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**Attribution of responsibility for dental health care for the
elderly**

**Mirochin, Carol Nancy, Ph.D.
City University of New York, 1990**

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A

ATTRIBUTION OF RESPONSIBILITY FOR
DENTAL HEALTH CARE FOR THE ELDERLY

by

CAROL NANCY MIROCHIN

A dissertation submitted to the Graduate Faculty
in Psychology in partial fulfillment of the
requirements for the degree of Doctor of
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Abstract

THE ATTRIBUTION OF RESPONSIBILITY FOR
DENTAL HEALTH CARE FOR THE ELDERLY

by

Carol Nancy Mirochin

Advisor: Professor Vita Rabinowitz

Two studies examined the attribution of responsibility for dental health care from the dual perspectives of the elderly and the dentist. Four models of attribution (i.e., moral, enlightenment, compensatory and medical) were assessed with the Dental Orientation Scale. Study 1 examined attribution of responsibility for a sample of 100 "new" and "old" elderly members of senior centers and a control group of 100 younger college students.

Major results indicated that: (1) contrary to expectations, preference for the medical model over the other models was not demonstrated; and (2) as predicted, medical model endorsement was greater for the elderly than the young and for the "old" elderly than the "new" elderly. Study 2 examined the attribution of responsibility for dental health care for the "new" elderly, "old" elderly and the young by 100 dentists attending a dental society meeting. Results indicated that: (1) contrary to expectations, preference of the medical model compared to the other models was not demonstrated for the elderly groups; and (2) as predicted, medical model endorsement was greater for the "new" and "old" elderly compared to the young group.

Meaningful interpretation of the results was limited due to inadequacies of the Dental Orientation Scale. Redevelopment of the Scale was recommended for future research.

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CHAPTER I

Introduction

Interest in the study of older adults' health related behaviors and in the design of interventions to promote optimum health states in old age has grown steadily in recent years (Rakowski, 1984). Health psychology, with its emphasis on health promotion and maintenance, the prevention and treatment of illness, and the etiology and correlates of health, illness and dysfunction (Matarazzo, 1982; Taylor, 1986), has directed its attention to the understanding of health related behaviors among the elderly (Rakowski, 1984). There is a dearth of research, however, in the health psychology literature on dental health behavior among the elderly.

Available evidence demonstrates that those individuals older than 65, and particularly older than 75, have the greatest oral health needs of any age group, but only a small minority of the elderly receives any dental care on a regular basis (Morris, 1977). One reason for the underutilization of services is that there is little demand for services; i.e., "the elderly simply do not seek care" (Ettinger & Beck, 1982, p. 62). This segment of the population has the lowest utilization rates for dental services, with the possible exception of children under six years of age. For example, only \$32 (2.1%) of older persons' per capita health expenditures went for dental care in 1977. In fact, for some elderly this figure is zero

(Kiyak, Crinean & Stockinger, 1985). Data from the American Dental Association National Survey (1978) indicate that although the proportion using dental services in 1977 was twice that of 1957 (32% vs. 16.2%), almost 50% of all elderly have not used dental services in more than five years. Utilization rates are even lower for the edentulous population; 72% of edentulous elderly had not sought dental care in more than five years.

Oral health problems common to most elderly (e.g., periodontal disease, plaque, tooth decay, tooth loss, erosion and abrasion of the teeth, xerostomia and oral cancer) may be avoided or remedied through routine preventive measures; i.e., regular dental health care at home as well as periodic visits to the dentist (Dental Health, 1987; Gron, 1981; Mandel, 1983). Dental research has found that oral disease and dysfunction are not necessarily concomitant with the aging process, but are attributable to inadequate dental care in youth, genetic predisposition and present oral hygiene behaviors (see Shklar, 1977). This suggests that many oral health problems of old age can be prevented or alleviated through proper dental care (Price & Kiyak, 1981).

The issues of oral health status and dental health behaviors of the elderly have recently been addressed. Research, though limited in scope, has focused on the following: (1) The impact of oral health status on the physical and psychological well-being of the elderly. (2) The determinants of oral health status and utilization of

dental services among the elderly. (3) Interventions designed to enhance both the oral and psychological well-being of the elderly. This research provides insight into the correlates of dental health behavior of the elderly and as such will be reviewed. Consideration will then be given to the critical role of perceived responsibility for one's oral health as a determinant of oral health status and psychological well-being among the elderly.

The Impact of Oral Health Status

That the elderly tend to neglect their dental health is indeed distressing, particularly in light of the fact that oral health status (e.g., loss of teeth, facial configuration, taste sensation) may have profound implications for both physical and psychological well-being (Gron, 1981).

Physical Well-Being

It is clearly in the best interest of the elderly to preserve their teeth. The loss of natural dentition and subsequent use of dentures have several negative consequences (Gron, 1981). There is a general belief that denture wearers tend to favor soft foods and have decreased taste perception. As a result, they would be less likely to choose a varied diet than they would individuals with their natural teeth. Retention and proper function of maxillary dentures are to a large extent dependent on secretion from the salivary glands. However, this secretion decreases with

age. Speech impairment is also a problem for denture wearers.

In addition, unfavorable oral status may exacerbate an existing disorder (Karuza, Miller & Thines, 1985, p. 3),

For example, highlighting negative outcomes resulting from oral pathologies. Consider diabetes mellitus.

Diabetes is increasing in incidence. Optimal oral status is important for several reasons. First, it is well recognized that the presence of an infection may disrupt diabetic control. This can be an oral problem like a periapical abscess, or severe periodontitis.

Without adequate diabetic control, a patient is susceptible to oral monilial infections which may cause significant discomfort. The comfort and oral status of the oral cavity is important for the intake of adequate nutrition. If the mouth is sore and uncomfortable because of a monilial infection or poor periodontal condition, normal required nutritional intake may be adversely affected, further affecting the diabetic condition.

Karuza et al. (1985) have also examined the interaction between oral status, nutrition and physiological functioning; i.e., such factors as decreased masticatory function, altered taste sensation or pain and discomfort directly affect dietary patterns and nutritional intake with direct consequences for physiological functioning.

Oral status is also related to the functional status of the individual. Though no actual research exists, Karuza et

al. (1985, p. 4) indicates that "if poor oral status is linked to increased stays in bed, decreased socialization, less interest in eating, social withdrawal, lack of motivation, then it can directly affect the functional status of the elderly."

Psychological Well-Being

In addition, research has examined the impact of oral health status on psychological functioning. Berkey, Call and Loupe (1985) examined the relation between self-perceived oral health and self-esteem in mentally competent adults older than 70 years of age. Participants lived in a residential facility for older persons who could care for their personal needs. Self-perceived oral health status was assessed using the Dental Problem Index (DPI). Self-esteem was measured using the Rosenberg Self-Esteem Scale. A strong correlation between self-esteem and the DPI for the elderly dentate (with teeth) suggests that self-esteem and oral health perceptions are strongly related. The presence of remaining natural dentition is apparently pivotal in this relationship. Loss of natural dentition may signify a stressful episode that negatively influences self-esteem. Berkey et al. (1985) suggest that prevention should be stressed in order to help the elderly maintain remaining natural dentition for as long as possible.

In another study, Chamberlain & Chamberlain (1985) investigated the prevalence of depressive illness among a denture-wearing population. Elderly patients who sought

denture care were asked to respond to the Beck Depression Inventory. Over 10 per cent of the sample were found to be mildly depressed.

The above correlational studies are interesting, but are limited in scope and merely suggestive of causality. Karuza et al. (1985) propose that the causal linkages between oral status and psychological and social parameters need further investigation:

For example, first, what is the importance of the oral region? What are the social interaction consequences of poor oral status? What role does bad breath, ill-fitting dentures, and ugly teeth play in controlling social interaction? Do these people withdraw from social intercourse? Do others withdraw from these people? (p. 4)

Social Well-Being

An approach to understanding the social impact of oral health status has been presented by Reisine (1981, 1985). Her approach is based on role theory which defines social impact as the extent to which oral conditions disrupt normal social functioning. Studies this far have examined work loss related to dental disease (Reisine, 1984; Reisine & Miller, 1985). Though pertinent to a younger cohort group, this research does not address the specific issue of disruption of role function among the elderly. Reisine (1975, p. 30) suggests that "if oral health status is presented in terms of social consequences, as well as the

traditional clinical indicators, a more effective argument can be made to secure . . . funds needed to support dental research and treatment programs. Placing dental conditions in the context of inability to function will provide dentistry with greater visibility and legitimacy in . . . policy on the population's health."

Determinants of Dental Health Care

In light of the negative consequences of unfavorable dental health status for both physical and psychological well-being, it is clearly in the best interests of the elderly to take care of their oral health. Research has only recently examined the determinants of dental health behavior among the elderly. Research on gerodontology has sought to determine why the elderly neglect their dental health. Reasons found for this neglect will now be examined.

Impediments to Dental Care

Cost of dental care is often mentioned in the literature as an impediment to receiving regular dental care (Antczak & Branch, 1985; Kiyak & Miller, 1985; Marinelli, Sreebny & Kamen, 1982). In one study, Ettinger and Beck (1982) found that elderly respondents, who tend to have reduced income, are more likely than younger respondents to agree that "The money spent on dental care could better be spent on other essentials that I need" and "The money spent on dental care could be better spent on extras that make our

lives more enjoyable." Moreover, geriatric dentistry has not established itself as a central facet of the health care delivery system (Karuza, Miller & Thines, 1985). Medicare, pension plans and health insurance programs are inadequate with respect to coverage for routine dental services. This is due to a misconception on the part of health practitioners and policy planners that dental care is a luxury and that there is little need for care, since most elderly wear dentures (Ettinger & Beck, 1984).

Other reasons cited include: difficulty in getting an appointment; transportation difficulties (Antczak & Branch, 1985); and lack of experience with the dental care system due to cohort and educational factors (Kiyak, 1985).

