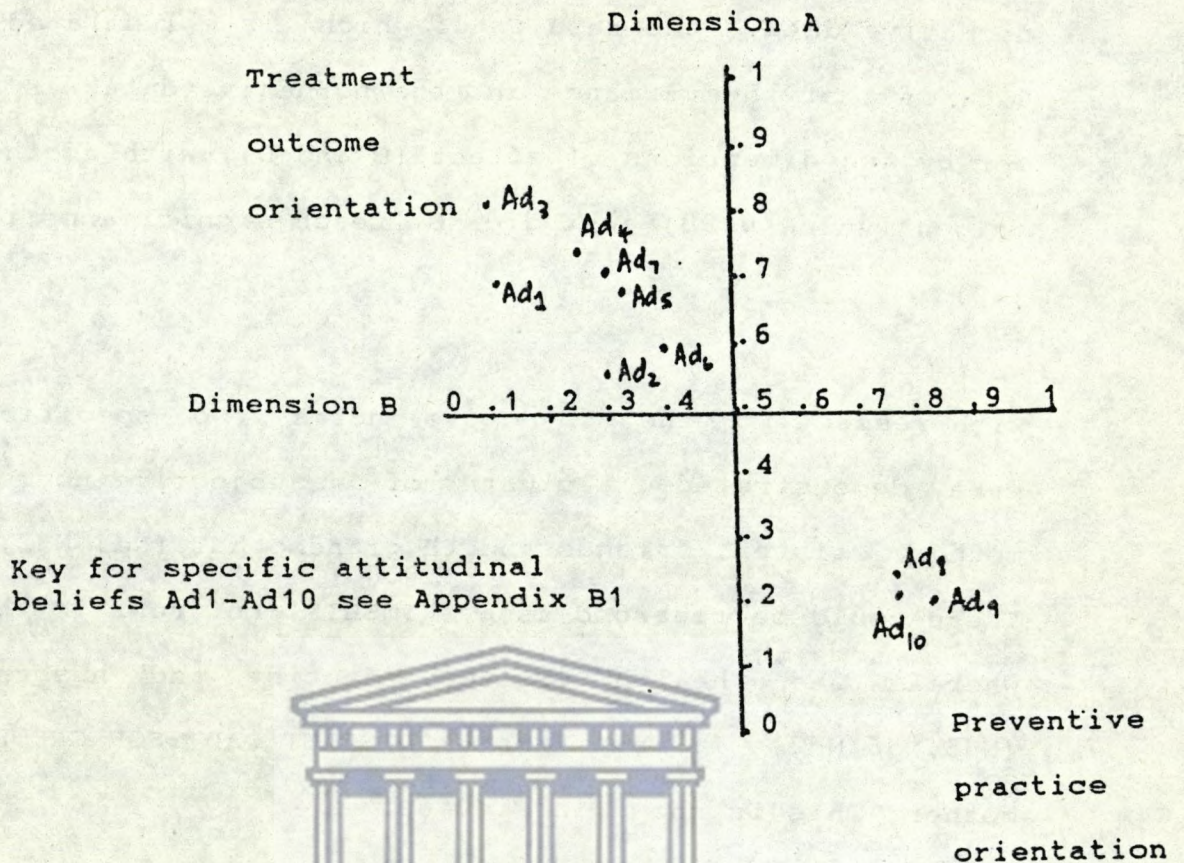
	Dimension No.	Eigenvalue	% Variance	Cumulative %
Level of significance	1 (=A)	4.77	47.7	47.7
	2 (=B)	1.13	11.3	59.0
	3	.94	9.4	68.0
	4	.66	6.7	75.1
	5	.60	6.0	81.1
	6	.51	5.1	86.2
	7	.46	4.6	90.9
	8	.36	3.6	94.5
	9	.32	3.2	97.7
	10	.23	2.3	100.0

Table 12B : Specific dental attitudes as a function of significant attitudinal dimensions of affect

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		Dimension A	Dimension B
Ad1	Teeth remain healthy	.72	.09
Ad2	Toothache is avoided	.56	.31
Ad3	Good teeth	.80	.11
Ad4	No fear of dentist	.75	.27
Ad5	Avoid crooked teeth	.67	.31
Ad6	Dentist discover early decay	.62	.40
Ad7	Find dental treatment acceptable	.70	.30
Ad8	Dentist more friendly	.24	.73
Ad9	Encourage toothbrushing	.20	.82
Ad10	Encourage regular check-ups	.24	.80

Fig 10A : Specific dental attitudes plotted as a function of significant attitudinal dimensions of affect



variance. If each of the attitude variables (Ad1 - Ad10) is plotted as a function of both significant dimensions of affect, (A and B) along scales from 0 (No affect) to 1 (Full Correlation) then the 2 distinct clusters of attitudes are formed and is illustrated in Fig.10A. Both these score low along one dimension and high along the other. The threshold value for the factor loadings, for dental attitudes used were 0.3. The strongest correlations, shown by a varimax rotation procedure with the dental data are those shown between attitudes to health maintenance i.e. a 'TREATMENT OUTCOME ORIENTATION' (Ad1,Ad2,Ad3,Ad4,Ad5,Ad6,Ad7). The second group consisted of attitudes to a 'PREVENTIVE PRACTICE ORIENTATION' (Ad8,Ad9,Ad10)(Fig.10A)

Subjective norms - A similiar analysis were performed for the subjective norms, further demonstrating a pattern in the normative data, the results of which is illustrated in Table 12C. 59% of the variance in the normative data was accounted for by two dimensions of effect (C and D), with another factor (eigen value 0.98) just did not reach significance.(see Table 12D)

With respect to the subjective norms, two specific clusters were demonstrated : a cluster of 4 subjective norms i.e. the mother, sister, friends and th grandmother (Nd1,Nd2,Nd3,Nd4). These could be regarded as a 'KINSHIP' referent to the mother, whereas the health visitor, dentist and husband/partner (Nd5,Nd6,Nd7) formed a 'more 'DISTANT ADVISOR GROUP' To the mother. This is shown in Fig.10B.



Table 12C : Principal Components Analysis - Dental Subjective norms

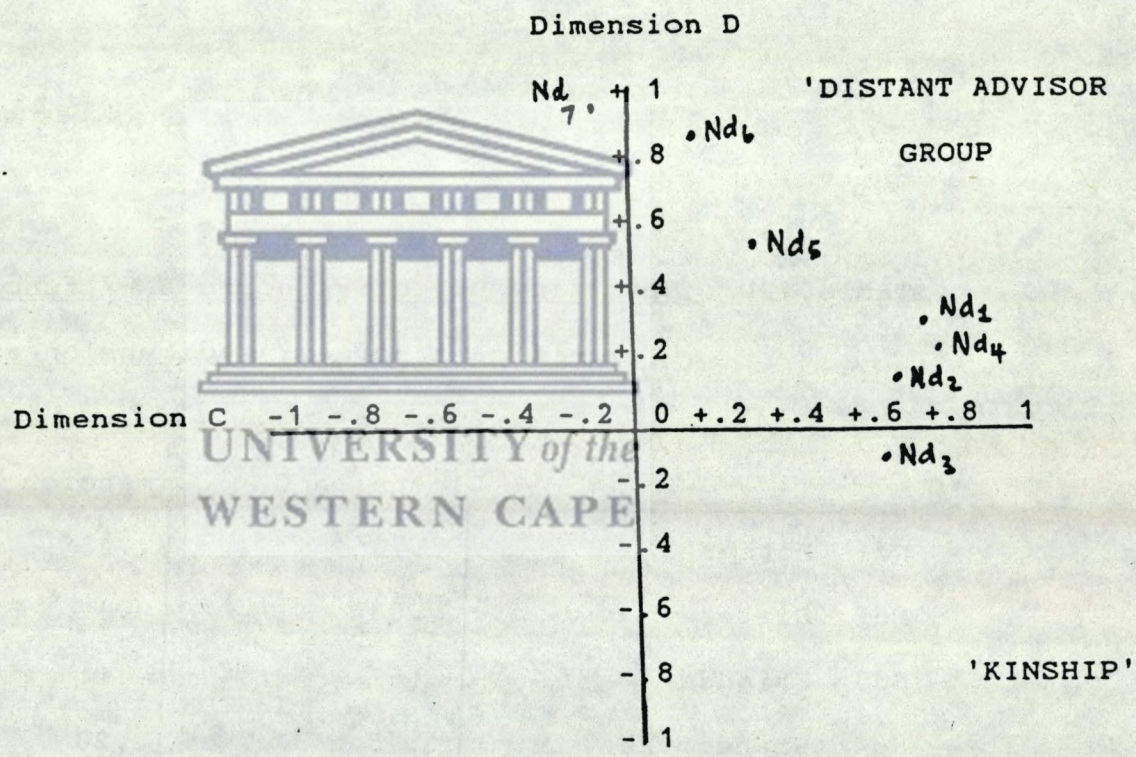
	Dimension No.	Eigenvalue	% Variance	Cumulative %
Level of significance	1 (=C)	2.65	37.9	37.9
	2 (=D)	1.40	20.0	57.9
	3	.98	9.8	72.0
	4	.60	8.7	80.7
	5	.57	8.2	88.7
	6	.46	6.6	95.6
	7	.31	4.4	100.0

Apart from the varimax rotation, an oblimin and a quartimax rotation were performed on the subjective norm data, but no improvement in the variance were obtained. (see Fig.12C) If each of the subjective norm variables is plotted as function of both dimensions of affect, (C and D) along scales from -1 to +1 (full negative to full positive correlation), the two clusters is more visibly demonstrated. (see Fig.10B)

Table 12D : Specific subjective norms as a function of significant normative dimension affect

		Dimension C	Dimension D
Nd1	Mother	.70	.33
Nd2	Sister	.68	.12
Nd3	Friends	.67	-.11
Nd4	Grandmother	.78	.20
Nd5	Husband/partner	.30	.53
Nd6	Health Visitor	.17	.84
Nd7	Dentist	-.09	.87

Fig.10B : Specific dental subjective norms plotted as a function of significant normative dimension of affect



Key for specific normative beliefs Nd1-Nd7 see Appendix B2

2) Medical Data. - the analysis of the medical data will be shown in Tables 13A,13B,13C and 13D. The same method of principal components analysis, as applied in the dental data, was used in the medical data. This extraction procedure of the principal components analysis, is based and obtained from the correlation matrix for the medical data, which is illustrated in Table 11B. The factor analysis were performed specifically in terms of Intention 6 i.e. the main medical intention. The analysis of the principal components of the attitude data is shown in Table.13A.

Attitudes - 64% of the variance in the attitude data was accounted for by three dimensions of affect (A,B and C), which is shown in Table 13B. The maximum loading cut off point used for analysis of the three dimensions were 0.5. The three dimensions were : a 'HEALTH DIRECTED PREVENTIVE' factor, i.e. in terms of health outcome. The attitudes found to be important, were those related to the beliefs, of normal growth, prevention of illness, child remaining healthy (Am1,Am2,Am3,Am4). A second significant group was directed at a 'CONVENIENCE/EXPECTATION' factor and the beliefs related to are ; access for prams to the clinic, waiting period before being attended to, distance to the clinic and the effect of the health visitor's attitude on the visit.(Am5,Am7,Am4,Am6) and finally a 'LOVE and CARE' factor, associated with mother's love for the child, healthy painfree teeth and general good health.(Am8,Am9.Am1)

Table 11B : Correlation Matrix : Medical Attitudes and Subjective norms associated with specific beliefs and referents
(see opposite page for Key)

	Am1	Am2	Am3	Am4	Am5	Am6	Am7	Am8	Am9	Nm1	Nm2	Nm3	Nm4	Nm5	Nm6	Nm7
Am1																
Am2	+++ .48															
Am3	++ .28	+++ .52														
Am4	+ .23	+++ .47	+++ .36													
Am5		+ .07	+ .09	+++ .20	.40											
Am6				+++ .14	++ .14	.47	.31									
Am7				+ .11	+++ .19	++ .37	.28									
Am8		+ .20		++ .10	+++ .28	+++ .34	++ .48	.31								
Am9		+++ .40	++ .29	++ .32	++ .28		+ .01	+++ .22	.11	.43						
Nm1									+++ .07	+++ .21	+++ .29	+++ .19				
Nm2								++ .14	+++ .28	+++ .14	.38					
Nm3											++ .27	++ -.02				
Nm4											+++ .34	+++ .36	+++ .34			
Nm5											++ .25	++ .07	++ .34	.10		
Nm6											++ .25	++ .32	++ .12	++ .24	.06	
Nm7														+	.17	-.16 .08



Key for Table 11B

+++ $p < 0.001$

++ $0.01 > p > 0.001$

+ $0.05 > p > 0.01$

Am = Attitude to a specific belief

Nm = Subjective norm to a specific referent

Am1 Healthy child

Am2 Normal growth

Am3 Vaccinations prevent illness

Am4 Stay near clinic

Am5 Access for prams

Am6 Friendly health visitors

Am7 Unpleasant, long wait

Am8 Mother's love for child

Am9 Healthy painfree teeth

Nm1 Mother

Nm2 Grandmother

Nm3 Health visitor

Nm4 Sister

Nm5 Husband/partner

Nm6 Friends

Nm7 Doctor

Table 13A : Principal Components Analysis - Medical Attitudes

	Dimension No.	Eigenvalue	% Variance	Cumulative %
Level of significance	1 (=A)	3.06	34.1	34.1
	2 (=B)	1.66	18.5	52.5
	3 (=C)	1.08	12.0	64.5
	4	.80	8.9	73.5
	5	.70	7.8	81.3
	6	.50	5.6	86.9
	7	.47	5.3	92.2
	8	.40	4.4	96.6
	9	.31	3.4	100.0

Table 13B : Specific medical attitudes as a function of significant attitudinal dimensions of affect

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	Dimension A	Dimension B	Dimension C
Am1 Healthy child	.54	-.21	.53
Am2 Normal growth	.86	.01	.16
Am3 Vaccinations prevent illness	.76	.12	.07
Am4 Stay near clinic	.59	.50	.14
Am5 Access for prams	.29	.74	-.13
Am6 Friendly health visitors	.08	.64	.35
Am7 Unpleasant, long wait	-.09	.72	.02
Am8 Mother's love for child	-.05	.53	.68
Am9 Healthy painfree teeth	.24	.02	.82

Subjective norms - a similar extraction of the principal components for the subjective norms were performed. (see Table 13C. 64.8% of the variance in the normative data was accounted for by three dimensions of affect. (see Table 13D) Using a factor loading of 0.5, three specific clusters of subjective norms were obtained. These were ; a 'KINSHIP' factor consisting of the mother Nd1, grandmother Nd2, sister Nd4, and friends Nd6, or may also be referred to as the 'Inner Circle' among the referents of the mother ; secondly, a 'LISTENER/MEDIATOR' factor, consisting of beliefs held of the health visitor Nd3 and the husband/partner. This group may exercise a mediating effect on the action of the mother under different circumstances and finally, 'DISTANT ADVISOR' factor where some mothers may adopt a "doctor knows best" attitude.

The significance of the two dimensions of affect on preventive dental attendance behaviour and that of the three dimensions of affect on the medical attendance behaviour will be discussed in the next chapter.

Table 13C : Principal Components Analysis - Medical Subjective

norms

	Dimension No.	Eigenvalue	% Variance	Cumulative %
Level of significance	1 (=A)	2.18	31.1	31.1
	2 (=B)	1.35	19.3	50.4
	3 (=C)	1.01	14.4	64.8
	4	.76	10.9	75.7
	5	.70	10.0	85.7
	6	.58	8.2	93.9
	7	.43	6.1	100.0

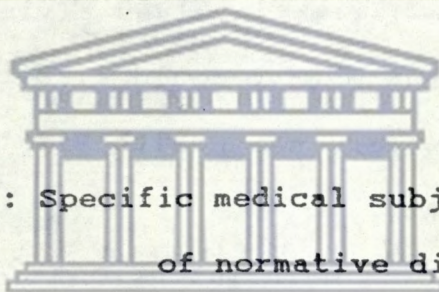


Table 13D : Specific medical subjective norms as a function
of normative dimensions of affect

	Dimension A	Dimension B	Dimension C
Nm1 Mother	.65	.38	-.14
Nm2 Grandmother	.83	-.10	.01
Nm3 Health Visitor	.01	.87	.14
Nm4 Sister	.51	.43	.44
Nm5 Husband/partner	.08	.67	-.36
Nm6 Friends	.65	.03	.10
Nm7 Doctor	.02	-.08	.88

7.1 Introduction

In this study the Theory of Reasoned Action (see Fig.5)(5) was used to study preventive health behaviour in mothers of young children. The study consisted of a dental and a medical part.

The specific behaviours investigated were ;

- 1) the intention of mothers to visit the dentist in the next 6 months (Int 1) ;
- 2) the intention of mothers to visit the doctor every 4 weeks. The latter involved a visit to the health clinic at which the mother could also be attended to by the health visitor.(see Health Visitor Discussion Appendix A3)

Apart from the two main intentions (Int 1 and Int 6) three additional dental intentions (Int 2, Int 3, and Int 4)* and 1 medical intention were analysed, as well as Int.5 which was analysed both in terms of dental and medical data .

* Dental Intentions

Int 2 = to take your child to the dentist for a check-up every 6 months

Int 3 = to buy child sweets this week

Int 4 = to visit the dentist (i.e. the mother) every 6 months

Int 5 = to give your child health drinks today

Medical Intentions

Int 6 = to take your child to the doctor (incl. health visitor) for check-up in the next 4 weeks

Int 7 = to take your child to the doctor (incl. health visitor) for check-up every 4 weeks

CHAPTER SEVEN

DISCUSSION and CONCLUSION

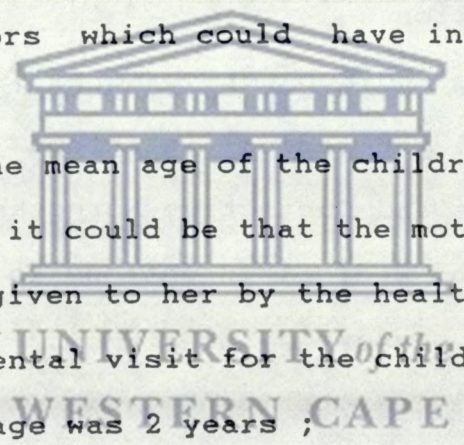
- 7.1 Introduction
- 7.2 Attitudes and Subjective Norms as predictors of dental and medical intentions of all subjects
- 7.3 Attitudes and Subjective Norms as predictors of dental and medical intentions in the sample divided into two age groups
- 7.4 Principal Components Analysis of the Attitudinal and Subjective norm data

7.2 Attitudes and Subjective Norms as predictors of dental and medical intentions of all subjects

Dental Data

In the total sample of a 100 mothers, the prediction of Int.1 (see p.173) by the Fishbein/Ajzen model was very weak, whereas for Int.2(see p.173) the variance improved to 10%, though still low. Of the 67% who said they were likely to perform Int.1, only 28% were extremely like to do so compared with 57% for Int.2.

External factors which could have influenced this intention are :

- 
- a) since the mean age of the children are 18 months, (see Fig.6B) it could be that the mothers, follow the advice given to her by the health visitor, on age of first dental visit for the child (see Appendix A2) which on average was 2 years ;
- b) only 63% of the mothers expressed the intention of going for themselves, to the dentist, and what is seen is a carry over effect to the children ;
- c) the children may have healthy or no teeth at all, accordingly the mother may see no need to go to the dentist preventively, as one mother commented :-
- " the dentist should be avoided, because they fill teeth and eventually you still end up losing those very teeth "
- d) if people are asked to express their intention of

performing a certain behaviour within a limited time period, it may meet with disapproval or rejection, whereas, by increasing the time span there is less pressure on the mother, as she is not required to make an immediate commitment. This may be the reason for the high intention score.(Int.2)

Point b, is further illustrated in that only 14% of the mothers were extremely likely to go to the dentist every 6 months. This appear to support the finding of Kenner(108) who states that women would rather go for health care for their children than for themselves and is aptly reflected in the following comment :-

" I go so often for my kids that I feel embarrassed to go for myself "

The major component for the mother's attendance is the subjective norm,* reinforcing the finding that important others in the mothers background, more strongly influence the uptake of health care than the mothers'own attitudes. A control question in the final section of the questionnaire revealed the same, showing that while 76% of the mothers stated that an adult should visit the dentist every 6 months, only 22% said they were extremely likely to do so.

A further finding of interest with reference to the total attitude score, was Int.3(see p.173), which had the highest predictive value, with attitude as the major component.

* subjective norm - is the person's perception of the social pressures exerted on him by the enviroment.

With respect to individual attitudinal scores, Ad10 (the belief that taking the child to the dentist for regular check ups rather than just when in pain) was the best predictor. There is a positive relationship between the buying of sweets and Ad10. It could be deduced, that, for mothers, as long as the dentist is there to control tooth decay and pain the buying of sweets is of no concern to them, since the profession will take care of the consequences. This illustrates a handing over of their autonomy as described by Illich. (98)

Individual attitudes and subjective norms were better predictors of all 5 dental intentions, than total attitudes and subjective norms (see p.173)

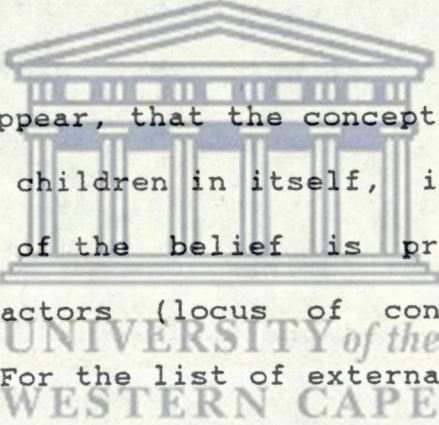
An interesting finding for Int.1 was a inverse relationship with

- a) Ad6 (the belief that the dentist will discover early decay) and
- b) Ad7 (the belief that the child will find dental treatment more acceptable.)

There thus appears to be a conflict in the mother. On the one hand she feels the dentist can control decay but on the other she questions the fact, can the dentist really treat it appropriately? It may be that she feels there is no point in going . Is it because trust is lacking as well as confidence in the dentist? The following comment was given by one may illustrate this suggestion -:

"It is my experience that NHS (National Health Service) dentists, fill, drill and extract teeth unnecessarily on occasion. When the government cease paying for dentist's work carried out rather than preventive care, such as check ups, I will find them a more trustworthy breed. "

Approached from another dimension, the findings of Van Groenstijn et al (206,207) indicates that people, especially from lower social groups, look for reassurance and understanding in the dentist, instead of his skill. The absence of perception by people of these two qualities, overshadows the skill of the dentist. This may lead to a negative attitude or even an intolerance of preventive dental behaviour.



It would thus appear, that the concept of preventive visits to the dentist for children in itself, is well accepted, but in the application of the belief is primarily influenced and controlled by factors (locus of control) external to the mother.(192) (For the list of external variables * affecting the target group of this study see Appendix D1)

This finding has important implications for the methods used by the health professions in dental health education, since the mother's perception of need for care is strongly influenced by psycho-social factors and less so by clinical indicators.

* Data obtained from a study by Prof Jarman for the Bloomsbury Health District as part of the 1981 Census in the UK

The main attitudinal component to Int.1 (see p.173) was Ad4 (the child will not be frightened of the dentist) Further support to this finding is that found in the Health Visitor Questionnaire.(HVQ) Four of the health visitors stated that the necessity for regular dental visits was to reduce the child's fear of the dentist. None of them indicated that prevention of dental decay could be a reason. This view may be based on their own past dental experience or it may reflect what most mothers feel about visits to the dentist.

With reference to Int.5, (see p.173) of the 74 mothers likely to give their children health drinks, only 36 were extremely likely to do so (intention score = 7), with ADTOT * having a higher beta weight value than NDTOT * . This may suggest that important others of the mother may not be that favourably inclined to health drinks. One may speculate that cost may be a factor in terms of the socio-economic context of the sample.

Individual attitudes - Int.5 were inversely related to Ad10 (see Appendix B1). It could be said that a 'health drink' is perceived by the mother to afford health (in its full sense) to all parts of the body including the teeth and as such the mother may not see the need to take the child to the dentist regularly to avoid pain. She may therefore see factors outside the dentist as promoting health and this perception may be

* ADTOT = The Total Attitude Score

NDTOT = The Total Subjective norm Score

reinforced by by the health message of the health visitor, as well as television advertisements. The positive relationship between Int.5 and Ad6 (the belief that the dentist will discover early decay) may, in the mothers' refer to the obvious decayed cavity, which even a lay person can observe. This suggestion is further supported in the HVQ (see Appendix A2) where one health visitor states that the mother should take the child to the dentist on the appearance of a cavity in the mouth.

Individual subjective norms - were a better predictor than than the total subjective norm score, accounting for 11% of the variance. The major component to Int.1, was an inverse relationship with the Nd6 (Health Visitor) but an positive relationship with the Nd4 (grandmother). The negative relationship of the health visitor is supported by finding (see Appendix A2) that although the advice of the health visitor to the mother is one of great importance, its influence on the mother is very slight. This may be for one of two reasons ;

- a) Mothers want to talk to a woman with family experience i.e. someone who has had children ; someone impartial to talk to in confidence and the feeling was that social workers and health visitors are out of touch with the problems of local women ,* on the contrary, there was a request for local women to be involved in the organisation of local self-help groups;

* A report of the findings of a Women's Health Survey carried out in Somers Town and Camden. (see Appendix F)

b) The advice of health visitors, is not readily accepted and is not regarded of the same level as that of a medical or dental professional by the mother.

On the other hand, the grandmother (Nd4) came up with a very strong beta weight, supporting the finding of Zola (217) that the effect of 'sanctioning' by the family plays a vital role in the mothers views of health.

The 5 intentions tend to show a trend, though not significant, that the family circle (see Table 3) is an important source of reference, but not so for the health visitor. From the interviews with mothers, it became clear that the health visitor discourages the mother from buying sweets and also to be cautious when buying health drinks, due to the sugar content and the effect it may have on the child's teeth.

This finding is in conflict with the normative belief of the husband/partner (Nd6), with whom the buying of sweets are positively associated and may be reinforced by the father/partner by giving the child sweets as a reward for good behaviour despite the health visitor advice. Thus apart from the social disadvantage the mother may experience, the health messages and influences exerted on her may be quite enormous and add additional stress to the already deprived atmosphere in which she lives.

Medical Data

The Theory of Reasoned Action failed to predict the intention to visit the doctor in the next 4 weeks [Int.6 (this may include being seen to by the health visitor)](see p.173). However 40% of the mothers said they were extremely likely to perform this intention.

To a separate but related question, 47% of the mothers said they would take their child to the doctor only when they feel it is necessary i.e. symptomatically. In contrast 47% said they will take their child to the doctor every 4 weeks (Int.7) The findings reveals that for immunizations and vaccinations, over which the mother has no control, she will take the child as often as is required of her. Currently the uptake for primary immunizations at the Somers Town health clinic is 62% and 70% for measles, whereas for the booster injection it is only 22% (see Appendix C1 and C2). Symptomatic visits may be a way of the mother regaining back her autonomy and over which she feels she has full control aided by her past experience.(98)

It should be noted that the Somers Town Family Health (STHC) and Community Dental Clinic (CDC) may not be the only health centre attended by the mother, as she may take the child to her own general practitioner (GP), family dentist or make use of the outpatient hospital services. (200) The uptake of health services depends largely on the mother's perception of need for health care, her own definition of health and the

influence exerted on her by the social function of her lay referral system.

The variance of Int.5, (the intention to give your child health drinks today) accounted for by the dental and medical behavioural beliefs are the same, but significantly very low. Whereas for the dental beliefs it is positive, but negative for the medical beliefs. An explanation for this finding may be that though dental conditions can be very painful, they are nonetheless not life threatening, whereas medical conditions are. Since the levels of morbidity and mortality are very high for lower social class groups in the UK (200) the mother may see the health drink for the child as having an positive healthy effect the teeth, whereas the child may be more prone to medical conditions which may risk their lives and for which the mother feels health drinks will have no effects.

The improvement of Int.6 (see p.173) improved to 9% for the individual attitudes concerning a specific belief. The major component was Am8 (showing love for the child). Thus the mothers love for their child is related to the level of health the child experiences, since a non caring mother may not be that sensitive to the health needs of their children.

Further analysis of the individual medical attitudes reveals that the level of prediction of Int.7 (see p.173) is further explanation for the high symptomatic use of the STFHC whereby there is a significant inverse relationship both to the belief that the pram entrance could be made easier to the clinic

(Am5) and the belief that the unpleasantness of having to wait so long at the clinic before being attended to. This convenience or expectation factor of the mothers is of great importance to the mothers, since it is of no use if the mother is eager to attend the clinic just to be put up with these barriers. However the 'waiting' factor came in very useful for the purpose of the research, since it was during this time that the mothers completed the questionnaire. This finding also holds important implications for the organisation of health services especially for this target group who are disadvantaged in many other ways. (see Appendix D1 - Prof Jarman's study)

The significant inverse relationship between Int.5 and Am8 as well as with Am3 (vaccinations will prevent further diseases) do once again highlight the underlying trend reported in the dental data i.e. that giving health drinks may be regarded as a part of child rearing amongst those mothers who can afford it, but is not specifically related to the mothers' love for the child. On the contrary, the more health drinks she gives the child may lessen the likelihood of developing ordinary childhood diseases as well as dental decay. Once again this finding supports the view that the mother may feel confident enough to manage ordinary childhood ailments which she feels is under her control.