Attitudes Toward Dental Health Care

Negative attitudes toward dental health and care among the elderly has been identified as a deterrent to the practice of dental health related behaviors. In a series of studies, Kiyak and associates (Kiyak & Miller, 1982; Diehnelt & Kiyak, 1984; Gilmore & Kiyak, 1985) examined this issue in terms of Fishbein's summation model of attitudes. Accordingly, attitudes are conceptualized as a multi-dimensional construct, consisting of beliefs and the evaluation of those beliefs. In the context of the Kiyak studies, the belief dimension explored the perceived effectiveness of oral health care measures in maintaining oral health or preventing dental disease; e.g., "What are the chances (from 0 to 100%) that by brushing one's teeth

daily, a person will prevent cavities?" (Kiyak & Miller, 1982, p. 32). The evaluation component of the attitude included a rating of affect and importance for that belief; e.g., "How important is it to you to brush your teeth daily?" (Kiyak & Miller, 1982, pp. 32-33). In one study, Kiyak and Miller (1982) compared attitudes of young (under age 50) and elderly (over age 60) community members enrolled in a free dental health program. The following results, based on comparisons of oral health attitudes, provide noteworthy insights: (1) Consistent with the previous findings on general health beliefs of the elderly (Riley & Foner, 1968; Shanas, 1980), older respondents held significantly more negative attitudes toward oral health than did younger respondents. (2) The elderly attributed less importance to dental care than did the younger respondents. (3) Fewer self-care behaviors and poor oral health status were found among the elderly.

Other research suggests that the perceived importance of dental health may be a determinant of the use of dental services among the elderly. In one compelling study, Marinelli et al. (1982) investigated the perceived importance of dental needs of the well-elderly, a group that represents more than 75 per cent of the total elderly population in the United States. The study sought to determine the priority the well-elderly assigned to their dental needs. Volunteers at three nutrition centers were asked to participate in the nominal group process, an effective research tool used in order to obtain information

from target groups about a specific problem area. Subjects responded to the following question: "What are the health concerns of people over 60?" Frequently mentioned concerns included: heart care, circulatory problems, hypertension, gastrointestinal disorders, arthritis, anxiety, nutrition, and diabetes. Also mentioned were social and economic concerns such as socialization, mass transportation, free health care, cost of care, and low-cost medication. It is noteworthy that oral health care was not mentioned by any of the respondents.

To test what seemed like a total disregard for oral health, Marinelli and colleagues prepared a list of the health concerns identified by the respondents and added the specific health concern of dental care was added to the list. Subjects were then asked to rank order the total list of health concerns in decreasing order of importance. Results indicated that the previously mentioned health concerns (e.g., arthritis, anxiety, cardiovascular problems) were given high priority on the list. Dental care was, however, ranked sixteenth of the seventeen health concerns listed. It is evident that dental care was not perceived as an important issue for the individuals at any of the nutrition centers.

Other research (Kiyak, 1981; Kiyak, Crinean & Stockinger, 1985) examined the predictive power of attitudes in comparison to the three factors identified in Andersen and Newman's (1973) model of health service utilization; i.e., predisposing, enabling and need factors. For their

research, predisposing factors consisted of attitudes, demographic variables and the subjects' use of medical and social services. Enabling factors included income, access to and use of transportation and access to media information. Need was measured in terms of oral health status. Results of the studies indicated that the inclusion of attitudes in the model considerably enhanced the ability of this model to predict users of dental services. Specifically, the importance component of attitudes or the priority attributed to oral health by the individual was particularly significant in distinguishing users from non-users.

The perception of health status is an important determinant of one's beliefs in and practices of health care behaviors (Kiyak & Miller, 1982). Research has demonstrated that the underutilization of dental care may be due to a lack of perceived need for treatment (e.g., Antczak & Branch, 1985; Banting, 1971; Beck, 1981; Gift, 1979). In one study, Manne and Mehre (1983) compared the perceived need of dental care among 50 denture wearers aged 60 or older to their objective need of dental care (based on actual clinical evaluation). The results are very revealing: 70 per cent of those examined wore clinically inadequate dentures, and 34 per cent has unsatisfactory oral tissues. However, respondents vastly underestimated their actual dental needs. Banting (1971) also found low perceived need despite high objective need for dental care among a sample of elderly.

Age of Elderly

The age of the elderly may also determine dental health care. It is not necessarily valid to assume that the elderly are a homogeneous group.

Neugarten (1977) has provided one approach to understanding the within-group heterogeneity of the elderly in terms of personality, attitudinal and expectancy features. Based on physical, situational and psychological differences, she proposed that the elderly be categorized into at least two groups: the young-old (65-74 years of age) and the old-old (75 years of age and older). The young-old group is characterized by a period of early adjustment to old age status and retirement, continued physical vigor and potentially new opportunities for community involvement. In contrast, the old-old group is more often characterized by a greater loss of peers, increasing sensory deficits and consequently, restrictions in social functioning. Applying this distinction in their study on attitudes toward dental health, Ettinger and Beck (1982) differentiated subgroups of elderly respondents; i.e., the "new" elderly (aged 60 to 64), a transition group (aged 65 to 74), and the "old" elderly (aged 75 and older). Attitudes toward dentistry and dental health were assessed for these age groups as well as a younger age group (18 to 60). Results indicated that the older the age group, the less the group valued dental health related behaviors. It is noteworthy, however, that the "new" elderly demonstrated significantly more positive attitudes toward dental health behavior than the "old"

elderly. Specifically, the "new" elderly were more likely than the "old" elderly to disagree with the following statements (Ettinger & Beck, 1982, p. 66): "I don't have any dental problems, and therefore there is no sense seeking dental care." "Problems with my teeth and gums don't affect my lifestyle." "In the long run it is better to get false teeth because once you have them they last a lifetime and you don't have to see a dentist." "It doesn't make sense to visit a dentist for regular check-ups since they can fix problems as they occur anyway." "In the long run it is better to get false teeth because they look better than natural teeth." "The money spent on dental care could be better spent on essentials that I need and on extras that make life more enjoyable."

Ettinger and Beck (1982) have attributed the observed attitudinal differences between the "new" and "old" elderly to their different life experiences. The old elderly, born around the turn of the century, experienced the Depression, and all its social consequences as adults. Dentistry was considered a luxury, not a necessity. In addition, dental procedures were rather primitive. This age group grew up during a period of "mass extractions," i.e., a painful tooth was pulled, not treated. It is thus not surprising that the majority of these elderly are edentulous. In fact, many still believe that natural teeth can be unreliable, uncomfortable, painful, and costly hindrances of nature (Ettinger & Beck, 1982).

Negative attitudes may have also developed as a result

of uncomfortable dental procedures. Good local anesthetics did not come into use until the 1940's; the air turbine was not available until the mid-1950's, when this cohort was in, or at least approaching, its fifties. The concept of prevention was foreign. Public fluoridation of water was begun only in 1945. The emphasis on periodontal disease and plaque control came as late as 1968, long after many of the "old" elderly had become edentulous.

Apparently, their experience with dentistry was not conducive to the development of favorable oral health status or the practice of preventive health behaviors. Rather, the perceived need and importance of dental health was de-emphasized.

In contrast, the new elderly, born about 20 years later, experienced dentistry in a more positive way. This younger cohort were adolescents at the beginning of the Depression, and therefore few could have initially afforded dental care. However, during their military service for World War II, such individuals received basic dental care during and shortly after the War. Because of the opportunities afforded by the GI Bill and relative prosperity of the 1950's, many were able to afford regular dental care for themselves and their families. As such, they became aware of the importance of good oral health status and the need for preventive dental health care. Moreover, the technological advances in dental treatment came before many had been rendered edentulous.

It is projected that the "new" elderly dental consumers

will be better educated, more politically aware, and more demanding of health services than older cohorts (Ettinger & Beck, 1984). Because the majority of elderly will not be completely edentulous, the demand for dental care will increase and will reflect a wider range of needs than the past emphasis on dentures.

Attribution of Dental Problems to Age

Research that has examined oral health attitudes and dental service utilization among different age groups has found older people are more likely than younger people to believe that ill health and disability are to some extent unavoidable. In examining all age groups, researchers report an increase by age in the proportion of persons agreeing with the statement: "A person has to expect a good deal of illness and some aches and pains, especially when he is old" (Riley & Foner, 1968). In a similar vein, Antczak and Branch (1985) reported the tendency among the elderly to believe that oral problems are inevitable. The elderly appear to view such health conditions as an unavoidable concomitant of aging. Ettinger and Beck (1982) report that even if dentures are uncomfortable or the natural teeth are broken down and loose, many elderly refuse treatment because of a tendency toward tolerance of insidious, progressive, and chronic discomfort. This view acts as a barrier to seeking routine or preventive dental care until their health status has declined considerably (Kiyak & Miller, 1981).

Other research has sought to explain why the elderly

attribute their health problems, in a general sense, to increasing age. Negative stereotypes portraying the elderly as helpless, incompetent, passive, sickly and dependent (Bennet & Eckman, 1973; Butler, 1970; Collette-Pratt, 1976) appear to be prevalent in society (Banziger & Drevenstedt, 1984). The theory that old age and its perceived negative concomitants may be threatening to older people themselves has received support in a number of studies demonstrating low opinions of the aged as a group by older people (National Council on the Aging, 1975; Perry & Slempp, 1980). According to Rodin and Langer (1980, p. 15):

If society has developed labels that create certain sets of negative expectations with regard to aging, it is likely that people will act in a manner that is consistent with these labels. To the extent that a particular stereotype is actually believed, elderly persons may also begin to act in a manner that is consistent with that stereotype.

Behavior that confirms prevalent stereotypes of old age is presumed to lead to lowered self-esteem and diminished feelings of control. This can create at least two different types of problems for older people that may lower their number of coping attempts and thus negatively affect their health (Rodin, 1978). First, there is a tendency to attribute their negative physical symptoms to aging, per se, especially to the presumed physical decline with which aging is associated. Second, when events are attributed to the aging process, they are seen as inevitable; and remedial

steps that could be extremely beneficial are not taken.