The pattern to the data tends to confirm that to the mother, health behaviour is a very complex issue. It is determined by different underlying beliefs and subjective norms. This is

further illustrated in the analysis of the subjective norms showing a significant inverse relationship between Int.6 and Nm5 (Husband/partner). It would appear that the advice of the husband/partner(Nm5) is not closely followed or requested whereas the sister (Nm4) assumes greater importance. The regular and frequent uptake of medical care is strongly influenced by the doctor but not by the mother's own mother. The mother herself would regard regular care as important in as far as it is recommended by the doctor. This most probably is in the form of a recall appointment to see the child again. The grandmother (Nm2) however may not be that in favour of repeated medical visits. This finding is also reported in the Blaxter/Paterson(34) study where the grandmothers accepted certain ailments and conditions as the norm, whereas their daughters felt otherwise and hence made relatively more use of the health services. This may be another example of mothers being less fatalistic and feel something can be done if given the chance.(98)



A non significant inverse association is found between Int.5 and Nm1 (mother). This may further illustrate that the mother under certain circumstances may have more faith in the health profession than in her own mother's advice. However this relation should be assessed with caution. The mother herself may be more modern in her views of medicine, giving it credit where it has been of help to her family. An alternative explanation could also be the mother wishing to point out to her daughter that health drinks don't keep children healthy and what is more important is a deeper sense of commitment to

the wellbeing of the child in terms of personal care and attention, on the part of the mother. Another factor may be that health drinks is a very modern phenomena to which the older generation mother have not grown use to yet.



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7.3 Attitudes and Subjective norms as Predictors of Dental and Medical Intentions in the sample divided into two age groups

The data was further analysed by way of the two age groups. Comparison of the younger and older mothers reveals that they do have different attitudes to and are influenced differently by similiar referents in their social enviroment. A confounding variable may be the experience of the older mother, as she may have more than one child compared to the younger mother who is experiencing the rearing and caring for a child for the first time. However the younger mother may be more modern in her thinking including attitudes to medicine and dentistry.

Yet another feature is that, although the social class of both groups of mothers may be the same, the life cycle experience in terms of disadvantage or deprivation may have occured at different, but related levels of intensity. (169)

(i) Dental data analysis

With respect to the dental data, a significant improvement in the prediction of the intentions occured. However, for the young mother ADTOT showed a significant inverse relationship with Int.1, whereas for the older mother, a significant positive association was shown.(see Table 6)

The question arises therefore -: Why are young mothers so

negative in their attitudes? Is it because they feel more confident in themselves about the way they care for their children or is it because of increased disappointment with the dental care they themselves have experienced. From the interviews, it became apparent that both reasons were very realistic and more so the latter one, as one mother stated :-

" I have had so many fillings done,
yet the dental discomfort is no less
since I have received dental care "

This view is further reflected in the Adult Dental Health Survey (198) in which in the 16-24 age group, 37% had more trouble with their teeth, compared to 1968, and therefore had to visit the dentist more often. Also, although 25% of adults went more often for regular check ups, 10% went because of having more trouble with their teeth. A further finding showed that 28% of those in the age group 16-24yrs., go less often because they can't be bothered and since the evidence overwhelmingly suggest that females attend more regular than males, the proportion of women in this non bother group may be very high.

The older mothers, had a significantly positive attitude towards dentists, which may be an indication of satisfaction with past dental experience. Another reason may be that with the older mother - during her younger years, the main type of therapy was extractions and dentures . In other words, once a tooth is taken out, there is no more pain and the result satisfaction (22,59) The younger mothers however are caught up in a web of modern dentistry, where the dominant philosophy

is filling of teeth, and in terms of the conventional restorative care, needs replacement ever so often and could thus become a source of continual discontent and discomfort.

For the individual attitudes even better predictions were obtained compared to total attitude scores. (see Table 7 and 8) Hereby is indicated that attitudes and behaviour are a complex conglomerate and only by illiciting the specific beliefs can the underlying pattern to a behaviour be understood. The most significant predictor for the young mother group came up as Ad10. (see Appendix B1) Whereas these mothers believe that for both taking the child to the dentist in the next (Int.1) as well as every 6 months (Int.2), will encourage the child to go for regular dental check-ups (Ad10), yet they feel that dental treatment will not be found acceptable by the child. A conflict thus exists. It may be based on the past experience of the mother or due to misinterpretation of the preventive message. This factor of treatment and skill is once again overshadowed by the concern for reassurance and understanding as seen in the analysis for all the subjects.

For older mothers, the more important factor is the fear of the child for the dentist, (Ad4) which the mother generally believes will be lessened if the child goes to the dentist preventively. This finding is supported by that of the Health Visitor Questionnaire (HVQ), in which four stated that the child will overcome the fear, if taken regularly to the dentist.

The influence of the father/partner (Nd5) in the young mother group was significantly negative as well as those opinions of their health visitor (Nd6), but not those of the dentist (Nd7) the belief was significantly positive. Since males are less frequent attenders than females, Barentin(17) this attitude may be reflected here in the mother's answer.

The negative answer for the health visitor with respect to the young mother's beliefs, could be that the advice of the health visitor is not regarded as professional or on the same level as that of doctors and dentists, although in a crosstabulation of health visitor advice and age of mother revealed that, two-thirds of the younger mothers obtained advice from the health visitor compared to less than half of the mothers in the older age group. The HVQ further reveals that while the health visitors regard the advice given to mothers as important (see Appendix A2), mothers show only a little regard for such information.

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In the older age group, in assessing the individual subjective norms, the husband was regarded as the major significant referent together with the mother's own mother. The mother is usually the focal facilitator in the socialization process (20), but in this older group, the husband come up as the most important referent. A possible reason for this may be that in the interviews, it was revealed that many of the younger mothers were single parents, whereas most of the older mothers interviewed were infact married. The inverse association seen between the younger

mother and the husband/partner may reflect the fact that the mother has to go it alone in rearing the child, insecurity prevails, resulting in a disregard for the beliefs of the partner. However the older mother, having the support of her husband, will incorporate him into her belief system and this is reflected, as the husband being as important referent for the older mothers' normative beliefs.

It is interesting to note, that with reference to attitudes, for young mothers, regular check ups (Ad10) and the acceptability of treatment (Ad7) were important, whereas for the older mother, the child's teeth remaining healthy. (Ad1)

The acceptability of treatment proved to be a decisive factor for young mothers whereas for the older mothers, it was more fear that needs to be overcome and this may once again reflect the childhood experience of the older mother when dentistry was seen more as a symbol of fear and anxiety.

(ii) Medical data analysis

The medical data shows very low predictions for total attitude and subjective norm scores. In both age groups the individual norms seems to be the more important predictors.

In the younger mother group, the doctor (Nm7) was the important referent and this is further supported by a finding in the HVQ where one health visitor stated :-

" that the doctor is regarded as
omniscient in all medical matters "

However for older mothers, her own mother is regarded as the central referent. Once again support for this finding is found in the HVQ in which one health visitor stated :-

" Mothers will rather listen to their
own mothers than to the profession "

It may also be that to the young mother, the doctor presents a caring, parental figure, which in the case of single parents may be important. She may also see the doctor as somebody she can confide in, in contrast to the older mother who has a husband as well as an extended family.

Comparison of medical/dental intentions

In terms of the objectives of this study, it becomes clear that in terms of the main dental and medical intentions (Int.1 & Int.6) attitudes affect the dental intention positively whereas the medical intention is inversely affected. This tends to suggest that for medical behaviours, important others play a decisive role in the determination of the uptake of preventive services for all the subjects. However in looking at the 2 groups, the individual normative beliefs are more important for young mothers with reference to medical beliefs, whereas individual attitudes are more important with reference to dental beliefs and the same holds for the older mothers.

With respect to the 4 additional dental intentions, Int.3 (see p.173) had the highest significant prediction score for the young mothers whereas for the older mothers, it was Int.4. This indicates that with reference to 6 monthly attendance,

sweets may be an important pacifier to the child and at the same time, the mother believes that the dentist can control the effects and consequence sweets on teeth. In the older mothers, her own example to the child (Int.4) in visiting the dentist is of more importance, to the acquiring of dental habits.

In the older mother group, their own example to the child (Int.4) is of more importance, to the acquiring of dental habits.

In terms of the 2 additional intentions related to the medical data, subjective norms are the stronger predictor for young mothers with respect to regular medical check-ups. However, in terms of Int.5, for both age groups, total attitudes (ADTOT) is the major component, but the relationship is a negative one for young mothers in terms of both total and individual attitudinal scores, but positive for the older group with respect to individual attitude score.

The study shows that attitudes and subjective norms, fulfil different roles at different age levels of the mother, and her environment (132) will play a decisive role in the relative weight of each factor in the performance of a health behaviour.

Analysis of the mean attitude and subjective norm scores show the important dental attitudes to be those related to ;

- a) discover early decay (Ad6)
- b) toothbrushing (Ad9)
- c) regular dental check ups (Ad10)

whereas the higher subjective norm scores are related to ;

- a) mother Nd1
- b) husband/partner Nd5
- c) health visitor Nd6
- d) dentist Nd7

Compared to the mean medical and subjective norm scores, which for attitudes are ;

- a) vaccinations of the child Am3
- b) child's teeth remain healthy Am9

and for subjective norms are ;

- a) mother Nm1
- b) health visitor Nm3
- c) husband/partner Nm5
- d) doctor Nm7

Both therefore 'outcome' related, with medical attitudes having a stronger direction towards the health of the child, compared to dental attitudes where the action of the dentist are seen as more important.

7.4 Principal Component Analysis of the Attitude and Subjective Norm data.

Principal components analysis shows distinct trend and associations in the data. The clusters of the dental attitudes are found specifically in 2 dimensions, namely ;

- a) Preventive practice orientation
- b) Treatment outcome orientation

Domain a) is very important as it demonstrates that there are a minority of Social Class V individuals to whom prevention are important and that they are not totally fatalistic.(153)

It is also an indication of the awareness of health prevention trends experienced in the upper social classes which through the influence of the environment becomes the expectations of even the lower groups too.

It further demonstrates that the dentist needs to be sensitive to the needs of the individual, instead of stereotyping the individuals into groups and treat them accordingly. Within this framework, the Theory of Reasoned Action (5) can be used as a predictive tool in the understanding of the underlying relationships of the different attitudes.

(i) Dental data analysis

The two clusters for dental attitudes are diametrically opposed (see Fig.10A) and accounts for 59% of the variance. It was clearly demonstrated that for total attitudes (ADTOT), the Theory of Reasoned Action had a very low predictive power, but

in terms of the external variable, age, the prediction improved considerably. Different attitudes have been shown to influence the prediction of intention for both medical and dental data in the 2 age groups.

This may indicate that, the perception of mothers to visit the dentist is strongly influenced, depending on treatment outcome or preventive orientation.

For subjective norms, 2 influences were shown. the people close to the mother (including family and friends) can be referred to as a "kinship" factor, serving as an informal advisory unit in contrast to the husband/partner, dentist and health visitor who can be seen more as a distant influential group. For the young mother the dentist seemed to be the important referent, whereas for the older mother the husband assumed this role. (see p.165)

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The additional dental intentions examined, tends to indicate that dental visiting behaviour involves much more than the interaction between the dentist and the patient. The kinship and distant advisor group were found in two different dimensions of effect, that accounts for 59% of the variance and can be thought of as measures of 'kinship' (Dimension C) and 'distant advisors' (Dimension D). The third dimension was found not to be statistically significant, but accounted for 14% of the variance and may indicate some mediating effect of the husband as being a component of one of these dimensions of these groups under different circumstances.

(ii) Medical data analysis

As for the medical data, three distinct dimensions of effect were shown. These are ;

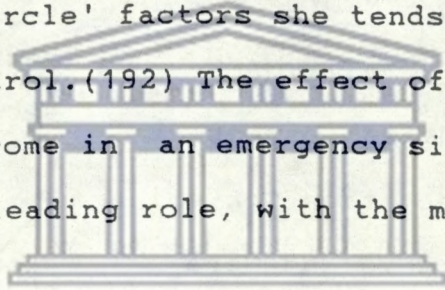
- a) 'Health directed preventive' factor (Am1, Am2, Am3 and Am4) where the outcome of normality of growth seems to be the essential factor ;
- b) 'Convenience' or 'Expectation' factor (Am5, Am6, and Am7) where mothers have certain expectations of the health service and if these are not met, the result may influence the uptake of services negatively ;
- c) 'Love and Care' factor (Am8, Am9 and Am1) may indicate that although the mother may be socially deprived in terms of social class structure, this will in no way impede her from expressing her love to the child even if it means an act of taking the child for medical care.

Another dimension of the last factor is that, in the case of single families, the child having to grow up in the possible absence of both parents and the mother may therefore compensate for this is by giving the child everything possible within her means as a replacement for this aspect including health care services.

These three factors, explained 64.5% of the variance within the three dimensions of affect. In the assessment of health, health care, the uptake of health care may just be one of the motivating criteria amongst others.

The analysis of the subjective norm shows that 'kinship' is

once again a principal dimension representing the 'Inner Circle' of important others to the mother. The influence of this group may become, a weighting net for health information the mother receives and the application thereof would strictly be determined by the 'sanctioning' of the 'inner circle'. Zola (217) has described this factor as a trigger for action and may be appropriately so in this target group. The doctor forms an outer circle of influence, with the husband and the health visitor serving more as intermediaries or 'listeners'. These three dimensions explain 64.8% of the variance of Int.6 (see p.1) These mothers may have a very high external locus of control in terms of the kinship factor but for the 'listener' and 'outer circle' factors she tends to exercise an internal locus of control. (192) The effect of the latter situation may only be overcome in an emergency situation where the doctor may play the leading role, with the mother's permission.



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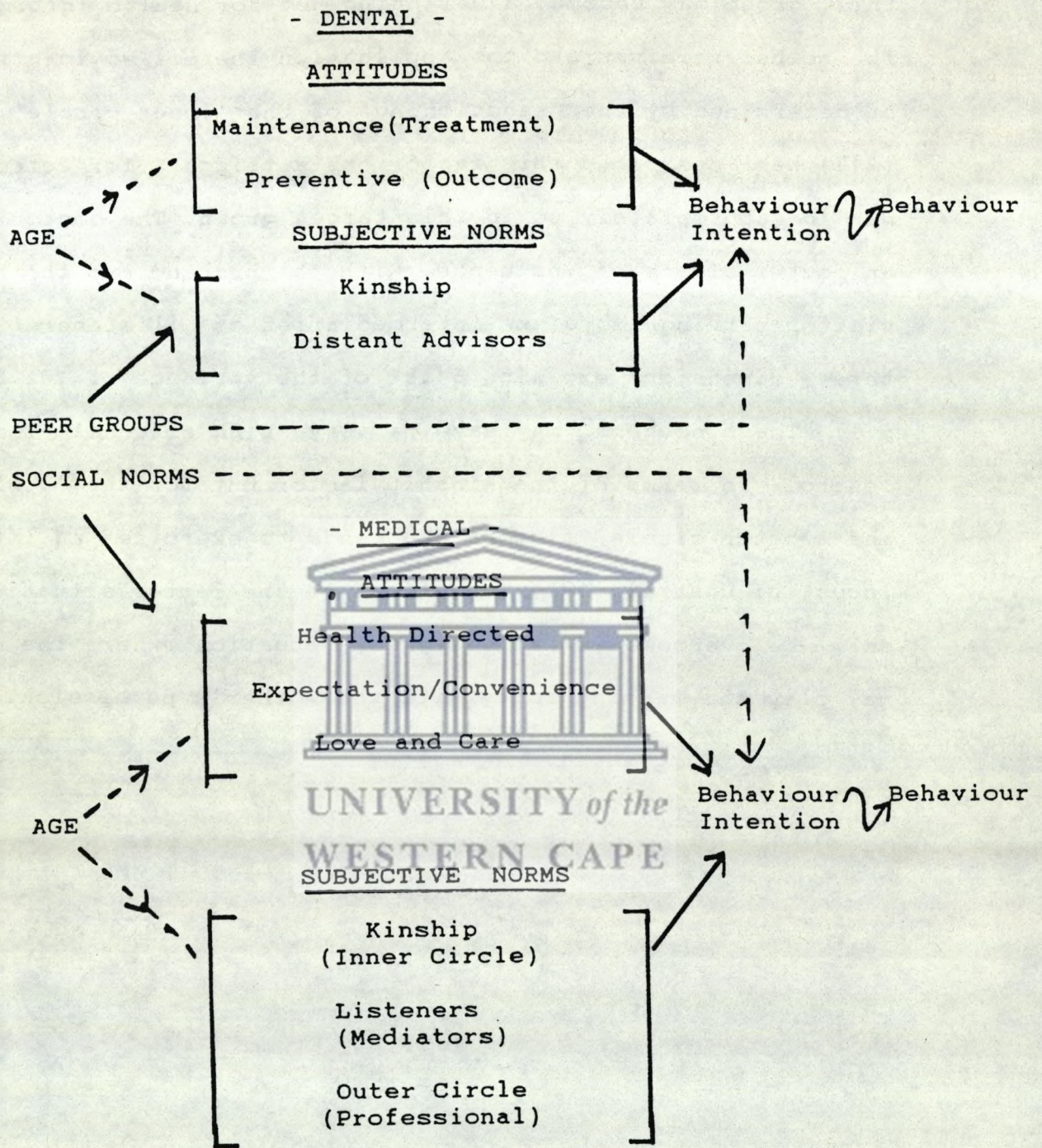


Fig.11 : Adapted model of Fishbein/Ajzen relating to the findings of this study

CHAPTER EIGHT



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The concept of the preventive uptake of health care of more than one action, has important implications. For any health programme or service to be effective, a basic understanding of the attitudes and norms of a community is required, and this understanding must be revealed in practical terms to those who are to use the health service.

Recognition of the social distance between the health profession and the lay person is essential. (92)

Furthermore, although women may recognise the relevance of lifestyle choices for illness prevention, they may still not hold strong belief in the possibility that their actions can affect outcome. This being reinforced when the health profession fails to recognise or to express confidence in what the mother regards as important for the health of the child. The approach to health education needs to be one of building up this confidence.

This aspect is brought out further in a local study (see Appendix F) which showed, that two main reasons why women did not consult the doctor in the past was ;

- a) the doctor would regard their problem as being to trivial or inappropriate
- b) they were afraid of the diagnosis and treatment that they will be given

The main finding is that women want to be able to express

themselves more freely and as one women put it ;

" you can go and be taken seriously
without having to create a crises "

More research is required into the underlying relationships between dental and medical attitudes and subjective norms. A clear indication for this is the failure of the Fishbein/Ajzen model to predict intention from general attitudes and subjective norms in all the subjects. However, care should be taken not to restrict the behaviour under question to such an extent that it becomes unrealistic. The analysis of the data in the two age groups demonstrate that certain criteria must be met, for the succesful application of the Fishbein/Ajzen model. Further research on the determination of such criteria in different behavioural circumstances is essential to give a better understanding of human health behaviour.



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QUESTIONNAIRE FOR
MOTHERS OF
YOUNG INFANTS

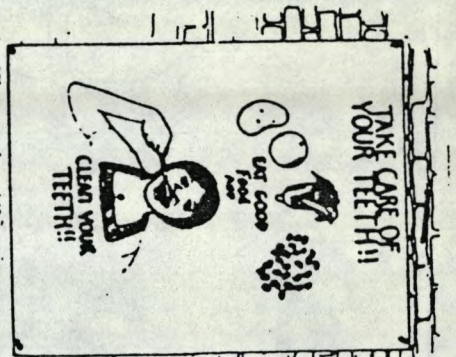


EACH of us have different

ATTITUDES

towards visiting the DENTIST
regularly for dental care.

**HOW STRONGLY DO YOU AGREE
THAT IF YOU TAKE YOUR CHILD
TO THE DENTIST/SCHOOL DENTIST
EVERY 6-MONTHS:**



11. Your child's teeth will remain healthy.
12. Toothache will be avoided.
13. The child will have good teeth.
14. The child will not be frightened of the DENTIST.
15. Will avoid the child's teeth growing crooked.
16. Will allow the DENTIST to discover early decay.
17. Your child will find dental treatment more acceptable.
18. Will make the DENTIST more friendly more towards your child.
19. Will encourage toothbrushing daily.
20. Will encourage the child to go for regular dental checkups rather than just when in pain.

DEFINITELY
SOMETIMES
MAYBE
CAN'T SAY
NOT REALLY
PROBABLY NOT
DEFINITELY NOT

NOW about the
views of other PEOPLE
in your life:



HOW STRONGLY DO EACH
OF THE FOLLOWING PERSONS
BELIEVE THAT YOU SHOULD
TAKE YOUR CHILD TO THE
DENTIST EVERY 6 MONTHS
YOUR:



31. MOTHER					
32. SISTER					
33. FRIENDS					
34. GRANDMOTHER					
35. HUSBAND/PARTNER					
36. HEALTH VISITOR					
37. DENTIST					

ABSOLUTELY MUST
PREFERABLY SHOULD
MAY OR MAY NOT
PREFERABLY SHOULD NOT
ABSOLUTELY MUST NOT

Why did this child get well again?



He got no risky medicine-- just fruit juice, good food, and rest.



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HOW LIKELY IS IT THAT YOU WOULD FOLLOW THE ADVICE OF THE FOLLOWING PEOPLE:

Your:

DEFINITELY WANT TO
PROBABLY WANT TO
CAN'T SAY
PROBABLY DON'T WANT TO
DEFINITELY DON'T WANT TO

38. MOTHER									
39. SISTER									
40. FRIENDS									
41. GRANDMOTHER									
42. HUSBAND/PARTNER									
43. HEALTH VISITOR									
44. DENTIST									

Now, if we look at MEDICAL SERVICES available for your child through the DOCTOR and the HEALTH VISITOR,

HOW STRONGLY DO YOU AGREE THAT RELATED MEDICAL VISITS TO THE SOMERSETOWN CLINIC:



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- 45. ..Will keep your child healthy.
- 46. ..Will ensure normal growth to the child in height and weight.
- 47. ..Will ensure that vaccinations received will prevent other illnesses.
- 48. ..Is possible because you stay near to the clinic.
- 49. ..Would be easier if the entrance to the clinic for prams are improved.
- 50. ..Is exciting because the HEALTH VISITORS are very friendly and helpful.
- 51. ..Is unpleasant because you have to wait so long and just sit around.
- 52. .. Will show how much the mother loves the child.
- 53. ..Will keep my child's teeth healthy and free of pain.

DEFINITELY	SOMETIMES	MAY BE	CANT SAY	NOT REALLY	PROBABLY NOT	DEFINITELY NOT



NOW about the views of the people

whom you often come in contact

with:

HOW STRONGLY DO EACH OF THE FOLLOWING PERSONS BELIEVE THAT YOU SHOULD TAKE YOUR CHILD FOR REPEATED MEDICAL VISITS TO THE CLINIC.

Your:

63.	MOTHER						
64.	GRANDMOTHER						
65.	HEALTH VISITOR						
66.	SISTER						
67.	HUSBAND/PARTNER						
68.	FRIENDS						



ABSOLUTELY MUST
 PREFERABLY SHOULD
 MAY OR MAY NOT
 PREFERABLY SHOULD NOT
 ABSOLUTELY MUST NOT



SO often advice is given
by so many people in our lives.

NOW:
TO WHAT EXTEND WOULD
YOU WANT TO FOLLOW THE
ADVICE OF THE FOLLOWING
PERSONS:



	DEFINITELY WANT TO	PROBABLY WANT TO	CAN'T SAY	PROBABLY DON'T WANT TO	DEFINITELY DON'T WANT TO
69. MOTHER					
70. GRANDMOTHER					
71. HEALTH VISITOR					
72. SISTER					
73. HUSBAN / PARTNER					
74. FRIENDS					

YOUR:



Just tick (✓) the block or answer you want to give:

EXTREMELY LIKELY	VERY LIKELY	QUITE LIKELY	CAN'T SAY	QUITE UNLIKELY	VERY UNLIKELY	EXTREMELY UNLIKELY

Q1. Do you INTEND to take your child for REPEATED MEDICAL VISITS (CHECK-UPS) to the Clinic that is to the MEDICAL DOCTOR

Q2. Do you INTEND to take your child to the DENTIST for a check up every 6-months.

Just TICK (✓) the block you agree with

Q3. How STRONGLY do you think, does the MEDICAL DOCTOR BELIEVE that you should bring your child for REPEATED MEDICAL VISITS to the Clinic? :

- a) Absolutely must
- b) Preferably should
- c) May or May not
- d) Preferably should not
- e) Absolutely should not

Q4. To what EXTEND do you want to follow the advice of the MEDICAL DOCTOR :

- i) DEFINITELY WANT TO
- ii) PROBABLY WANT TO
- iii) CAN'T SAY
- iv) PROBABLY DONT WANT TO
- v) DEFINITELY DONT WANT TO

THIS SECTION IS STRICTLY CONFIDENTIAL. THIS INFORMATION WILL ONLY BE USED FOR THE PRESENT RESEARCH PROJECT AND, NOBODY WILL BE IDENTIFIED BY NAME.

1. Age: _____
2. Country of Birth _____
3. Your present or last type of work you did? _____
4. Were your child(ren) born in England? _____
5. How old is your baby now? _____
6. Number of years living in the UK. _____

7. How old do you think a child should be when he/she goes to the dentist for the first time?
- i) 6 months
 - ii) 1 year
 - iii) 2 years
 - iv) 3 years
 - v) 4 or more years

8. How often should a child/adult visit the dentist for check-ups?
- | | adult | child |
|----------------------------------|--------------------------|--------------------------|
| i) every 6 months | <input type="checkbox"/> | <input type="checkbox"/> |
| ii) once a year | <input type="checkbox"/> | <input type="checkbox"/> |
| iii) once every 2 years | <input type="checkbox"/> | <input type="checkbox"/> |
| iv) only when there is toothache | <input type="checkbox"/> | <input type="checkbox"/> |

9. Does your HEALTH VISITOR advise you on how to keep your child's teeth healthy?
- YES NO

10. Does your medical doctor advise you on going to the dentist for your child's teeth?
- YES NO

11. How often do you take your child for repeated medical visits to the Somerstown Clinic?
- EVERY _____
- i) 2 weeks
 - ii) 3 weeks
 - iii) 4 weeks
 - iv) 5 weeks
 - v) only when I feel it is necessary

Thankyou for your help and cooperation in completing the questionnaire.

QUESTIONNAIRE FOR
HEALTH VISITORS
AT THE
SOMERSTOWN CLINIC



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I WAS HERE FIRST!
DON'T YOU REALIZE
WHO I AM??

I'M SORRY MA'AM. MY RESPONSIBILITY
IS TO SERVE FIRST THOSE WHOSE
NEED IS GREATEST.



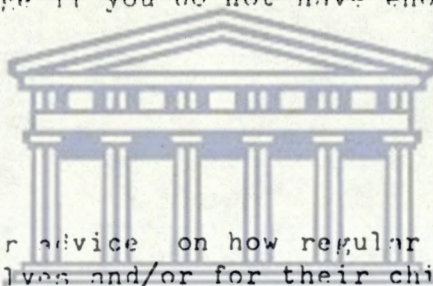
QUESTIONNAIRE (AS PART OF A M.Sc. PROJECT)

FOR HEALTH VISITORS.

I (Stephen Hendricks) would be grateful if you could answer a brief questionnaire. I am interested in your OPINIONS, so please write as much as you like about each question.

This is in no way a test of your knowledge and these questions do not have right or wrong answers. Please note it is not necessary to give your name.

Could you please return the completed questionnaire to the project researcher. If you cannot answer a question for any reason, please leave it blank. Be as brief or as detailed as you like, and please continue on the back page if you do not have enough room.



1.a. Do mothers ask your advice on how regular they should attend a dentist for themselves and/or for their children?

b. If so, what advice do you give them?

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2.a. Do mothers ask your advice about prevention of tooth decay?

b. If they do, at what age do they tend to seek this advice?

3.a. Do mothers ask your advice on when a child should first visit a dentist?

b. What advice would you give such mothers?

4. Do mothers whose children already have decayed teeth ask for your advice?

5. Why do you think are regular visits to the dentist necessary/or not necessary?

6. What time interval do you think are suitable for dental check-ups?

	mother	child(ren)
6 months	<input type="checkbox"/>	<input type="checkbox"/>
12 "	<input type="checkbox"/>	<input type="checkbox"/>
18 "	<input type="checkbox"/>	<input type="checkbox"/>
2 years	<input type="checkbox"/>	<input type="checkbox"/>
don't know	<input type="checkbox"/>	<input type="checkbox"/>

7. What is the reason for your answer in 6.6?

8. What influence do frequent medical attendance visits have on dental attendance?

9. Do you think dental decay is inevitable?

If not, can it be prevented in any way?