Internalization of negative "old age" stereotypes may cause older people to think their concerns or diseases are unworthy of treatment. Gilbert (1989, p. 546) suggests that this may be manifest in the dental office by comments such as "I'm too old to be worrying about my teeth," or "I'm old now so I expect to be losing my teeth." Such attitudes can have a major impact on an older adult's acceptance of a treatment plan, and may cause the rejection of a complex plan.

Control

Control is defined succinctly as the ability to have an impact on an outcome (Schorr & Rodin, 1982). Outcomes can be influenced behaviorally, decisionally or cognitively, leading to a distinction between three types of control (Averill, 1973). Behavioral control is the existence of a contingency between one's behavior and outcome. Decisional control is manifest as the opportunity to choose among various behaviors and outcomes. Cognitive control refers to the ability to influence the impact of an event by interpreting it in different ways.

Greater feelings of control tend to have a positive impact on psychological well-being and physical health whereas a diminished sense of control tends to have unfavorable consequences (Schorr & Rodin, 1982). Perceived control over one's health is considered to be a critical determinant in the practice of health behavior (Abella &

Heslin, 1984). Research examining the implications of control for dental health behavior has focused on two areas of control: (1) locus of control; and (2) control enhanced interventions. This research will now be reviewed.

Locus of control. Research has recently sought to determine whether existing individual differences in control has implications for the practice of health related behaviors for the elderly. In particular, increasing attention has been given to the role of a specific personality variable, "locus of control" (Rotter, 1966) in the development and maintenance of healthful behavior (Taylor, 1986). Locus of control refers to the stable belief that the source of one's outcomes, whether positive or negative, is either the self or the environment. People with an internal locus of control see themselves as the origin of their outcomes. In contrast, people with an external locus of control regard the environment as the source of their outcomes.

A wide range of studies have shown greater adaptive functioning for persons holding internal, rather than external, expectations (Strickland, 1978). Researchers have hypothesized that "internal" individuals are more likely than "external" individuals to engage in preventive health behaviors. In her review, Strickland (1978) has found support for this view. Most of the research suggests that individuals with an internal locus of control are more likely to assume responsibility for their own health; i.e., they may practice better health behaviors, guard more

carefully against accidents, and gather more health information than individuals with an internal locus. However, results are not always strong, and measurement problems plague the locus of control concept. Consequently, the relationship between locus of control and the existence of health behavior is modest (Taylor, 1986).

In response to the need for a more sensitive measure of locus of control as it relates to health behaviors, the Health Locus of Control scale was developed (Wallston, Wallston & DeVellis, 1978). This scale measures three factors: (1) the internal health locus of control, or the belief that one can control one's health (with items such as "I am in control of my health" and "The main thing which affects my health is what I, myself, do."); (2) provider control over health, or the belief that health practitioners are best able to manage one's health (with items such as "Whenever I don't feel well, I should consult a medically trained professional" or "Whenever I recover from illness, it's usually because other people, e.g., doctors, nurses, family, friends have been taking good care of me;" (3) chance health locus of control, or the belief that one's health is substantially determined by chance factors (with items such as "No matter what I do, if I am going to get sick, I will get sick," or "Luck plays a big part in determining how soon I will recover from an illness.)).

Health locus of control has been linked to the practice of preventive health behavior. For example, in a longitudinal study using a version of this scale, Seeman and

Seeman (1983) found that individuals with a low sense of control over health outcomes were less likely to practice self-initiated preventive health care, showed less optimism about early treatment, reported poorer health, and had more illness episodes.

In their research on psychosocial factors that influence oral health behaviors among the elderly, Gilmore and Kiyak (1985) considered generalized locus of control and locus of control relative to health behavior to be predictors of an individual's motivation to seek dental care, and the likelihood of maintaining personal oral hygiene. Two research questions were raised: (1) Are older persons with an internal locus of control more likely to seek regular professional dental care than those with external locus of control; and, (2) Are elderly persons with an internal locus more likely to maintain their health than external individuals?

Elderly subjects living independently in the community responded to both the Rotter Locus of Control Scale and the Health Locus of Control Scale. Locus of control was hypothesized to be associated with oral health status and use of professional services.

On the basis of previous studies and the expectation that elderly with internal beliefs would be more likely to perceive that they could control their own health and prevent disease, it was hypothesized that elderly individuals with scores in the internal range on general and health locus of control would have better oral health and

use more professional dental services than elderly with external beliefs. Elderly with internal expectancies perceived their general health to be better than those with external expectancies. Elderly people with internal orientations also had lower plaque levels.

Thus, elderly participants with internal locus were more likely to believe that they could control their own oral health status and prevent oral disease; however, locus of control was not a powerful predictor of the older person's current oral health status: elderly with external expectancies were as likely to maintain their natural teeth as those with an internal orientation. It appears that beliefs in external or internal control or reinforcements are associated with beliefs regarding personal oral health and a useful precursor to the individuals' desire to maintain oral health, but cannot predict long-term outcomes such as periodontal disease and subsequent tooth loss.

It may be that locus of control changes with age and that tooth loss, a long-term process, is related to external locus in the early and middle years. This could not be determined, since locus of control was not measured longitudinally. Results may have also been influenced by the skewed distribution of the sample with respect to dentate status and locus of control. Most respondents (59 per cent) still retained half or more of their natural teeth; few wore complete dentures. Scores on the two locus of control scales were predominantly in the internal range. Perhaps with a sample of elderly who have fewer natural

teeth and more dentures and a greater range of internal and external scores, a stronger association between the two variables could be found.

An association between locus of control and dental use patterns was predicted; however, results supported the opposite hypothesis. Although general locus of control was not related to use, health locus scores could distinguish long-term non-users from recent and intermediate users. Contrary to expectations, those who had sought dental care in the past 12 months were most likely to hold a belief in external locus of control; whereas those who had not obtained professional treatment in 5 or more years scored on the internal range of health locus of control.

There are several ways to view such unexpected results. It is not necessarily valid to assume that health locus of control is related to dental service utilization. The health locus of control scale deals with beliefs about health rather than beliefs about treatment; and being internal with respect to health might not generalize to treatment related control behavior (see Wallston & Wallston, 1980).

It is also possible to interpret these results in a different way. The demonstrated utilization patterns are consistent with that found for a study of health service use among Canadians enrolled in the national health service program (Richard, 1975). It was noted that in any given year, 25 to 30 per cent of the Canadian population seeks no medical care. Sixty non-users, age 35 or older, were

interviewed in that study. The majority believed their medical problems were trivial and, therefore, did not perceive a need for treatment. There was a general sense of independence and self-reliance among this sample, with a strong desire to accept responsibility for one's own health. Although Richard did not use a locus of control measure, it appears that her open-ended interviews showed an orientation similar to that of the participants with an internal health locus in the Gilmore and Kiyak study. Thus, it may be that individuals with an internal belief regarding reinforcements are more likely to maintain good oral hygiene, to perceive their health to be good, and to believe in the value of self-care related to oral health. This may lead to a greater sense of independence in maintaining oral health, but the danger is in not seeking professional care to prevent potential oral disease. That this may have happened with the participant in the Gilmore and Kiyak study is suggested by the finding that those with internal locus were as likely to have lost some teeth as those who believed in external control. Perhaps the sense of self-reliance was so extreme that professional dental care was not sought until dental problems became irreversible and extraction necessary.

For these elderly patients who do not use dental services, Gilmore and Kiyak note that such self-sufficiency must be accompanied by community based dental screening and education programs. In this way, older persons could be encouraged to continue maintaining good home care; in

addition, they should be provided with more information about the importance of periodic visits to the dental office and symptoms of oral disease that require immediate attention from a dental practitioner.

Control Enhancing Interventions. Another line of research in the field of geriatric dentistry has sought to investigate the effectiveness of control enhancing interventions. These interventions are designed to improve the dental health status and resultant psychological well-being among the elderly.

Preliminary research has sought to investigate ways to ameliorate oral health status among the elderly with the use of self-monitoring techniques. The rationale is that one must understand the dimensions of a target behavior (e.g., dental health behavior) before change can be initiated. Self-monitoring determines the frequency of a target behavior and the antecedents and consequences of that behavior (Thoresen & Mahoney, 1974).

A series of studies has been conducted in order to assess the effectiveness of self-monitoring techniques for improving older persons' oral hygiene and their awareness of oral health so that they become more likely to seek professional dental care (see Kiyak & Mulligan, 1985). These studies have been conducted with cognitively intact elderly in an intermediate care nursing home (Kiyak, 1980) and in senior centers serving the elderly (Price & Kiyak, 1981).

The premise of these studies has been that older

persons can still benefit from dental health education and health promotion. Oral health is generally perceived to be a less important need among older persons than is physical health in general (Kiyak, Crinean & Stockinger, 1985). Professional dental care is not sought until an emergency arises, such as broken or lost dentures, a chipped tooth, or pain. The concept of preventive dentistry is relatively new; many members of the current cohort over age 70 have not had regular dental care of prevention-oriented visits. Often, home care is inadequate. The problem is particularly acute for institutionalized elderly. Numerous surveys have found significant oral health problems and poor oral hygiene among this population (Bagramian & Heller, 1977; Bhaskar, 1968; Empey, Kiyak & Milgrom, 1983; Manderson & Ettinger, 1975).

A major goal of these studies has been to enhance, through self-monitoring techniques, not only oral health status, but also psychological well-being, i.e., the realization that one can have a direct effect on one's own oral health and as a result see changes in a short period of time should result in improved morale and a greater sense of control over one's life. Furthermore, if one develops an improved perception of oral health, this perception should generalize to other aspects of health. Thus, the individual who comes to evaluate his/her general health status in a more positive manner will also develop better sense of self-worth or enhanced self-esteem.