What preventive methods do you suggest?

10. At what age should a child's teeth be examined by the dentist for the first time?

11. Do you advise mothers to see their dentist regularly?

Always	<input type="checkbox"/>
Often	<input type="checkbox"/>
Sometimes	<input type="checkbox"/>
Never	<input type="checkbox"/>

12.. How do you rate the dental services rendered at the Somerstown Dental Clinic?

13. In which ways can the services be improved?

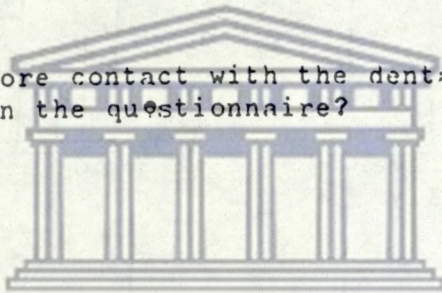
14. What do mothers complain about (if anything) the services rendered at the Dental Clinic?

15. How influential is your advice to mothers about changing their habits? Very Slightly Not at all

16. How important do you think do mothers regard your advice on medical and dental matters?
17. Do you think mothers should be told to visit the dentist every 6 months or should they rather decide for themselves what is best for their child ren)
18. Do you think mothers would follow their DOCTOR'S rather than their DENTIST'S advice on oral health?

If yes, why do you think so?

19. What factors do you think influences a mother's decision to take their child(ren) to the dentist?
20. Would you welcome more contact with the dental profession on the subjects raised in the questionnaire?



Have you any other comments?
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Thankyou for participating.

Stephen Hendricks

Dept. of Community dental Health
University College Hospital
66-70 Gower Street
LONDON WC1E 6JD
PH. 636-1901 Ext.22

APPENDIX A3

OPINIONS OF HEALTH VISITORS IN THE STUDY

AREA ON DENTAL HEALTH

KEY : HV = Health Visitor

DO MOTHERS ASK YOUR ADVICE

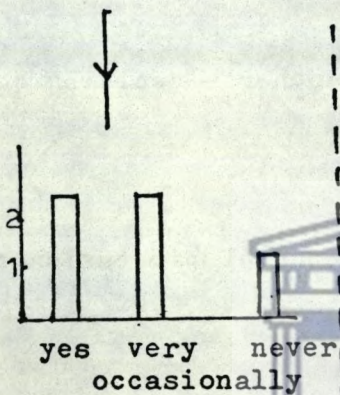
ON

How regular mother/child must attend the dentist?
(Q1)

Prevention of Tooth decay?
(Q2)

When child must first visit the dentist?
(Q3)

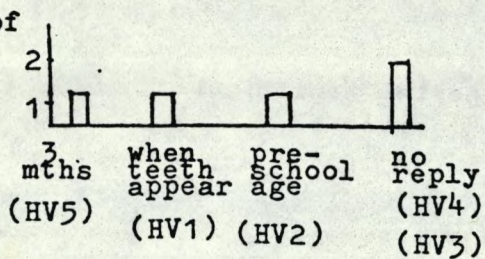
No. of health visitors



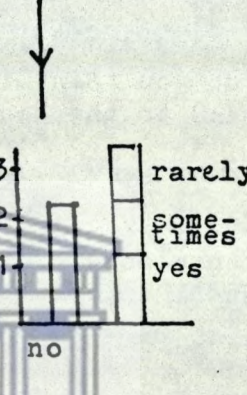
If so, WHAT ADVICE is given?

- 1) Care of teeth during pregnancy
- 2) Baby gets new teeth
- 3) At pre-school stage

No. of HV

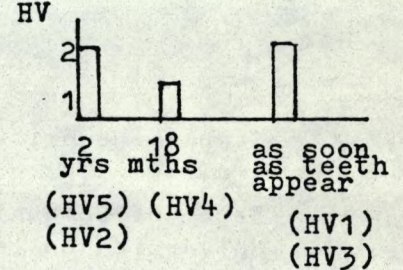


No. of health visitors

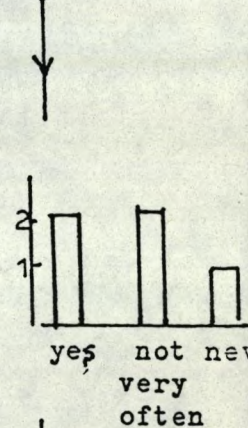


If so, at what AGE of child is Advice asked?

No. of HV



No. of health visitors



If YES, what ADVICE is given

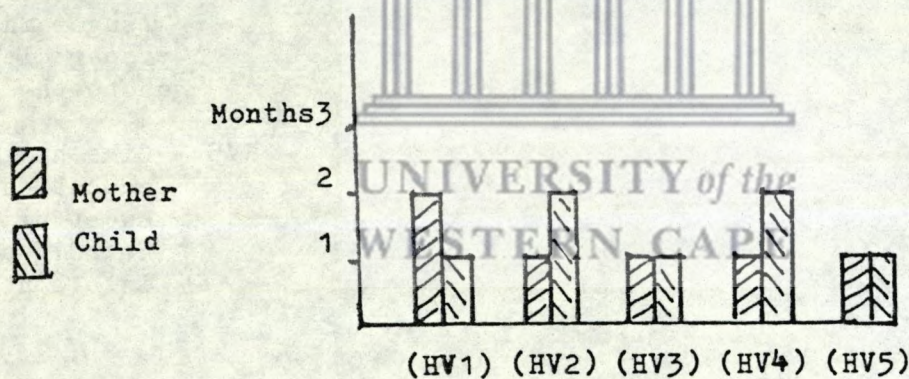
Q5.

ARE REGULAR DENTAL VISITS NECESSARY? and WHY?

- HV1 - YES / To advise on tooth decay/ to get preschool children and mother use to attending the dentist
- HV2 - YES / It is essential - but depends if dentist is pro-treatment of pro-prevention
- HV3 - YES / To check that the mouth is healthy / to give preventive advice / to give treatment if necessary/ to get children use to attend dentist and so overcome FEAR
- HV4 - YES / To promote lifestyle conducive to dental health / to minimize FEAR
- HV5 - YES / Essential for preventive dental care / to avoid FEAR of the dentist

Q6.

DENTAL RECALL INTERVAL THOUGHT SUITABLE BY THE HEALTH VISITOR?

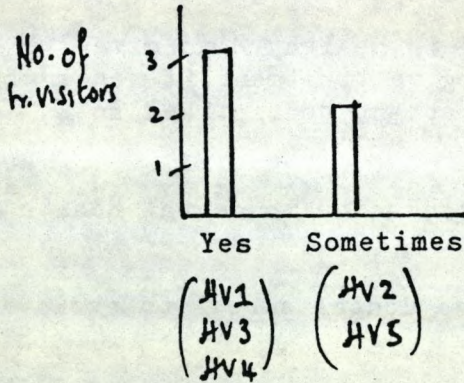


Q7. REASONS GIVEN

- None
- To check for overcrowding of teeth during growth of the jaw
- To catch disease early and to provide preventive advice
- Good for prevention
- The less the interference, the better the adults teeth and frequent monitoring in child to have good permanent set of teeth

Q8 All Health visitors felt that frequent medical attendance had no influence on dental attendance.

Q9 Can tooth decay be prevented?



Methods of prevention?

H 1 - Avoid sugar in food and drinks from birth/ Give F drops

HV2 - Give F/Balanced Diet/Regular Brushing of teeth/Treat cracked enamel of tooth

HV3 - Eat less sweet things/Use F toothpaste or drops/Tooth-brushing/Flossing

HV4 - Diet control/ ↓sugar intake/ proper cleaning of teeth

HV5 - Give health education/Avoid sweet drinks/Do not dip dummy into honey



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Q10 At what age should a child's teeth first be examined by a dentist?

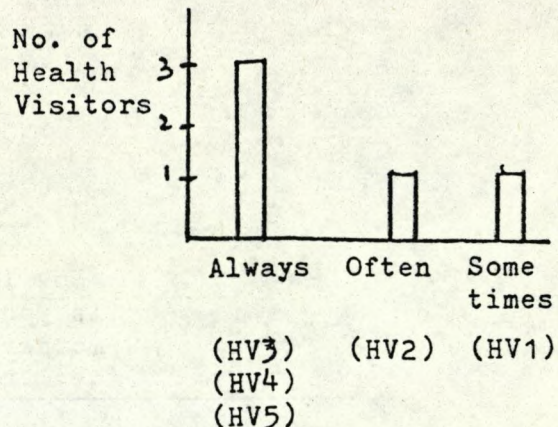
HV1 - when child have full set of milk teeth

HV2 }
HV3 } At 2 years old

HV4 - As soon as possible with the whole family

HV5 - 18mths - 2yrs.

Q11 Do you advise mothers to visit the dentist regularly?



Q12 How would rate the dental services at the Somers Town Community Dental Clinic?

- HV1 - Good
- HV2 - No Comment
- HV3 - Good : Better rapport exists between mother and community dentist than with high street dentist
- HV4 - Don't know
- HV5 - No Comment



Q13 & Q14

How can dental services be improved?

- HV1 - there should be more contact with baby clinics, day nurseries, playgroups and talks to parents and toddler groups
- HV2 - Children must be sent appointments(re-call) every 2 years
- HV3 - more advertising needed of dental services available
- HV4 - Ask the clients
- HV5 - Unable to comment

Q15

How INFLUENTIAL is your advice to mothers to change health habits

Q16

How IMPORTANT do you think mothers regard your advice on medical and dental matters

HV1	Slightly - some mothers remember avoiding sweet drinks, however they dilute the health drinks	Not very Important
HV2	Slightly	Not very Important
HV3	Slightly	very Important
HV4	Some mothers listen to their own mothers more than to health professionals	Variable
HV5	Slightly	very Important - depends on attitude of mother to health visitor

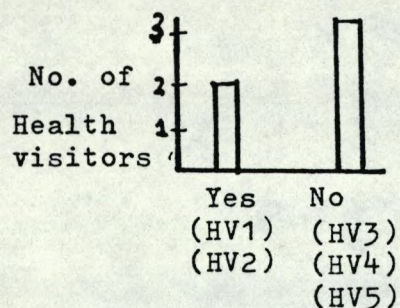
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Q17

On the question of whether mothers should be told to visit the dentist every 6 months (for Child) or decide for themselves, 4 of the health visitors felt mothers should be advised, although 1 saw no point in telling them anything (HV4) and HV1 felt that if no advice is given, mothers will wait until teeth are carious before they go for treatment

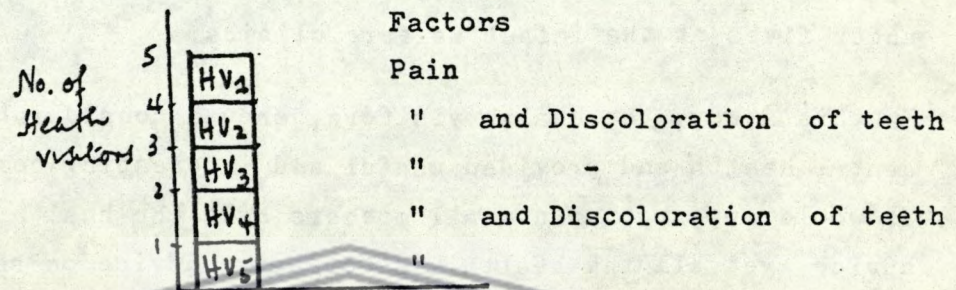
Q18

Would mother follow doctor rather than dentist advice on oral health?



Q19

What factors influences the mothers decision to take their child to the dentist?



It is interesting to note that not one of the health visitors thought prevention may be a factor for going to the dentist, although on giving reasons for necessity of regular visits 2 of the 5 stated preventive care (dental) is important (see Q5)

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Q20

4 of the 5 health visitors stated they would welcome more contact with the dental profession

HEALTH VISITOR QUESTIONNAIRE

DISCUSSION

The health visitor, plays a very important part in primary health care services along with the district nurse. (Access to Primary Health Care, OPCS 1981) Her duties is however not just restricted to certain age groups, although she is primarily concerned with the care of under fives at the infant welfare clinics.

In this study, the health visitors, showed considerable interest in dental health and provided useful and interesting comments and ideas. It would appear that not all mothers asks the health visitor dental advice, yet all the health visitors give advice on regular dental visits to mothers. They do apparently sometimes come across dental problems and are asked about prevention.

On the question of re-call visits for both mother and child, the answers were very varied, as well as reasons given. Although health visitors do not have accurate information on dental health, they try their best to help the mother if faced with a dental situation.

Reasons given for re-call visits varied from; to prevent overcrowding, good for prevention, have a better permanent set of teeth. It is apparent that dental re-call visits are advised for different reasons, and may also be based of the past dental experience of the health visitor.

The dental health message of the health visitors differ considerably. Although all are in favour of preventive visits, the main factors they feel which influence a mothers decision to take her child to the dentist is pain and discoloration of teeth. The main reason given for necessity of regular dental attendance was for the child to overcome fear of the dentist and to nurture preventive attendance habits.

The majority of the health visitors felt that tooth decay can be avoided. The main method proposed to do so was by decreasing the sugar intake, although in addition, some mentioned toothbrushing and flossing as important too.

Health visitors felt they lacked knowledge in the subject of dental care and their answers showed that sometimes they were unsure or unaware of the merits of recent advances.

Their knowledge on the quality of dental care rendered at the Somers Town community dental clinic, received a 'no comment' from some, whereas others felt the rapport between the clinic dentist and the mothers was better than that of the high street dentist.

There appears hesitation on giving mothers the selves advice to visit the dentist regularly. Only three gave such advice to mothers,

Reservations were expressed on the influence of their health message to mothers to change their habits (including health) and the majority stated that such advice is only slightly influential. One health visitor put forward the view that mothers will rather listen to their own mothers, than to professional persons, illustrating the strong 'KINSHIP' links and influence. This finding is supported by that of the Principal components analysis of the dental and medical data. (see section 7.4 of the main study p.194) It would appear that mothers will only take on board the health message of the health visitor as far as it is not in conflict with her views on child health.

The health visitors welcomed the idea of more contact with the dental profession and more up to date information on dental health.

Health visitors are often in a position to advise mothers on diet and child health. In the first year of the child, they may have more contact with the mother than any other health worker and yet are unaware of the many aspects of preventive dental care.

There could be more contact with dentists on an individual level, since the dental clinic are not far from the health clinic and more up to date literature on dental health should be made available to these health workers.

The health visitor is an important person in the primary health care team, giving advice and support to many young mothers. As the interviews with the mothers revealed, the health visitor may at times be the only person the mother can or will speak to on certain health issues, which may include dental. She thus ought to be well informed on the subject of dental health, in view of falling decay levels in children. and on how to maintain and monitor a caries free dentition, so that she can pass on knowledge to mothers and their infants at a time when habits are first being formed.



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APPENDIX B1

Attitudes and Subjective Norms associated with specific beliefs and referents

- A. Dental Attitudes and Subjective Norms
- B. Medical Attitudes and Subjective Norms

A. Dental Attitudes and Subjective Norms

Attitudes associated with each specific belief are calculated by the formula:

$$\text{Salient Behavioural Belief} \times \text{Outcome Evaluation}$$

ATTITUDES ASSOCIATED WITH THE BELIEF THAT IF YOU TAKE YOUR CHILD TO THE DENTIST/SCHOOL DENTIST EVERY 6-MONTHS :

		<u>Behavioural Belief</u>	<u>Outcome Evaluation</u>
Ad1	Your child's teeth will remain healthy	Q11	Q21
Ad2	Toothache will be avoided	Q12	Q22
Ad3	The child's teeth will remain healthy	Q13	Q23
Ad4	The child will not be frightened of	Q14	Q24
Ad5	Will avoid the child's teeth growing crooked	Q15	Q25
Ad6	Will allow the dentist to discover early dental decay	Q16	Q26
Ad7	Your child will find dental treatment more acceptable	Q17	Q27
Ad8	Will make the dentist more friendly towards your child	Q18	Q28
Ad9	Will encourage toothbrushing daily	Q19	Q29
Ad10	Will encourage the child to go for regular dental check-ups rather than when in pain	Q20	Q30

APPENDIX B2

Subjective Norms associated with each referent are calculated by the formula:

$$\text{Salient Normative Belief} \times \text{Motivation to Comply}$$

SUBJECTIVE NORM TOWARDS TAKING
YOUR CHILD TO THE DENTIST/SCHOOL
DENTIST EVERY 6 MONTHS
ASSOCIATED WITH YOUR :

Normative
Belief

Motivation
to Comply

Nd1	Mother	Q31	Q38
Nd2	Sister	Q32	Q39
Nd3	Friends	Q33	Q40
Nd4	Grandmother	Q34	Q41
Nd5	Husband/Partner	Q35	Q42
Nd6	Health Visitor	Q36	Q43
Nd7	Dentist	Q37	Q44

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Appendix B3

B. Medical Attitudes and Subjective Norms

Attitudes associated with each specific belief are evaluated by the formula :

$$\text{Salient Behavioural Belief} \times \text{Outcome Evaluation}$$

ATTITUDES ASSOCIATED WITH THE BELIEF THAT REPEATED MEDICAL VISITS TO THE SOMERSTOWN CLINIC :

		<u>Behavioural Belief</u>	<u>Outcome Evaluation</u>
Am1	Will keep your child healthy	Q45	Q54
Am2	Will ensure normal growth to the child in height and weight	Q46	Q55
Am3	Will ensure that vaccinations received will prevent other illnesses	Q47	Q56
Am4	Is possible because you stay near the clinic	Q48	Q57
Am5	Would be easier if the entrance to the clinic for prams are improved	Q49	Q58
Am6	Are exciting because health visitors are very friendly and helpful	Q50	Q59
Am7	Is unpleasant because you have to wait so long and just sit around	Q51	Q60
Am8	Will show how much the mother loves the child	Q52	Q61
Am9	Will keep my child's teeth healthy and free from pain	Q53	Q62

APPENDIX B4

Subjective Norms associated with each referent are calculated by the formula:

$$\text{Salient Normative Belief} \times \text{Motivation to Comply}$$

SUBJECTIVE NORM TOWARDS TAKING
YOUR CHILD FOR REPEATED VISITS
TO THE CLINIC ASSOCIATED
WITH YOUR :

		<u>Normative Belief</u>	<u>Motivation to Comply</u>
Nm1	Mother	Q63	Q69
Nm2	Grandmother	Q64	Q70
Nm3	Health Visitor	Q65	Q71
Nm4	Sister	Q66	Q72
Nm5	Husband/Partner	Q67	Q73
Nm6	Friends	Q68a	Q74a
Nm7	Doctor	Q68b	Q74b

Immunisation Uptake Rates

These figures represent an overall rate for each Clinic/Practice with regard to Primary, Measles and Booster immunisations. There are also average figures for each Clinic/Practice, and the overall district average figures for Primary, Measles and Booster immunisations.

<u>Clinic/Practice</u>	<u>Returns Submitted</u>	<u>Primary %</u>	<u>Measles %</u>	<u>Booster %</u>	<u>Average %</u>
Upper Montagu St	3	81	69	74	75
Homeless Families	1	64	50	-	57
Somerstown (geog)	2	63	70	22	52
-difficult to analyse	1				
Amphill	2	73	67	62	67
P of Natal	4/5	81	58	66	68
Jacobs	1/2	100	94	82	92
Jarman	2	89	89	69	82
Lisson Grove (geog)	2	88	78	82	83
Barnes House (geog)	1	84	27	77	63
Marshall St	3	86	91	93	90
Stoll Group	2	83	86	92	87
James Wigg	4	86	70	82	79
Caversham	4	84	93	89	89
Kentish Town (geog)	nil				
District Average	31	82%	72.5%	68.5%	75.6%

Reasons for Non-Completed

Courses of Immunisation

There are a number of reasons for incomplete courses, some which may apply to one course or one grouped stages i.e. Primary, Measles or Booster.

These have been consolidated into general reasons and where the category doesn't apply to a particular course of immunisation or stage of immunisation, this will be indicated by N/A.

<u>Reasons</u>	<u>Primary</u>	<u>Measles</u>	<u>Booster</u>	<u>Total</u>
Failure to attend appointment	16	31	75	122
Refused immunisation	8	24	3	35
Medical Reasons	30	26	8	64
Out of the district at time of course	33	7	47	87
Late in Primary Course (Behind Schedule)	N/A	30	8	38
Homeopathic immunisations	2	N/A	N/A	2
No appointment given	-	2	3	5
Reasons Unknown	23	8	37	68
				<hr/>
				357

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GD/DVE

11 April 1986

Dr Helen Bennett
Somerstown Clinic

Dear Helen,

Pending the results of the meeting at the Medical Rehabilitation Centre, you requested that I 'break-down' the figures for Somerstown Health Clinic.

I have done as you requested and I have represented the figures both as integers and percentages, I also include copies of the Health Visitor's actual returns so that you can confirm my figures and calculations.

SOMERSTOWN (Geographical)

	<u>Primary</u>	<u>Booster</u>	<u>Measles</u>
Number of immunisations (possible)	88	46	30
Number completed	55	10	21
Percentage %	62.5	21.7	70

As you can see in the case of primary and booster immunisations I had previously 'rounded' the percentages.

Note: Marie O'Driscoll's return was not included, because it was difficult to interpret whether her figures include 'transfer outs', this would not be fair to her performance if her figures do include 'transfer outs'.

Yours sincerely,

G DOWDYE
Information Assistant

REPORT ON IMMUNISATION UPTAKE RATES FOR SCHOOL NURSES

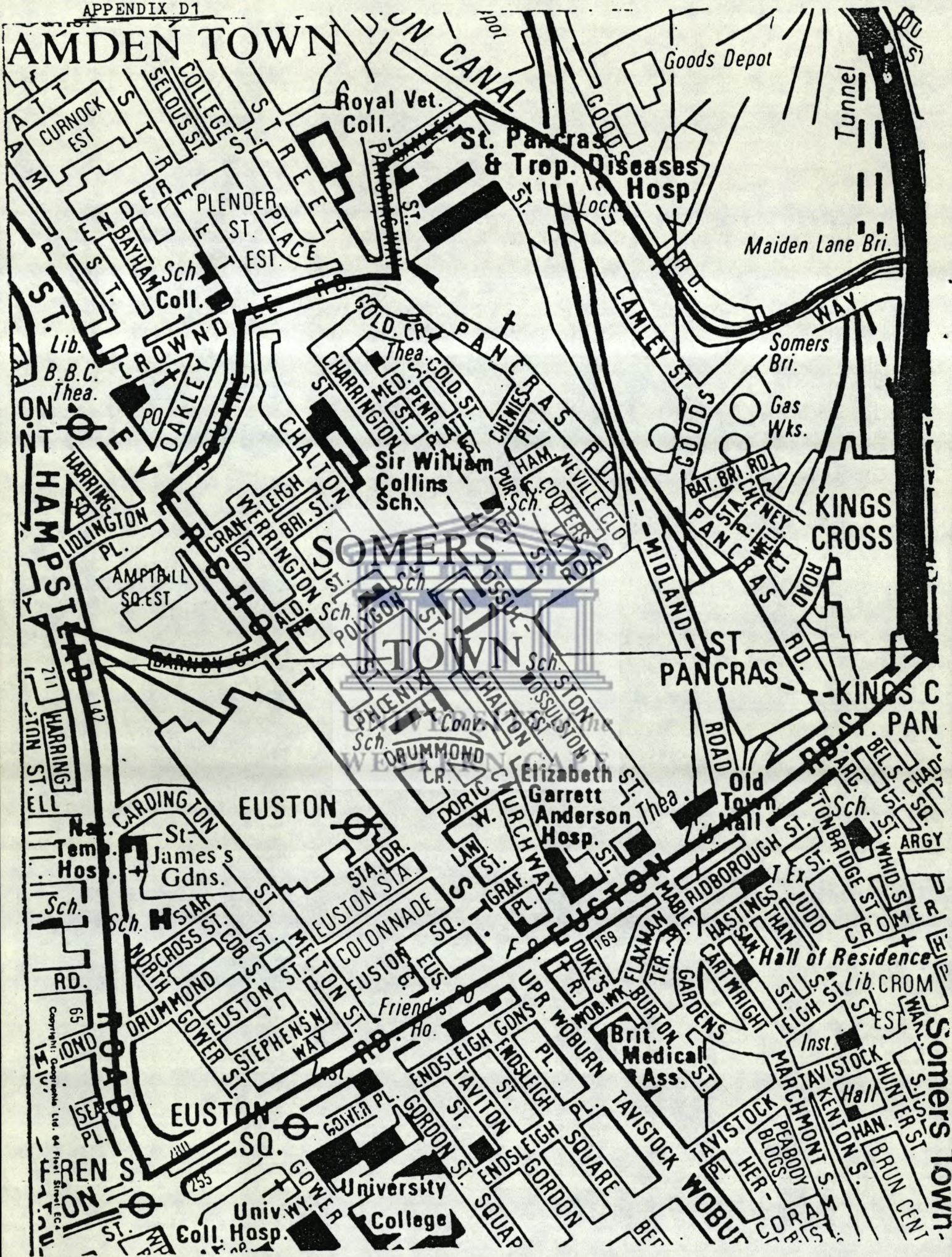
This analysis is based on the Immunisation Programme currently being carried out by School Nurses, in the schools located within Bloomsbury Health District.

The figures are represented on a school by school basis, and the uptake rate is expressed in percentages.

<u>ATTENDERS</u>	<u>SCHOOL LEAVERS</u>									
	<u>SCHOOL</u>	<u>Dip Tet</u>	<u>Pollio (Booster)</u>	<u>Rubella</u>	<u>BCG</u>	<u>Tet</u>	<u>Pollio</u>	<u>Rubella</u>	<u>BCG</u>	
	St Clement Danes	92%	92%	--	69%	--	--	--	--	--
	Primrose Hill Infants	76%	76%	--	--	--	--	--	--	--
	St Christina (Primary)	75%	75%	--	63%	--	--	--	--	--
	Arnold House (Primary)	90%	90%	--	20%	--	--	--	--	--
	George Eliot Infants	73%	73%	--	9%	--	--	--	--	--
	Robinsfield (Primary)	74%	74%	--	32%	--	--	--	--	--
	Edith Neville	38%	38%	--	--	--	--	--	--	--
	Christchurch (Primary)	38%	38%	--	--	--	--	--	--	--
	St Mary & St Pancras	56%	56%	--	--	--	--	--	--	--
	St Aloysius Infants	36%	36%	--	--	--	--	--	--	--
	St George's	82%	82%	--	53%	--	--	--	--	--
	All Souls	71%	71%	--	41%	--	--	--	--	--
	Soho Parish	90%	90%	--	90%	--	--	--	--	--
	Brecknock (Primary)	81%	81%	--	--	--	--	--	--	--
	X Sir William Collins	--	--	90%	--	51%	51%	67%	35%	--
	Acland Burghley	--	--	96%	--	75%	73%	88%	--	--
	St Marylebone	--	--	12%	--	43%	43%	86%	78%	--
	Richard Cobden	60%	60%	--	--	--	--	--	--	--
	Camden School for Girls	--	--	86%	--	6%	4%	88%	80%	--

<u>ATTENDERS</u>	<u>SCHOOL LEAVERS</u>									
	<u>SCHOOL</u>	<u>Dip Tet</u>	<u>Pollio (Booster)</u>	<u>Rubella</u>	<u>BCG</u>	<u>Tet</u>	<u>Pollio</u>	<u>Rubella</u>	<u>BCG</u>	
Quintin Kynaston	--	--	92%	--	15%	15%	77%	55%		
North Westminister & Marylebone (Lower House)	--	--	75%	--	--	--	--	--		
JFS Comprehensive	--	--	98%	--	--	--	100%	96%		
Tyburn RC Infants	68%	68%	--	9%	--	--	--	--		
Christchurch Bentinck	79%	79%	--	79%	--	--	--	--		
Gateway	39%	39%	--	26%	--	--	--	--		
St Edward's	64%	64%	--	73%	--	--	--	--		
International Community	100%	100%	--	100%	--	--	--	--		
Hampden Gurney	70%	70%	--	80%	--	--	--	--		
St Mary's	85%	85%	--	54%	--	--	--	--		
St Vincent's RC	79%	79%	--	56%	--	--	--	--		