These studies shared a common methodology. Subjects

were assigned to one of three conditions. The first was the experimental intervention consisting of small group discussion focusing on oral health care supplemented with audio visual programs. Subjects were given weekly self-monitoring charts to record frequency of toothbrushing, denture brushing, and soaking. Each participant was asked to post their chart on the wall by a sink at home, where oral hygiene occurs. In the case of nursing home participants, the charts were placed on the wall next to their sinks. Group members were asked to bring their chart to one of the two weekly sessions, where it was reviewed with the group and individually. Subjects were given verbal reinforcements in the group setting for each successful implementation of recommended dental care behaviors.

The placebo condition consisted of group discussions lasting as long as those in the experimental condition, but the topics did not include oral health. The purpose of this condition was to determine whether psychological well-being improves just by bringing older persons together in group discussions, or if the self-monitoring condition enhances psychological status more because of increased control over one's health.

The pure control condition was used to compare the effects of both group interventions with no intervention. It should be noted, however, that these subjects were given oral assessments and were interviewed as frequently as subjects in two intervention conditions.

As hypothesized, the self-monitoring group showed the

greatest improvement in oral health (as determined by plaque scores) and self-reported oral health and general health status. Those in the oral health education group without self-monitoring did not differ from the control condition in their level of oral hygiene following the intervention. Both groups demonstrated improved perceptions of their general health and in self-esteem after the intervention, but only the self-monitoring group continued to express high self-esteem six weeks and six months later.

Thus, oral hygiene can be improved and maintained among elderly nursing home residents (Kiyak, 1980) and community elderly (Price & Kiyak, 1981) through behavior management utilizing self-monitoring techniques. This may be due to the immediate feedback provided by behavior modification techniques and direct involvement of the individual in the change process (cf., Langer & Rodin, 1976; Rodin & Langer, 1977). Furthermore, oral self-care is not a new skill to learn but can be reactivated from one's past, making it a behavior which is ideally suited for self-monitoring techniques. Improved oral health through self-care results in a sense of accomplishment and control over one's health. Enhanced self-esteem and morale were also evident in these studies.

Because of the significant effects of these oral health interventions on psychological well-being, Kiyak and Mulligan (1986) subsequently assessed the efficacy of a self-monitoring approach for improving oral health, the sense of control and psychological well-being among nursing

home residents diagnosed as depressed or at risk for depression. Kiyak and Mulligan (1986) find that depression is the most common psychiatric problem among the elderly. Diagnostic criteria for depression include feelings of worthlessness and self-reproach. Loss of youth and physical health, a reduced ability to adapt, increased vulnerability to the stresses of ill health and infirmity that interfere with their autonomy and diminished self-esteem have been cited as contributory factors in depression among the elderly. Social interaction, encouragement of activity and taking measures to ensure optimal physical health have been advocated as treatment and prevention mechanisms for depression. Behavior therapy in which patients self-monitor their moods and daily activities has been shown to decrease depression scores and relapse.

The sense of worthlessness, loss of autonomy, and loss of health which are associated with depression may be exacerbated in the nursing home environment, where the individual often forfeits control over his/her lifespace and activities. Studies have shown that elderly nursing home residents who are given control over their environment experience increased self-worth (e.g., Langer & Rodin, 1976). Oral self-care represents control over one's physical health. Efforts to enhance such self-care should increase the depressed person's perception of autonomy and self-worth. This, coupled with the behavior modification technique of self-monitoring in a group setting, was hypothesized to be effective in reducing depressive symptoms

and improving self-esteem.

Results of this study supported the previous research on the effectiveness of group discussions, self-monitoring and frequent oral assessments for improving older persons' oral health. Both the self-monitoring and control conditions showed improvements in their oral health status from pre-intervention to immediately after, and six weeks after the intervention, but not nine months post-intervention. However, the interventions did not enhance self-esteem or body image, and had only a mild influence on depression and morale. It may be that the group interventions have few advantages for the oral health of this population, and that frequent individualized contact and oral assessments are sufficient for improving the oral health, psychological well-being and the over-all perceptions of health among this population.

The previous research of Kiyak and associates supports the value of oral health promotion using self-monitoring for psychological well-being among non-depressed, cognitively intact elderly, but this study suggests that depressed elderly do not experience such psychological benefits. The depressed elderly have other needs that must be dealt with directly. Moreover, the depression experienced by this group created apathy and a lack of interest in self-care that could not be alleviated by attempts to teach self-care. Thus, "only after improving the patient's interest in self care, should one attempt to improve the patient's knowledge and abilities in self-care" (Kiyak & Mulligan, 1986).

Taken together, the research of Kiyak and associates suggests that beneficial effects (i.e., improved oral health status and psychological well-being) may be obtained with interventions designed to enhance the control of and responsibility for oral health among the elderly. The finding that greater feelings of personal control have a positive impact on psychological well-being is consistent with other research on the elderly.

Related Research in Control

The early studies of Langer and Rodin (1976) and Schulz (1976) serve as examples of the importance of control for the elderly. Both studies were guided by the logic of contemporary learned helplessness (Seligman, 1976) and competency (White, 1959) models which have as their general tenets that individuals seek control or mastery over their lives and/or suffer deterioration when they are unable, or perceive they are unable, to exercise their control. These studies applied this logic to old age, arguing that much of the psychological and physical deterioration of the elderly is due to reduced personal control. The validity of this logic was confirmed by demonstrating that positive outcomes result from experimental manipulations that enhance individual's control. Each study chose a nursing home as the experimental setting.

Induction of greater feelings of control in institutionalized elderly has been shown to have dramatic positive effects on psychological and physical health. In

one study (Langer & Rodin, 1976) residents of a nursing home were given a talk that emphasized either their responsibility for themselves or the staff's responsibility for them. Moreover, the former group was given opportunities to make choices (e.g., choosing when they wished to participate in the nursing home activities) and to take responsibility for aspects of their environment (e.g., taking care of a plant). Subsequently, residents in the responsibility induction group exhibited significantly more alertness, sociability, active participation and general well-being, and these differences were still evident 18 months later (Rodin & Langer, 1977). Furthermore, the responsibility induction group showed an increase in general health that was significantly greater than that of other residents. In fact, residents that did not receive the responsibility induction intervention showed decreases in general health. Most strikingly, the mortality rate in the group that received the responsibility induction was half that of the other group.

In a similar vein, Schulz (1976) assessed the effects of increased control and predictability upon the physical and psychological well-being of nursing home residents. Groups of elderly residents were matched with college student volunteers in a visiting program. Those groups of elderly people who had control or predictability over the visiting schedule were healthier, required fewer medications, had a greater activity level, and were psychologically healthier than patients in the random

visitation or the no-visitor condition groups.

Unfortunately, when the program was terminated at the end of the school year, those individuals who had control or predictability over the students' visits suffered both physically and emotionally in comparison to those who had not received visitors or who had not been able to predict or control the visiting schedule; moreover, more of the prediction and control groups died (Schulz & Hanusa, 1978).

The obvious question is: Why did these studies achieve such different effects with conceptually similar interventions? In the Langer and Rodin (1976) study, patients were given control over areas of their lives that then became self-sustaining, i.e., they could exert this control on their own without the help of the investigators. There was some evidence that the effects of the control based intervention generalized to other aspects of the patients' lives, so that they became more assertive and controlling about activities beyond those involved in the intervention. In contrast, the college visitor program of the Schulz (1976) study, could not be maintained when the students left for the summer; hence, control could not be maintained. The environment returned to its previous level of inactivity and lack of control. In situations of long-term stress or lack of control, then, it is important to consider not only the potential short-term effects of control inducing intervention, but also its potential long-term impact.

Nevertheless, the studies by Langer and Rodin (1976),

Schulz (1976), and Kiyak and associates demonstrate that:
(a) increasing environmental control has a positive impact on the physical and psychological status of the aged; and
(b) this effect is obtainable with very different operationalizations of the conceptual variable control.

The construct of control, particularly in terms of control enhancing interventions, appears to be a critical determinant of dental health behavior among the elderly. Recent research further suggests that the perception of control in the context of health care (practitioner/patient) relationships may also determine the practice of health related behavior. This issue will be addressed in terms of: (1) an examination of the role of perceived control in health care relationships; (2) the expectation of control among the elderly in health care relationships; and, (3) the application of this research to understanding the role of perceived control in the dentist/patient relationship for the practice of dental health care among the elderly. It is this final point that will serve as the basis for the present research.

Control in Health Care Relationships

"People typically enter the health care system only when they are sick and in need of help" (Schorr & Rodin, 1982, p. 155). In a health care relationship, patients are viewed as passive participants who are expected to adopt the professional's definition of their problems, goals for the interaction and prescriptions for intervention (Brody,

1980). While the emergence of approaches to intervention that stress prevention of illness and regard patients as active participants may ameliorate this situation, the prevailing model is one that characterizes patients as passive recipients of care (Schorr & Rodin, 1982). Factors such as the need for health care, the decision to seek health care and the health care relationship have implications for the person's sense of control.

The Need for Health Care

The conditions that lead people to seek professional help may diminish their feelings of control. The personal experience of either physical or psychological dysfunction may be frightening or overwhelming and efforts to cope with the condition may be muddled in confusion and fear (Janis & Rodin, 1979). With physical illness, peoples' ability to regulate physiological processes may be threatened (Brody, 1980). When people are faced with psychological disturbances, a reduced sense of efficacy (i.e., the perception of having the skills necessary to exercise control effectively) in their ability to deal with their environment may result (Bandura, Adams, Hardy & Howells, 1980). According to Schorr and Rodin (1982, p. 156):

When people are well and not experiencing difficulties, they are less likely to be attuned to judging their degree of control in their domains. However, when they are ill and confronted with problems, vulnerable feelings centered around their personal efficacy and

autonomy are likely to become more salient.