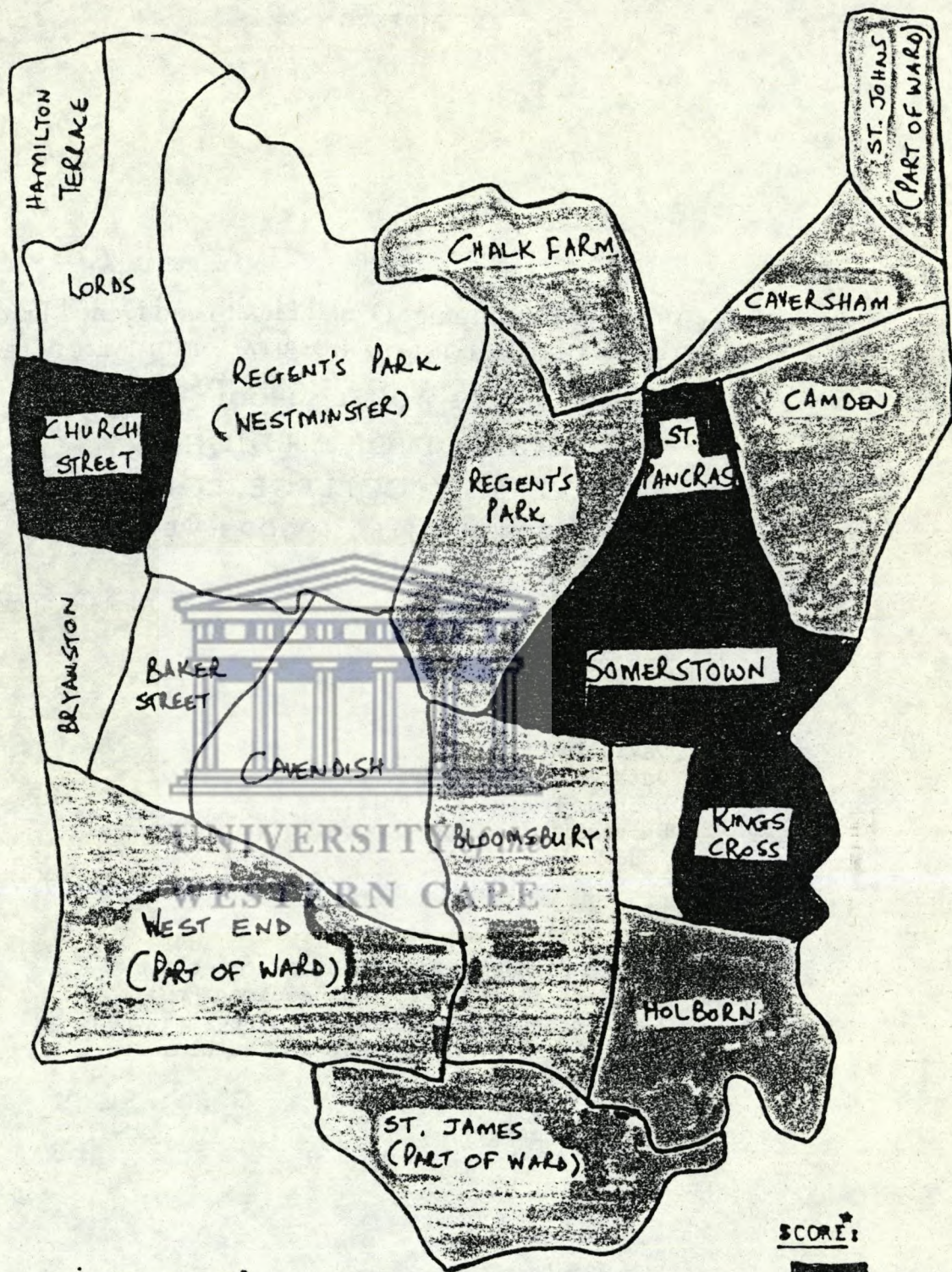


(BASED ON 8 VARIABLES*)

APPENDIX D2

(Base on Brian Jarman's study)

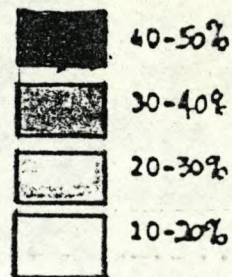
(Information provided by the author)



* Variables: (based on 1981 census)

- 7 Elderly living alone
- 7 Under 5s
- 7 One parent families
- 7 Unskilled (Social Class V)
- 7 Unemployed
- 7 Overcrowded
- 7 Moved house in 1 year
- 7 Ethnic minorities

SCORE:



* The highest the score the more underprivileged the area is

NB: Average score for wards in England and Wales is 0

APPENDIX E

Department of Community Dental Health and Dental Practice
(JOINTLY WITH THE LONDON HOSPITAL MEDICAL COLLEGE)

THE DENTAL SCHOOL
SCHOOL OF MEDICINE
UNIVERSITY COLLEGE LONDON
66-72 GOWER STREET LONDON WC1E 6EA

Professor A. Sheiham

AS/CS

25th April 1986.

David Anderson,
Data Protection Officer,
Systems Management Unit,
University College London.

Telephone: 01-636 9801

Extn

Dear Sir,

Please find enclosed my data protection registration form for my Research Project. I understand this is required because the subjects in my study live in the Bloomsbury Health District.

Yours sincerely,

Stephen Hendricks.
MSc. Student.

WOMEN'S HEALTH SURVEY



What you



What you want.



A REPORT ON THE FINDINGS OF A SURVEY CARRIED OUT IN SOMERS TOWN AND
AND CAMDEN TOWN.

INTRODUCTION

This is the report we promised you when you took part in the survey.....and it is a difficult report to write because you put forward so many ideas that it is difficult to put them all together. But it has proved an effective way of drawing out women's ideas - about a half of all the women we contacted agreed to take part in the survey, and that is a lot more than you would get at a public meeting!

WHAT DID THE SURVEY TELL US?

Women of all ages who gave us their comments said that there were some things they would not want to discuss with their own GPs. The five things that women seemed least likely to want to discuss with their doctors were:-

- (1) Weight Problems
- (2) Tiredness
- (3) Sexual Problems
- (4) Personal Problems
- (5) Nervous Tension

On the face of it, this was because they didn't see them as strictly medical problems, because they didn't have obvious symptoms. Maybe women didn't feel it would be worth discussing them with their doctor because they didn't feel they could be medically treated. This is born out by the fact that a very high proportion of women would go to their GP if they were suffering from cystitis - a problem with very specific symptoms and treatment.

The survey showed that the two other main reasons why women had chosen not to consult in the past were (a) that they thought the doctor would think their problem either too trivial or inappropriate, and (b) that they were afraid of the diagnosis or treatment that they would be given. It is interesting that although a lot of the complaints listed in the questionnaire were "womanly" complaints, very few of the participants seemed particularly bothered whether they had a man or a woman GP and it should be noted that a number of women made very positive comments about their doctors and the service they provided. Others said they did consult their doctors when something went wrong but were not always happy with the results:

"I had a very bad discharge for years and the doctor kept giving me the same prescription. Eventually, a friend told me to go to the F.P.A. who immediately referred me to a gynaecologist. I was in hospital within a week for an operation on a torn cervix"

HOW THINGS COULD BE IMPROVED?

Although a number of women were happy with their GPs, the survey did show that women would like to see a well-woman service in addition to the GP service. In fact there is already a well-woman clinic at the Elizabeth Garrett Anderson Hospital, but none of our participants

had attended it. They did not seem to want another clinic of a medical sort, but something rather different:

- a service that was on the spot
- a service for working-class women
- a service that they and their friends could be involved in organising
- a service that provided a range of advice and counselling facilities
- a service with room for women to drop-in and chat together or set up self-help groups
- a service where medical screening was available, but did not dominate
- a service that was open at convenient times, offered child-care facilities, and transport if necessary

Among the things that women said they wanted was some time and help from someone prepared to help them with their problems:

- " A woman to talk to with family experience i.e. someone who has had children. Social Workers and Health Visitors are out of touch with the problems of local women."
- " Someone impartial to talk to in confidence"
- " Help with bereavement and sexual problems"

Women wanted information and advice:

- " I suffered from an early and very bad change of life. I didn't know what was happening to me and my doctor didn't seem able to help...several years later I was working packing leaflets and one on the menopause was among them. I read it and thought if only I had known about the menopause, and it's effects before, I would not have been in so much fear of myself".
- " I would be too embarrassed to have a doctor examine my breasts but I would like to learn self-examination".

Women wanted to set up some self-help groups:

- " Conventional weight-watchers are too expensive for older people - it would be a good idea to have a free club".

Women also wanted a meeting place where they could get together and talk things over:

- " A lounge in which to talk to others about problems".
- " Tea, music, somewhere to sit and chat and discuss problems".

There was a strong feeling coming from the survey that atmosphere and organisation was all important:

" There should be someone friendly to meet you and make you feel welcome".

Participants wanted local women to be involved from the start:

" It should not be monopolised by middle-class women. Middle-class women put working class women off".

" It is important for local people to have a say from the beginning".

CONCLUSIONS

If all the ideas put forward by you in this survey became realities we would have a really wonderful centre for local women - unlike any other in existence! And in fact your ideas could be the first stage towards setting up something very exciting, somewhere where, as one woman put it, "you can go and be taken seriously without having to create a crisis".



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Front cover drawings by
the children of Eleanor
Palmer School

APPENDIX G.1

TARGET 12

Improve dental health.

Current Performance:

Source: 1985 prevalence study. Population figures were based on 1984 ILEA data. A 5% sample of 5yr old children and a 10% sample of 12yr olds were examined in each school.

5 Year olds (Population = 3,474 5% = 173 Total No. examined = 86)

	BLOOMSBURY IHA	ENGLAND 1983 SURVEY
NUMBER EXAMINED	55	671
MEAN AGE.	5.13 (+ 0.16)	5
NUMBER CARIES FREE	35 (63.64%)	
NUMBER ACTIVE CARIES (ie. Decayed)	13 (23.66%)	48%
MEAN NUMBER DECAYED TEETH	0.82 (+1.82)	1.1
MEAN NUMBER MISSING TEETH	0.51 (+ 2.00)	
MEAN NUMBER FILLED TEETH	0.44 (+ 1.32)	0.5
DMF*	1.76 (+ 3.17)	DF= 1.6

		1973 SURVEY
DMF*	2.1	3.4

*DMF = Decayed - Missing - Filled.

APPENDIX G.2

12 Year Olds (Total population = 3,481. 10% = 348.1. Total No. examined = 447)

	BLOOMSBURY IHA	ENGLAND 1983 SURVEY
TOTAL POPULATION	1145	
NUMBER EXAMINED	166	971
MEAN AGE.	12.27 (+ 0.29) -	
NUMBER CRIES FREE	79 (47.6%)	
NUMBER ACTIVE CRIES	22 (13.25%)	7%
MEAN NUMBER DECAYED RESTORABLE TEETH	0.147 (+ 0.66) -	0.6
MEAN NUMBER UNRESTORABLE TEETH	0.01 (+ 0.15) -	
MEAN NUMBER MISSING TEETH	0.136 (+ 0.82) -	0.3
MEAN NUMBER FILLED TEETH	1.44 (+ 2.66) -	2.0
MEAN NUMBER FILLED BUT DECAYED TEETH (D & F)	0.09 (+ 0.46) -	
DMF*	1.83 (+ 2.15)	2.9
DMF*	3.9	1973 SURVEY 5.2

*DMF = Decayed - Missing - Filled

APPENDIX H

T O O L K I T 3

A GENERAL PURPOSE DATABASE PROGRAM

By

Simon McDonald and Sarah Kreeger

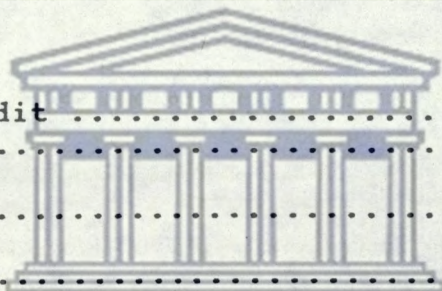


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May 1986 .

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I N T R O D U C T I O N

Toolkit 3 is a Database program written in Archive, the complex database which is part of the Psion software package supplied by Sinclair for the QL.

The QL has a ROM program called Ice, from which Archive is run.

Therefore, to run TOOLKIT 3, the user must first enter Ice, execute the necessary procedure to enter Archive, and then run TOOLKIT 3.

TOOLKIT 3 is basically a simplified version of Archive, tailor made for student use to make handling computers and data straight forward and easy to understand.

It is extremely versatile, the user can easily adapt it to his/her own specific requirements.
eg. A student may be conducting a questionnaire or a survey amongst a community, and in order to analyse the results, could enter all the answers into a database file, from which the computer could perform statistical analysis easily and quickly.

TOOLKIT 3 is essentially a 3 part program;

- a) File opening program
- b) Data entry program
- c) Results program

It uses a one file storage system, the user can create his/her own field names and data entry screen.

Data is entered using simple commands supplied in the data entry program.

Some statistical analysis of data is available in the Results program - Mean, S.D. , Frequency distributions, which can all be displayed.

If the data analysis in TOOLKIT 3 is not comprehensive enough, it is extremely easy to modify files to fit the requirements of Mainframe computers like the Amdahl, and run statistical packages like SAS. (See APPENDIX.)

TOOLKIT 3: DATABASE PROGRAM INSTRUCTIONS

1. LOADING

Once the user is in ARCHIVE, Type;

LOAD OBJECT "flp1_TOOPEN"

The program will then load from the named drive. (In this example the drive is flp1_, but the user can choose the drive in which to place the program disk, as long as that drive name is entered instead of flp1_.

2. STARTING

Type; START press ENTER

The program now runs.

3. FILE OPENING PROCEDURES

* Device setting procedures *

A device is the term in this program for the drive.
eg: A disk drive or a microdrive.

Enter disk drive where program and screen format reside:
Enter disk drive where the database files will reside :

Enter drive names, then press ENTER. eg: FLP1_ or A:

If an incorrect device name is entered, the computer will pick up the error and allow it to be changed.

* Program Choice *

A prompt appears offering the choice of the Results program or Data Entry program, to be entered after having completed the rest of file opening procedures. Select choice with arrows, then Press ENTER. Only choose Results if data has already been entered to a file and it is ready to be analysed.

a) Results option.

Enter MASTER filename : (eg:File1) press ENTER

The computer will then go straight into RESULTS.

b) Data Entry option.

Enter MASTER file name : (eg:file1) press ENTER

Enter FORMAT file name : (eg:form1) press ENTER

Enter SCREEN name : (eg:screen1) press ENTER

The computer will try and find each of these files on

the data drive. If they have not created before, the computer will obviously not find them and the following occurs;

Q: Have you created this format before?
Confirm (y/n)

It is possible that the format has been created before, but the wrong data disk has been inserted.

a) Answer YES and the following appears;

Please exchange disk with one containing Format file
Press space bar to continue

This allows the correct disk to be inserted and then the program will continue.

b) Answer NO and a special screen is loaded;

* Selection of FIELD NAMES for your Database File *

This option is chosen if the given format file has never been created.

NB: It is very IMPORTANT that the user chooses the field names carefully BEFORE starting the program. Once they have been assigned to a file, they cannot be changed. Therefore if all the field names have been thought out in advance, there will be no problems like text needing to be entered into a numeric only field, which is impossible. In this situation the user would have to start all over again, redefining a format file.

It is a good idea for the user to conduct a pilot test on data entry into their file, to check that the field names are appropriate to the data that is being entered.

The user is asked to enter the names of all the fields needed in the database file. These field names are stored in the FORMAT file. There are several lines on which to enter them, each field must be separated by a COLON. This is extremely important as the computer will only be able to differentiate between field names if a colon is present.

When choosing field names, it is best to keep them short (less than 13 characters) but meaningful. The underline

character is valid and can be used to separate words.
eg: pt_no .

VERY IMPORTANT: Do not put a colon at the start or end of a line.

Field names used for TEXT have to end with \$. Field names used for numeric values do not need this.

The computer will be able to detect some errors like a semi-colon instead of a colon or colons at the start or end of a line. These errors are automatically altered.

Any errors in the field names have to be found by the user. For this reason, the chance is given to make corrections.

*** Creation of the Data Entry Screen ***

If the user has never made a screen for the data entry program, now is the time to do so. The computer will not have found your screen and will ask;

Have you created this SCREEN before?
confirm (y/n)

a) YES; As with the format file, the wrong disk may have been put into the PROGRAM drive. The chance is given to exchange data disks.

b) NO; If the user has never previously created a screen for this database, choose this option.

Q: Do you want to design a screen ?
confirm (y/n)

NO; If the number of field names is less than 15, there is no need to design a screen, the Archive display screen will fit.

YES; A screen will have to be designed by the user if the number of fields exceeds 14.

The program is terminated and instead goes into the SCREEN EDITOR, where with the help of the instructions in the APPENDIX, a screen can be designed.

NB: When creating a screen, only use the first 14 lines on the display. The rest of the screen is reserved for TOOLKIT 3 command lines.

Once the Screen is saved onto the PROGRAM disk ,re-start TOOLKIT3 by typing START.

Now the computer will find both the format file created earlier and the new screen, so the Data Entry program

will be loaded after entering the file and the screen names.

4) DATA ENTRY PROGRAM

The created screen will appear on the monitor, as well as a display of commands at the bottom of the screen;

Insert, Alterations, Delete, Print
Files, Store, Main, Results, End

Enter First Letter (and command will be executed)

a) INSERT ("i")

The most commonly used command which allows the user to input data to the file.

A prompt of 2 options appears;

Entry Finish

Toggle the space bar to choose the option wanted, then press ENTER.

Entry ; The cursor jumps to the start of the file on the screen. Enter values for the fields, pressing ENTER after each field. At the end of the record the prompts return, allowing for further choice.

Finish ; This option is chosen when user no longer wants to insert data. The Command lines return.

b) ALTERATIONS ("a")

This option allows the user to move to certain records and alter them using the commands Back Next and Jump

Back ("b"); Allows the user to move back through the records one by one, altering them if required. Choose the Finish option when all changes complete. The Command lines return.

Next ("n"); Allows user to move forward through the records one by one, altering them if required. Choose the Finish option when all changes complete. The Command Lines return.

Jump ("j"); Allows user to jump straight to the First record in a file ("f"), the Last record ("l") or to any

Other chosen record ("o");

Enter CODE No. : (eg:45) Press ENTER

The user can alter the record if required. The Command lines automatically return at the end of the procedure.

c) DELETE ("d")

The computer will delete the CURRENT record displayed on the screen, by the user choosing the Entry option. Once deleted, the computer displays the next record. This can also be deleted if the Entry option is chosen again. To stop further deletion of records, choose Finish option.

d) PRINT ("p")

The user can request a print out of the current records in the database file, either to a printer ("p") or just to the screen ("s").

e) FILES ("f")

The user is given 4 choices of file handling procedures;

Directories ("d"); The user can request the directory of any drive to be displayed.

Enter Drive Name : (eg:mdv1_) Press ENTER

Open a new file ("o"); This option is most commonly chosen by the user when a data disk is completely full. The computer will close all the current files and start the file opening procedures of Toolkit3. The full data disk can then be swapped for a new one.

Remove a file ("r"); Allows the user to kill a file which is either no longer needed or corrupt. This option must be used cautiously because deleted files cannot be restored.

Enter DRIVE name where file is : (eg:flp2_) Press ENTER
(A directory of that drive is given)

Enter title of file EXACTLY
as it appears on the screen : (eg:FILE1_dbf) Press ENTER

The file is then removed.

NB: This only works on files that are CLOSED.

Backup ("b"); This option enables the user to make a backup of the main file from within TOOLKIT3.

Remove PROGRAM disk in drive and put in a data disk please

press space bar after doing this

The computer will then backup the main file.
Return the program disk when the backup is finished.

f) STORE ("s")

This program is structured in such a way as to make data entry as safe as possible. It is very easy to loose data and if no backups have been made it means the user will have to re-enter all the data.

The STORE system used in this program makes data very much safer. It uses a "Temporary" file (a replica of the main file) into which data is directly entered. It is this Temporary file that is open during the Data Entry program, the "Main" file is closed and safe.

After every 10 records a prompt appears on the screen advising the user to store the data from the temporary file, to the Main file.

When the Store command is chosen, the Main file is opened and data copied into it from the Temporary file. The Main file is then closed. The Temporary file is emptied and the program continues. The probability of corruption occurring to the Main file during this program is significantly lowered using this method of storage.

g) MAIN ("m")

There may be occasions when the user wants to alter or look at records already stored in the Main file. It is not advisable to open the Main file unless you have made a recent BACKUP of it in ICE or ARCHIVE. If the user chooses to open the main file, a message will remain on the screen until the Main file is closed, as a reminder.

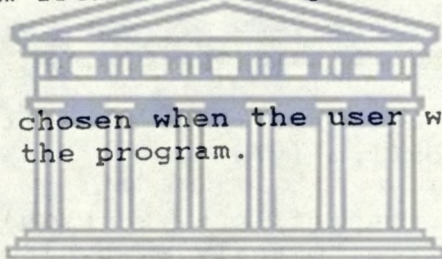
NB: Close the Main file as soon as any alterations have been done. This is done by typing "T". The Main file is closed and the Temporary file used again.

h) RESULTS ("r")

This option allows the user to enter straight into the Results program from Data Entry.

i) END ("e")

This option is chosen when the user wishes to close all files and stop the program.



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5. RESULTS PROGRAM

A main Menu appears at the start;

Data Analysis
Change Programs
Finish
Set Output

Use ARROWS to choose then press ENTER

a) Set output; The results output can be displayed on either the screen or on a printout. The user must choose one of these options BEFORE proceeding into the Data Analysis section.

b) Change program; The user is able to re-start the file opening procedures (all present files will be closed) or re-enter the data entry program (using current files).

c) Finish; When the user chooses this option, all files are closed and the program terminates.

d) Data analysis; Analysis of data in the users current file will proceed if this option is chosen.

Q: Do you want to select by subject
confirm (y/n)

YES; The user can (if they so wish) select certain records in the file to analyse, by limiting the ranges of specific fields. Only records within the ranges will be analysed. Each field name is assigned a number, and the user must choose the corresponding field number to which the limit of that field can be set.

Enter desired field number : (eg: 2) Press ENTER
(Age)

The computer then asks for a range over which records are to be selected.

Enter LOW range value : (eg: 27) Press ENTER
Enter HIGH range value : (eg: 32) Press ENTER

The computer selects all records which have ages between 27 and 32. The user is told the total number in that group.

This procedure can be repeated as many times as required on several different fields, providing that there are some records left in the selection.

NO; The program continues, analysis is performed on all the records in the file.

Q: SELECT FIELD TO BE ANALYSED

Enter the range of fields to be analysed by giving the

corresponding numbers.

eg: Results wanted for fields 5 to 25

Enter LOW range value : (5) Press ENTER
Enter HIGH range value : (25) Press ENTER

Analysis is performed on only this range of fields.

NB: The program only analyses NUMERIC fields. To analyse text, numeric values have to be assigned to correspond with the data in the particular field.

Q: TYPE OF RESULTS REQUIRED

Mean
Mean and S.D.
Mean, S.D. and Freq

Use arrows to choose then press ENTER

The computer will then calculate the results and display them on the screen or on a printout, depending on which output was chosen by the user.



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S C R E E N D E S I G N

Sedit Command

Archive does not restrict us to the simple listing of fields as produced by the DISPLAY command. The SEDIT command enables us to specify not only where particular fields will be displayed on the screen but also which fields should be displayed. This last feature is most important for those databases which contain sensitive information, eg: personal files. If you wish, you may ensure that certain fields are only displayed on the entry of the appropriate password.

Current screen layout

We are already familiar with the concept of the current record. When we have several screen formats to choose from, Archive needs to be told which one to use. The selected screen format then becomes the current screen layout. Whenever you enter the DISPLAY command you are ordering, implicitly, Archive to make the default screen layout the current screen layout. Conversely, whenever you enter CLS you are not merely clearing the screen, you are also telling Archive that you do not wish to use the current screen layout. The important difference between a user defined screen and that provided by Archive is that the latter is always available in memory. To make a user defined screen the current screen it must be loaded from cartridge.

DISPLAY	use default screen layout provided with Archive
CLS	do not display the current screen layout

Using the Screen Editor

TOOLKIT3 takes the user straight into the screen editor when a new screen is required. Normally the user has to type;

SEDIT press ENTER

The display area is cleared, you are now in a comparable position to an artist with a blank canvas. The Archive "palette" is composed of all the printable characters on the keyboard. You will see the cursor at the top left hand corner of the display area.

The next problem is to display the contents of your records. The DISPLAY command uses a format that is suitable for experienced users but less appropriate for a user with little or no knowledge of programming.

eg: The line Country\$: Afghanistan
is composed of

- a) A field variable - country\$
- b) The contents of the field - Afghanistan

The field variable also acts as a guide to information contained in the field, ie. a field label. However, a field label such as country\$ may be confusing to someone who does not know the significance of the "\$" symbol in string variables. The user would expect something like;

Country : Afghanistan

It is for this type of user that we are developing our own screen.

Move the cursor a couple of lines below the top and type in COUNTRY : (The exact location does not really matter it is up to the user to design the screen as they want it.) This text will act as a field label. The user will expect this to be followed by the name of the country, so move the cursor along one space and hit F3. A menu appears in the command box, displaying 4 options:

- V - set variable C - clear screen
- I - set ink P - set paper

For the moment we are only concerned with Set Variable. This option has 2 functions:

- 1) To allow the user to specify which field is to be displayed at this location on the screen.
- 2) To allocate the amount of space on the screen to be reserved for displaying the contents of the field.

Press "v" to select "set variable" and a prompt appears, where you are asked to enter the name of the variable. Enter country\$. Incidentally, if you entered continent\$ instead then the value in the continent\$ field would be displayed at this location. This might be confusing for the user, having already specified the variable label for this particular location, so if you press Escape before you go any further, you can re-enter the variable. After having correctly entered the variable name, you are prompted to assign a portion of the screen for the display of the contents of the field. Every time you press a key a dot is displayed. Each dot reserves a space for one character, so if you entered just 2 dots, then you would be asking Archive to display the first 2 characters in the name of a country. Enter a sufficient number of dots to cover the length of the name or any subsequent name that will be entered in the field.

Country :

Add the remaining fields you wish to display. Remember you do not have to display all your fields on the screen. Eventually you may finish with a screen like the one I designed below;

Country : Capital :

Continent : G.N.P. :

Language : Currency :

Population : Area of country :

You may have observed while creating this layout that as soon as you move the cursor into an area reserved for a variable (where the dots are), the name of that variable appears in the command line at the bottom of the screen. Archive will ignore your keystrokes if you try and insert characters into one of these areas. If you wish you can change the layout by moving the position of a field, but you must first delete the existing reserved area.

Deleting a reserved area

Move the cursor to the area you wish to redefine and Press F3. Select "set variable" by pressing "v" and Archive will ask if you wish to delete the variable currently occupying this region of the screen. Once the area has been freed, you may use it for some other purpose - maybe to insert text or enter a different variable name.

Set INK and PAPER

Two of the other options in SEDIT are referred to, rather quaintly, as "set ink" and "set paper". The user may, if they wish use different coloured screen backgrounds and text to display their database file.

Press F3 followed by "i" to "set ink". A prompt appears on the command line showing the current colour ink. By pressing the space bar, the user can change ink colour. Press ENTER to finish. The colour chosen by the user will from now on (or until it is changed again) be the one Archive uses to display text and variables.

Press F3 followed by "p" to "set paper". In the same way as for the ink the user can choose the background colour for their screen.

Saving the screen

When the user has finished designing the screen,

Press Escape

The user jumps out of the screen editor back to the normal Archive display.

The screen has then to be saved onto the program disk

ssave "flp1_Screen1" Press ENTER

By typing this command, the screen you created will be saved onto flp1_. (choose the destination device which holds the program disk.)

When you re-enter TOOLKIT3, the Data entry section of the program will use the screen you designed instead of the Archive display screen.



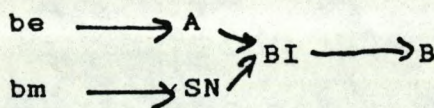
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APPENDIX I

Causal Diagram and Structural Equation of the Fishbein/Ajzen Model

causal diagram

structural equation



$$\begin{aligned}
 B &= b_1 BI \\
 BI &= b_2 A + b_3 SN \\
 A &= b_4 \sum_{i=1}^n be
 \end{aligned}$$

$$SN = b_5 \sum_{i=1}^n bm$$

$$BI = b_4 \sum_{i=1}^n b_{e_i} + \sum_{i=1}^n b_{m_i}$$

- B = Behaviour
- BI = Behaviour Intention
- A = Attitude
- SN = Subjective norm
- b = beta weight
- bm = beliefs about the social expectations of specific others multiplied by the motivation to comply
- be = beliefs about the specific consequences multiplied by the evaluation

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APPENDIX J

Regression Analysis Correction Equation (87)

$$R = 1 - (1 - R) \left(\frac{N - 1}{N - m} \right)$$

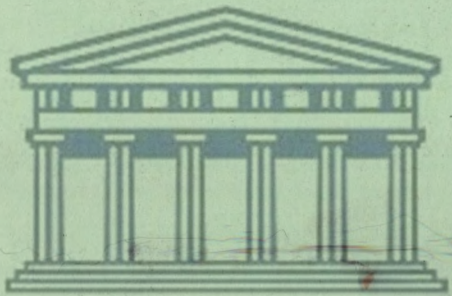
N = total number in group

m = number of variables

N - m = degrees of freedom



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