The Decision to Seek Health Care

Feelings of control in the decision to seek health care may have significant impact on the subsequent interaction with a practitioner. Individuals that have been coerced into seeing a health care practitioner by family, friends, employers, the legal system or other health care providers may be especially prone to feel a loss of control upon entering treatment (Schorr & Rodin, 1982). Such people may respond to the loss of control with reactance and as such may attempt to sabotage the treatment in order to reaffirm their control (Cameron, 1978). In contrast, if such people are resigned to the loss of control, feelings of helplessness may reduce their ability to adhere to the treatment plan.

The search for finding a practitioner may also induce diminished feelings of control. In searching for a health care professional, individuals may not have adequate information about available practitioners to feel confident in choosing among them (Schorr & Rodin, 1982).

The Health Care Relationship

An individual's feeling of control may also be threatened by the relationship with the practitioner. When seeking professional help, people are conveying the message that they do not have the competence to deal with their problems on their own. According to Rodin and Janis (1979),

health care professionals, with their ability, information, skills and expertise in health care, may deal with patients from a position of power. As such, patients may feel that they are subordinate to the professional (Barofsky, 1978; Brody, 1980).

Parsons' (1951) classic conception of the doctor-patient relationship establishes a model of patient behavior in which the patient assumes a passive, dependent role toward the doctor, who essentially has control over the interaction. In this model, patients are expected to trust and cooperate with the professional. This type of relationship characterizes the traditional way in which health care interactions are viewed (Brody, 1980).

In order to counteract the adverse effects of lowered control in health care interactions, Schorr and Rodin (1982) suggest that patients' feelings of control should be enhanced in many aspects of the professional-patient interaction. The greater perception of control is expected to improve the treatment relationship, health care behaviors and actual health outcomes.

Despite the known benefits of perceived control, having control can be stress-inducing and is not always desirable (Averill, 1973). In the context of the health care relationship, the elderly may neither expect nor desire control. Given that the elderly tend to be more dependent on health care than younger adults (Davis, 1976), "it is important to understand their responses to the stresses of health care in terms of control--What do they desire? What

do they expect?" (Smith et al., 1988, p. 1). Research exists addressing these questions.

Expectations of Control Among the Elderly

Although Reed and Zeigler (1981) suggest that elderly who experience greater feelings of control are more satisfied with their lives, little research has looked at individual control related constructs as a function of age. Haug (1979) found persons 60 years of age or older to be more likely to accept physicians' decisions and less likely to challenge their authority. In another study, Cassileth, Zupkis, Sutton-Smith and March (1980, p. 832) found that among cancer patients that "the older the patients, the more likely they were to prefer the older, nonparticipatory role." In their study, age was the only variable accounting for differences in participation. In his study on the relationship between age and expectancy for control, Lachman (1986) found that older adults held significantly greater belief in the ability of powerful others to control their health than did young adults.

Smith et al. (1988, p. 7) posit that a decreased orientation toward their health and health care among the elderly might be attributable to the following:

They perceive themselves to be more forgetful or less competent about health matters that physicians and other professionals are not to be questioned; and that a nonparticipatory or passive role is a desirable and appropriate response to their perceived expectations of

health care professionals regarding patient behavior.

In the research, Smith et al. (1988) examined the relationship between age and an individual's desire for control, both on a general daily level and as patients in health care situations; i.e., as patient about to undergo barium enemas, chemotherapy or surgery. Results indicated that the elderly reported a lower desire for control of their health care and a greater belief in the ability of powerful others to control their health than did younger subjects.

That the elderly eschew feelings of control in health care situations is distressing. The lowered desire for control may in part be explained by the increasing numbers of physical complaints and illnesses attributed to aging, which generally is perceived as an inevitable or uncontrollable process (Banziger & Drevenstedt, 1984). In addition, lower preference for control may be associated with repeated experiences with a health care system that allows for little personal control. According to Smith et al. (1988, p. 7):

Until recently, most . . . were taught that physicians were so competent that seeking control of the health care process was inappropriate behavior. However, health care consumerism, the self-care movement and institutional changes . . . have begun to change attitudes and beliefs about health care. These changes may have had their greatest effect upon younger adults whose earlier health care experiences were shaped by

those changes.

The tendency on the part of the elderly to relinquish control to medical professionals and eschew their responsibility for health care may provide a basis for understanding their approach to dental health care. It may be reasonable to suggest that in the context of dental health care, the elderly may similarly minimize their control over and responsibility for their dental care and treatment. The previously mentioned research examining the determinants of dental health behavior strongly suggest that the elderly tend to have a "laissez-faire" policy toward their dental health care. This may be due to a number of predisposing psychological factors: (1) negative attitudes toward dental health care; (2) lack of perceived importance of dental treatment; (3) the lack of perceived need of dental care; (4) the belief, especially among the "old" elderly that teeth should not be preserved through preventive dentistry, but replaced as needed; (5) the view that dental problems are inevitable, and that preventive treatment is useless; and (6) the attribution of dental problems to age rather than to inadequate dental care. In addition, the cost, fear, embarrassment of oral health status and inaccessibility of dental health care may also serve to discourage the elderly from visiting the dentist. For these reasons, the elderly may not take an active or effective role in the prevention of oral dysfunction or the maintenance of an appropriate standard of dental health. The obvious consequence of this may be inadequate dental

care and poor oral health status which in turn may adversely affect the psychological and physical well-being of the elderly.

How the elderly view themselves in terms of their responsibility for oral health care will be the focus of this research. Examination of this issue will be based on the theoretical framework developed by Brickman, Rabinowitz, Karuza, Coates, Cohn and Kidder (1982), which specifies the ways people attribute responsibility for their behavior in the context of the helping relationship. The application of this theory to the present research is compelling; research based upon this theory has demonstrated its usefulness in understanding the attribution of responsibility among the elderly in a variety of contexts--one of which is dental health care. The theory will be briefly elucidated. Relevant research will then be presented.

Attribution of Responsibility

In seeking assistance from a helping professional, clients concede that they suffer from problems that impede their adaptive functioning and acknowledge that they are unable to deal with these problems alone. Helping can be conceptualized as an interaction between helper and client that has the specific aim of resolving the client's problem. Brickman et al. (1982) contend that for both client and helper, the helping interaction is justified and shaped by the answers to two basic questions: (1) Who is to blame for the problem; i.e., who is responsible for the cause or

origin of the problem; and (2) Who is to have control over the problem; i.e., who or what is responsible for the solution to the problem? Attributions of responsibility for the cause and solution to the client's problem define four internally consistent and unique helping orientations. In theory, a client can be perceived as having either high or low responsibility for the cause of the problem as well as high or low responsibility for the solution to the problem. Crossing these two dimensions of responsibility yields four unique and internally consistent models of helping (Brickman et al., 1982).

Karuza, Zevon, Rabinowitz and Brickman (1982) posit that from the very beginning of the interaction, both client and helper have in mind a set of assumptions about the nature of the problem and also about what should be done to solve the problem. In theory, a client can be perceived as having either high or low responsibility for the cause of the problem and at the same time be expected to have either high or low responsibility for the solution to the problem.

The model of helping in which clients are not held responsible for either the cause of the problem or its solution is called the medical model, since the practice and orientation of modern medicine exemplifies these attributional assumptions. Implicit in this model, according to Brickman et al. (1982), is a view of the client and of human nature as essentially passive; i.e., clients are expected to accept this view, which frees them from obligations but at the same time requires them to acquiesce

to the ministrations of the professional helper, the primary agent of change. Expert others (e.g., doctors, dentists) are expected to take responsibility for the solution to the problem, using their professional training in order to recognize the problem to provide necessary service or treatment. The basic advantage of this model is that it allows clients to seek and accept help without being blamed for their weakness and relieves them of the anxiety associated with finding a solution to their problems (Rabinowitz, Karuza & Zevon, 1986). One obvious drawback of this model is that it may foster needless and dysfunctional dependency.

The helping model in which clients are not held responsible for the cause of their problems but are still held responsible for finding a solution is called the compensatory model (Brickman et al., 1982). It is assumed that clients will take charge and find a new solution to the problem by developing their potentials and learning new skills. The essential agent of change is the client; the professional helper therefore assumes a subordinate role. The advantage of this model is that it permits clients to become actively involved in finding a solution. The model also allows clients to discount past failures, and in doing so, feelings of guilt or incompetence are relieved. Clients maintain their self-respect, since they are not blamed for the problem, but are given credit for an adaptive solution. The possible disadvantage of this model is that clients may feel pressured into continually solving problems, and

eventually feel alienated when their efforts are unsuccessful.

The model in which clients are held responsible for both the cause of the problem and the solution is called the moral model. Implicit in this model is the view that clients, despite the initial misdirection or laziness that caused the problem, are basically strong and have the potential to reorient themselves and solve their problems. The essential agent of change is the client. The activity of the professional helper is limited to reminding clients of their responsibility for causing their problems and for finding a solution to them. The primary advantage of this model is that clients are able to assume total responsibility for their lives and thereby are motivated to work harder, longer, and more effectively in dealing with their problems. Moreover, by taking responsibility for causes and solutions, clients may avoid the dependency and passivity associated with the medical model. The danger of this model is that clients may adopt a view in which everything is contingent upon their own behavior.

The model in which clients are held responsible for their problems, but not responsible for finding a solution is called the enlightenment model. Clients are expected to accept the guilt for causing their problems and submit to the strength, support, and discipline of legitimate authority, the essential agent of change. The advantage of this model lies in the clients' admission that the solution is beyond their control. However, there is a danger of the

model leading clients with overidentification with the authority figures, with a resultant restructuring of the client's entire life around the source of authority.

Attribution of Responsibility Research

In a series of studies, Karuza and associates sought to examine the following: (1) an age or cohort based preference for the models of helping and coping between young and elderly adults; and (2) the affective and functional correlates of attributions of responsibility and the models of helping and coping. In general, results of their research indicated that: (1) The elderly, in comparison to young adults, demonstrated a willingness to self-attribute less responsibility for causing or solving their problems and to prefer helping and coping models that assume low self-responsibility for solutions (e.g., medical model); (2) Adaptive advantages (psychological and functional well-being) were associated with taking responsibility for solutions to problems. This latter finding is consistent with the premise that attribution of responsibility for solutions to problems is more important for future coping and well-being than attribution of responsibility for problems (Brickman et al., 1982).

Gleason, Karuza and Zevon (1981) sampled 106 young adult and elderly subjects to examine the relationship between the adoption of each of the helping models for general coping strategies and the subjects' sense of well-being. Elderly subjects were recruited from a local senior

citizen center. Younger respondents were recruited from undergraduate psychology classes. The extent to which the individuals accepted the assumptions underlying each helping model was determined by a series of questions reflecting such assumptions: i.e., their view of what caused the problem, their implicit view of human nature, what they felt they needed to do to solve their problem, what they felt others had to do to solve the problem, and the basic assumption they adopted toward the help given by others. Affective well-being (positive/negative) was assessed with a checklist of adjectives.

Results showed that elderly subjects adopted both medical and enlightenment model assumptions significantly more than young adult subjects. Elderly subjects saw themselves as less responsible for both the causes of and solutions to their problems. This pattern was consistent with the elderly subjects' preference for the medical model, which assumes low responsibility for both the cause and solution to problems and the enlightenment model, which assumes low responsibility for the solution to problems. Among elderly subjects, assuming responsibility for the causes of the problems was related to greater negative affect, whereas assuming responsibility for solutions to problems was related to increased positive affect. Greater negative affect was also related to endorsement of either the moral, medical and enlightenment model. Only the adoption of the compensatory model assumptions was related to increased positive effect. The results for young adults

were essentially similar.

Zevon, Karuza and Nash (1981) evaluated the impact of attributions of the elderly on the effectiveness of the services provided by a home-delivered meals program. A total of 50 randomly selected program participants were interviewed at home by a trained interviewer using a standardized questionnaire. Attributions of responsibility and preference for helping models were determined by questions similar to those in the previous study. Additional dependent measures included program participants' reports on their social and self-care activity, life satisfaction, overall health, and ability to cope with the demands of daily living.

As in the previous study, retention of a sense of responsibility for the solution to problems was positively and significantly related to positive elements: over-all life satisfaction, self-ratings of over-all health, increased activity level, and increased ability to cope with the demands of daily living. Unlike the previous study, however, responsibility for the origin of the problems was also related to several of these indicators; i.e., self-ratings of health and the ability to cope with the demands of daily living. Regarding model preference, endorsement of the enlightenment model was associated with decreased life satisfaction and lower ratings of over-all health. Despite the positive correlates of their own endorsement of responsibility for both problems and solutions, the elderly expressed a preference for receiving help based on the

medical model.

Zevon et al. (1981) speculated as to why attributions of responsibility for the cause of problems was related to negative affect in the Gleason et al. (1981) study, but to positive ratings in their study. First, the dependent measures were different. It is possible that self-blame could be associated with negative affect while being associated with a more active sense of coping with the demands of daily living and a sense of better health. In addition, observed differences might have been due to variations between the samples of the two studies. The fact that the elderly in the second study were actively engaged in trying to make use of the services of a community-based program might have made self-attribution of responsibility for problems more appropriate for them than such attributions might have been for the more general sample of elderly in the Gleason et al. (1981) study.

The overall pattern of results in these studies (Gleason et al., 1981; Zevon et al., 1981) were consistent with the Brickman et al. (1982) review of the literature. Actor's self-attributions of responsibility for solutions were uniformly related to positive outcomes. However, actor's self-attributions of responsibility for problems were inconsistently related to positive outcomes.

More recently, Karuza et al. (1990) reported several studies that further examined the attribution of responsibility and well-being in community based elderly. Study 1 investigated the association of attribution of

responsibility for the cause of and solution to problems, preference for the models of helping and coping, and young and elderly adults' well-being, as defined by their positive and negative affect. In addition, the elderly, compared with the young respondents, were expected to attribute less personal responsibility for the cause of and solution to their problems and prefer the medical model. The sample included 158 young adult college undergraduates recruited from introductory psychology classes and 52 elderly adult subjects recruited from a senior citizen center run by a community organization.

Subjects' self-attribution of their responsibility for the cause of their problems were assessed with three items: "To what extent do you feel you are personally responsible for the cause of your problems?" "To what extent do you feel that you could have avoided the problems you have?" and "To what extent do you feel you could have controlled the cause of your problems?" Subjects' self-attribution of their responsibility for the solution to their problems was assessed with three items: "To what extent do you feel you are personally responsible for creating a solution to your problems?" "To what extent do you feel you can overcome your problems by yourself?" and "To what extent do you feel you can control the solution to your problems?" Responses were measured by 7-point scales anchored by "not at all" and "very much".

Model preference was determined by having subjects rate five brief definitional statements of each model's

assumptions and characteristics (i.e., cause of the problem and its solution, the characteristics of the subject, actions required by the subject in dealing with the problem, actions required by the helper and basic strengths of the subject when confronting the problem). Responses to the 20 items were measured by scales anchored by "not at all" and "very much".

Subjects' well-being was measured by an affect scale used in the Gleason et al. (1981) study. Subjects were asked the extent to which 19 adjectives were descriptive of the way they felt in general on a 7 point scale ranging from "not at all" to "very much".

Results generally confirmed expectations for the three areas of inquiry: affective correlates, attributions of responsibility and model preferences. For both the elderly and young adults, assuming responsibility for solutions to problems was related to enhanced positive affect. For both age groups, increased negative affect was related to adopting models that stress either high responsibility for the cause of problems or low responsibility for the solution of problems. Considering group differences in self-attributions of responsibility, the elderly assumed significantly less personal responsibility for the cause and solution to their problems compared with young adults. Considering group differences in model endorsement, the elderly, in comparison to the young, preferred enlightenment and medical models. In contrast, the young, compared to the elderly, preferred the moral model. No difference was found

in preference for the compensatory model. Apparently the elderly, compared to the young, were significantly more likely to accept models that assume low responsibility for solutions to problems.

The second study also assessed the adaptive advantages associated with retention of responsibility for solutions to problems for 51 Meals on Wheels recipients, a group of elderly at risk for functional losses. Respondents rated their general attribution of responsibility for causes of and solutions to their current problems on a scale anchored by "not at all" and "very". Single-item statements were used to measure the endorsement of each of the models. Model preference was determined by the rank ordering of the endorsement of each statement describing the models. Well-being was assessed with measures of mental status, functional ability, general health, self-perceptions of control, and life satisfaction.

Results indicated that self-attributions of responsibility for solutions to problems were positively related to indices of well-being. In terms of model endorsement, elderly respondents had greater preference for the medical model than groups of younger respondents (service providers of the Meals on Wheels program).

Applying this line of research to the area of dental health among the elderly, Karuza et al. (1986) recently sought to examine whether oral health/dental orientation of elderly adults is similar to the models proposed for general health, and whether oral orientation is related to patient

well-being. Based on the work of Brickman et al. (1982), four orientations in dealing with oral problems are defined, two which stress high responsibility of patients for solving or preventing oral problems, i.e., (I) a self-help orientation model (moral model) and (II) a preventive orientation (compensatory model); and two which stress low personal responsibility, i.e., (III) reliance on dentists to supervise and enforce good oral habits (enlightenment model) and (IV) reliance on dental treatments and technology to "cure" oral problems (medical model).

Elderly subjects (aged 65-85) from both nursing home and community settings were given a dental examination including a plaque index. In addition, a questionnaire consisting of dental orientation (based on the models), self-esteem, life satisfaction, dental social supports and oral status scales was administered.

Results indicate that elderly in both a community and institutional setting endorsed a medical model orientation which places the responsibility for oral well-being on the dentist. Unexpectedly, a preventive orientation was also preferred by elderly in the institutional setting. This result is indeed surprising in light of the evidence demonstrating the tendency of the elderly, especially the institutionalized elderly, not to practice preventive dental health care (see Kiyak & Mulligan, 1985).

For all elderly, endorsement of dental orientations which stress patient responsibility for maintenance of their oral status was significantly related to fewer oral problems

and decreased plaque scores. Ironically, then, elderly patients may endorse a dental orientation that is less adaptive for them, a pattern that parallels the findings of Karuza et al. (1982) for medical and coping problems.

The importance of maintaining oral status was suggested by the relationships between reported oral problems and decreased self-esteem and decreased affect. Consistent with this finding was the significant link between higher plaque scores and decreased life satisfaction.

This study indicates that psychosocial dynamics, i.e., patient's dental beliefs, may play a major role in oral well-being and dental practices of elderly adults. Elderly adults seem to prefer a dental orientation that places responsibility for oral well-being on the dentist, despite the fact that it is better to endorse orientations that stress patient responsibility. This study demonstrates that applied interdisciplinary research between geriatric dentistry and psychology may be useful in dealing with the increasingly serious problem of dental care among older adults.

Methodological considerations, however, limit the generalizability and impact of this research. As noted by Karuza et al. (1986), the sample was female and did not fully capture ethnic, demographic, social and economic differences. A replication of this study using a more representative sampling of elderly is needed in order to enhance the generalizability of this type of research.

Moreover, the inclusion of only elderly subjects in

this study provides no information as to the potentially differential endorsement of responsibility orientations toward dental care across age groups. A comparison of the elderly to younger cohorts is warranted in order to examine age differences in responsibility orientation and its implications for such variables as oral health status and the practice of dental health behaviors.

Despite its limitations, the Karuza et al. (1986) study is seminal in its attempt to investigate dental orientation as a means of understanding the issue of dental health among the elderly. Moreover, Karuza et al.'s (1986) study demonstrates the use of the Dental Orientation Scale in the context of attribution of responsibility research.

Direction of Current Research

The current research represents, in part, a replication and elaboration of the preliminary work of Karuza et al. (1986). The four model conceptual framework will again provide the basis for examining the attribution of dental health care among the elderly. For this study, a larger and more representative sample of elderly will be included in order to enhance the generalizability of the results. In addition, attribution of responsibility of a younger group of respondents will also be determined in order to provide a basis of comparison for the elderly.

The first major objective of this study will be to demonstrate, as did Karuza et al. (1986) that the elderly do not want to take responsibility for their dental health

status or behavior. It would seem that the elderly will embrace the medical model in describing their perceived responsibility for their dental health status and behavior. This model orientation, with its implicit assumptions of dysfunctional dependence, weakness and helplessness underscores the behavioral and attitudinal stance that the elderly take toward their dental health care.

As indicated in the literature review, the underutilization of dental health care services on the part of the elderly may to some extent reflect their inappropriate negative attitudes about dental care (e.g., Kiyak & Miller, 1982; Diehnelt & Kiyak, 1984; Gilmore & Kiyak, 1985). The research finds that dental care is not considered important (Marinelli et al., 1982) or necessary (Antczak & Branch, 1985; Manne & Mehre, 1983). Such attitudes are firmly rooted in the pervasive and misguided belief that oral health problems are an inevitable concomitant of aging (Ettinger & Beck, 1982). The sense of hopelessness expressed by the elderly over the expected inexorable decline of their oral health status with age (Antczak & Branch, 1985) may mitigate against the practice of preventive, routine or even remedial measures. Such a view may thwart any meaningful effort on the part of the elderly to effectively and personally control or take responsibility for their oral health; thus predisposing them to perceive themselves in terms of a medical model orientation.

Thus far, research on attribution of responsibility (Gleason et al., 1981; Karuza et al., 1986; Karuza et al., 1990; Zevon et al., 1981) has treated the elderly as a unified group in terms of their model endorsement. In a departure from the previous research, consideration will be given to the distinction between "new" and "old" elderly age categories as described by Neugarten (1977) and its implications for differential medical model endorsement.

Responsibility for dental health care may reflect the differing dental health needs of these two groups (Ettinger & Beck, 1982; Kiyak, see Giangregio, 1987). The "old" elderly (aged 75-84), who because of their early exposure to a "primitive" era of dentistry, have the highest rate of edentulousness and as such, rarely seek dental care. In contrast, the "new" elderly (aged 65-74), who experienced greater sophistication in dental treatment and technique, were made aware of the need for appropriate dental health care. As a group, the "new" elderly tend to be more willing to visit the dentist, better able to afford dental care and more interested in looking young (Ettinger & Beck, 1982). Because the majority of "new" elderly are not completely edentulous, the demand for dental care will increase, reflecting a range of dental needs beyond that of dentures. Based on reported differences in their dental experience and needs, it is anticipated that the "old" elderly will be more likely to choose a medical model orientation than the "new" elderly. In addition, it is expected that both the "new" elderly and "old" elderly, compared to a younger cohort,

will manifest greater preference for a medical model orientation.

The primary objectives of this study will be to demonstrate: (1) preference for the medical model by the elderly and (2) differential preference for the medical model by the "old" elderly, "new" elderly and young. Research hypotheses will be based on these objectives. In addition, other related research issues will be explored.

Affective Correlates of Model Endorsement

Thus far, attribution of responsibility research has presented a somewhat inconsistent relationship between affective well-being and model endorsement. Gleason et al. (1981) found that among a sample of elderly, affective well-being (as measured by a 20 item checklist composed of adjectives indicating either positive or negative affect) was significantly correlated with model endorsement. Greater negative affect was significantly correlated with models that stress either high responsibility for the cause of the problem or low responsibility for the solution to the problem (i.e., moral, medical and enlightenment models). Greater positive affect was related only to the compensatory model stresses high responsibility for the solution to the problem.

Recently, Karuza et al. (1990) using the same measure of affective well-being as in the Gleason et al. (1981) study, found that among the elderly, greater negative affect was similarly correlated with models that stress either high

responsibility for the cause of problems or low responsibility for solutions to problems (i.e., moral and medical models). However, positive affect was not related to the endorsement of any of the helping models.

In the context of attribution of responsibility for dental health care, Karuza et al. (1986) provided only indirect support for the relationship between affect and model endorsement. The endorsement of models that stress low responsibility for oral well-being (enlightenment and medical models) was significantly related to higher plaque scores, a measure of oral health status. The moderating role of oral status was suggested by the relationship of plaque scores and decreased self-esteem and life satisfaction.

The current research will take the work of Karuza et al. (1986) one step further by directly examining the relationship between affect and model endorsement. For the purposes of the present research, affect will be conceptualized in two ways: self-esteem and dental self-esteem.

Self-Esteem: Although there is no standard theoretical or operational definition of self-esteem, this concept is usually defined as the liking and respect of oneself (Crandall, 1973) or the positiveness or negativeness of one's self-evaluation (Hunter, Linn & Harris, 1981). Self-esteem among the elderly has been linked to their perception of control (Taylor, 1986). Among the elderly, identification with the prevailing, negative stereotypic

conceptions of old age can adversely affect their self-esteem significantly and as a result, their sense of control (Hunter et al., 1981). Rodin and Langer (1980, p. 13) note:

If one's self image and behavior come to portray these negative stereotypes . . . self-esteem should decline.

As self-esteem decreases, belief in one's ability to exercise control over the environment also declines

. . .

The research of Hunter et al. (1981) support this conclusion. Elderly subjects identified as having low self-esteem tended to view their lives to be at the mercy of external forces. Rodin and Langer (1980) further note that reduced feelings of control can create at least two different types of problems for older people that may reduce their coping attempts and thus detrimentally affect their health. First, there is a tendency to overattribute most of their negative physical symptoms to aging per se, especially to the presumed physical decline with which aging is associated. Second, and perhaps more significantly, when events are attributable to this aging process, they are seen as inevitable and remedial steps that are extremely beneficial may not be undertaken. In terms of dental health behavior, the elderly may anticipate or expect that their oral health status will deteriorate with age; i.e., as an inherent characteristic of the natural aging process. Such elderly may feel helpless to change what is perceived as an inexorable decline of their oral health status. It is certainly intuitively reasonable to expect that lowered

self-esteem among the elderly would be related to endorsement of models that stress low personal responsibility for their dental health care (e.g. medical model).

It would also be interesting to determine if heightened self-esteem is related to endorsements of models that stress high personal responsibility for oral health care. The research of Kiyak and associates (Kiyak, 1980; Kiyak & Mulligan, 1985; Price & Kiyak, 1981) has cogently demonstrated the self-esteem enhancing effects of interventions designed to induce feelings of personal responsibility among cognitively intact institutionalized elderly for the practice of dental health behaviors. Elderly subjects who were encouraged, through self-monitoring techniques, to take control over their oral health demonstrated heightened self-esteem. Extrapolating this finding to the current research, it is indeed reasonable to explore the relationship between self-esteem among the elderly and their perceived control, as indicated by their preference of models stressing high responsibility for dental care (e.g. compensatory, moral).

Dental Self-Esteem: The concept of "dental self-esteem", which refers to the perceived impact of oral health status on psychological well-being, was identified, developed and introduced for the current research. Its purpose was to provide insight into a dimension of affect that is specific to oral health status. Preliminary evidence suggests that among the elderly, functional and

aesthetic oral and dentate status is profoundly related to their feelings about themselves. Berkey et al. (1985) examined the relationship between self-perceived oral health status and self-esteem (as measured by the Rosenberg Self-Esteem Scale) among mentally competent elderly (aged 70 and older) living in a self-care residential facility. Greater self-esteem was demonstrated for those elderly with natural dentition compared to elderly who were completely edentulous. Apparently, dentate status is related to self-esteem, although the nature of this relationship is not clear; i.e., it is not known whether dentate status is a precursor, correlate or consequence of self-esteem.

Some anecdotal evidence has addressed this issue. Eda LeShan, a journalist who writes about issues concerning the elderly, recently examined the implications of oral health status for psychological well-being in an article entitled "Where Is My Tooth Fairy." LeShan (1990, p. 5) laments that she is devastated over her dysfunctional dentate status:

I've got the Tooth Trauma. It happened all of a sudden; bridges are falling apart all over the country and have become part of the social scene. My scene resulted in an "upper" that hurts, that doesn't fit and doesn't bite. Oatmeal and applesauce days--I never knew I cared so much but I do. If I'd been in a car accident at 30 and had to have false teeth thereafter, it would not have been so traumatic. But, at 67, it is just one more sign of inexorable deterioration.

LeShan sadly concludes that "I feel like Samson losing his hair--my strength is gone!" The overwhelming sense of helplessness and weakness engendered by deteriorating dental health illustrates the profound importance of examining self-esteem as it specifically pertains to perceived oral functioning and status.

As with self-esteem in general, it might also be possible to consider the relationship between dental self-esteem and model endorsement. A favorable self-evaluation as it relates to perceived oral health status might motivate individuals to take continued responsibility for appropriate dental health care. In this situation, greater dental self-esteem should be related to models that stress personal responsibility for oral well-being (i.e., moral and compensatory models). In contrast, an unfavorable self-evaluation as it relates to perceived oral health status, might stimulate the view (especially among the elderly) that they are not capable of taking responsibility for their oral health. In this case, lowered dental self-esteem should be related to preference for models that stress low responsibility for oral well-being (i.e., medical and enlightenment models). This avenue of research will be explored in the current research. In addition, the relationship between dental self-esteem and self-esteem will be examined.

General Responsibility

Research assessing attribution of responsibility for

the elderly (Gleason et al., 1981; Karuza et al., 1990; Zevon et al., 1981) has, in addition to model endorsement, included a measure of self-attribution of responsibility for the cause of and solutions to their problems. This measure was evaluated in terms of its correlation with: (1) measures of affect and (2) model endorsement.

Affective Correlates: Guided by the hypothesis that the attribution of responsibility for solutions is more important for well-being than attribution of problems, Gleason et al. (1981) found that among elderly subjects, assuming responsibility for the causes of problems was related to greater negative affect, whereas assuming responsibility for solutions to problems was related to increased positive affect. Results of a second study with the elderly (Zevon et al., 1981) provided only limited support for the hypothesis. While responsibility for the solution to problems was predictably correlated with positive affect (overall life satisfaction, self-ratings of health and an increased activity level), responsibility for the cause of the problems was unexpectedly correlated with positive affect as well (i.e., self-ratings of health and the ability to cope with the demands of daily living). More recently, Karuza et al. (1990) demonstrated that among elderly respondents, assuming responsibility for solutions to problems was related to enhanced positive affect whereas assuming responsibility for the cause of problems was related to heightened negative affect. Karuza et al. (1986) did not examine this relationship in their investigation of

attribution of responsibility for dental health care. In light of the previous research, however, consideration will be given in the current study to the relationship between self-attribution of responsibility and the aforementioned measures of affect.

Model Correlates: Karuza et al. (1990) determined estimates of concurrent validity by performing separate multiple regressions with responsibility attribution scales as the criteria and the four models of helping and coping scales as predictors. The analyses provided preliminary support of the following: (1) models that assume responsibility for the cause of problems and for the solution to problems were significantly and positively related to the measures for self-attribution of cause and self-attribution of solution, respectively; and (2) models that do not assume responsibility for the cause of or solution to problems were negatively related to or not at all related to the corresponding self-attribution measures. In the context of the current research, no measure, per se, exists that assesses self-attribution of responsibility for dental health behavior. However, in addition to the Dental Orientation Scale, Karuza et al. (1986) provide two statements that address the issue of responsibility, in a general way, for dental health care. For this study, these "general responsibility" statements will be examined in terms of their correlation with model endorsement.

Social Desirability

An obvious consideration of the Dental Orientation Scale is that it is a self-report measure. Anastasi (1968, p. 456) notes that "most items on such inventories have one answer that is recognizable as socially more desirable or acceptable than the others." On such tests a respondent may be motivated to choose answers that create a favorable rather than an accurate impression. Regarding dental orientation, each model has an implicit assumption about human nature. Rabinowitz (personal communication, November 18, 1989) suggests that individuals may prefer the compensatory model over other models for themselves due to its inherent appeal; i.e., individuals are held responsible for the cause of their problem, but are expected to competently and effectively take responsibility for solving their problem. The medical model, which is hypothesized to reflect the elderly's perception of their role in dental health relationship, may be inherently undesirable as a choice. Endorsement of a medical model underscores that one is weak, helpless and dependent. Specifically, agreement with the statements of the medical model essentially implies that without the help of their dentist, inferior oral health status is inevitable. In contrast, agreement with the statements of the compensatory model implies that despite the reason for the condition of their teeth, the elderly are nevertheless able to work responsibly with their dentist in order to enhance oral health status. Endorsement of the compensatory model is clearly more desirable than

endorsement of the medical model, even though the medical model may be more appropriate for describing the elderly's attribution of responsibility. In order to evaluate this effect, model endorsement will be examined in terms of its relationship to social desirability.

Thus far, the primary concern of this research has been the elderly patient. To complete the picture of the helping relationship, a second study will examine the way in which dentists attribute responsibility for dental health care for the elderly. A body of research based on attribution of responsibility considers helper stereotypes as a determinant of the choice of models. Such research will now be reviewed.

Helper Stereotypes as a Determinant of the Choice of Models

Karuza et al. (1982) contend that different helping models are chosen by helpers and clients to maximize their chances of influencing each other in what they believe to be desirable ways. One factor that is likely to affect this choice is what helpers believe about the characteristics and resources possessed by recipient populations or their stereotype of these populations. Karuza and Firestone (1979a, 1979b) have carried out some preliminary research on which models helpers report using with different target populations. The first study (Karuza & Firestone, 1979a) examined the impact of general age related stereotypes on the selection of helping models. As mentioned previously,

the attitude literature reveals is that the elderly population is generally stereotyped as passive, sickly and dependent compared to younger age groups. Based on this stereotype, it was assumed that young adults helpers would employ a medical model in approaching elderly recipients, since the assumptions of the medical model parallel the stereotypic view of the elderly. For the first study, young adults responded to a questionnaire that asked their "general opinions" of how children, other young adults or the elderly should be helped. The helping models were operationalized in terms of general helping strategies. Motivating and encouraging recipients (moral model); training recipients to develop their skills and abilities so they can take care of themselves (compensatory model); giving them goods or services they cannot provide for themselves (medical model); and comforting and consoling them (enlightenment model). Subjects were asked to rate how desirable and effective each of these strategies would be in helping the targeted age group.

When viewing children, subjects equally preferred the strategies associated with each helping model. When viewing young adults, subjects preferred strategies associated with the moral and compensatory models significantly more than those associated with the medical and enlightenment models. However, when viewing the elderly, subjects preferred the strategy associated with the medical model over all others. These results indicate that stereotypes about old age may indeed predispose helpers to adopt medical model

orientations in helping elderly recipients.

The second study (Karuza & Firestone, 1979b) considered the moderating effect of helper recipient intimacy on models applied to different age targets. Young adults were asked to describe their approaches to helping specific individuals they actually knew, using the scales from the first study. It was assumed that intimacy would increase the subjects' concern for the recipient's welfare and minimize age-related stereotypes, thus resulting in a more varied choice of helping strategies.

Results indicated no significant intimacy effects on the preference for helping strategies. Consistent with the results from the first study, the subjects used moral and compensatory model helping strategies to a significantly greater extent than medical and enlightenment model strategies when helping other young adults. When helping elderly recipients, subjects used the medical model strategy to a significantly greater degree than the others, despite the fact that subjects rated the elderly recipients' problems as no more serious or debilitating than the problems of the young adults.

These two studies indicate that age stereotypes can affect the preference for and choice of helping models. The results further suggest that this bias may generalize across different levels of intimacy. It should be noted that these results were not based on the reactions of professional helpers, and to that extent, the conclusions may be limited in their generalizability. The potential impact of

personally held biases on the design and implementation of interventions is clearly an important topic for research.

Health care professionals typically espouse that every individual has the right to be able to care for himself or herself. Each discipline defines its role within the health care delivery system as one that enables or assists the individual to attain, control, and maintain his or her maximum potential (Brock, 1985). Maintenance and restoration of self-control and self-care are critical to the self-esteem of any individual. Brock further warns that health care providers must be aware of the aging processes and as such use strategies that enhance, maintain, or rebuild self-esteem and a sense of control. This is especially true for the elderly patient who may feel helpless, hopeless, and dependent.

Such admonitions have traditionally not been heeded. Solomon and Vickers (1979) note that despite increasing amounts of information on the elderly, negative stereotypes are widely held. Identifying negative concepts and attitudes about the elderly are important, since they can influence the way in which the elderly are treated (Dolinsky & Dolinsky, 1984).

It is well documented that dentists, like other health care professionals, are reluctant to work with older patients (Beck, Ettinger, Glenn, Paule & Holtzman, 1979; Foley, 1981). The reluctance to treat older patients warrants attention because the number of elderly has increased dramatically during this century (from 3.1 million

age 65 or older to approximately 23.5 million, with a projected increase to 32 million by the year 2,000). In addition, more people are living longer, so that by the end of this century, nearly half of the elderly will be older than 75. Such people, who have a steady increase of periodontal disease and loss of teeth, are highly in need of dental care.

The resistance to treating this segment of the population may be explained in part by the prevalence of negative attitudes toward the elderly (Foley, 1981). Stereotypic conceptions of the elderly as dependent, helpless, inactive, inflexible, unproductive and possibly senile contribute to the development of these attitudes. Older adults may be viewed in terms of old-age stereotypes instead of by their individual functioning and capabilities. How well a person functions physiologically, psychologically, socially and even dentally may be obscured by an elderly label.

Unfavorable attitudes toward treating the elderly may begin with dental school training. Dental schools have been slow to recognize the need to incorporate into their curricula, experiences in providing care to the elderly (Beck, Ettinger, Glenn, Paule & Holtzman, 1979). Schools that have developed such curricula have found the results to be equivocal. Studies which have measured attitudes among dental students toward the elderly and handicapped both before and after clinical experiences with these groups, found no significant changes in attitude (Moosbrucker &

Giddon, 1966; Needham, 1968; Stiff & Phipps, 1964).

The inability of such programs to evoke positive attitudes toward the elderly may be due to the very problem that the programs are designed to alleviate; i.e., the poor oral status of the elderly. Beck et al. (1979, p. 580) observed

the visible recoil of many senior dental students when they first saw the oral conditions of nursing home residents. While the students completed their examinations, there were reports that this was an unpleasant experience. In some cases, anger was expressed toward the patients, the family, and all concerned with the patient's welfare.

This anecdotal evidence was subsequently corroborated empirically by Beck et al. (1979) who found that exposure to the elderly with poor oral health results in a more negative attitude toward the elderly. Ironically, the very programs that are planned to give students experience with improving the oral health of the elderly may be generating negative attitudes since many elderly have poor oral health status.

Such attitudes may extend beyond professional training. Studies have shown that members of a wide variety of health professionals incorporate society's stereotypic views into their own perception of older adults (Gilbert, 1989). Health care professionals may harbor negative attitudes toward aging and are reluctant to treat the older patient.

Negative attitudes or prejudice toward the elderly may deleteriously effect how the practitioner delivers

treatment, and the types of treatment recommended to the patient. Health professionals may provide a less aggressive or lower standard of care to the elderly (Cyrus-Lutz & Gaitz, 1972). For example, Wilkes and Shuchman (1989, p. 58) report that "physicians often do not provide the level of care to the elderly that is available and readily provided to others. Instead, medical decisions are made on the basis of age without regard to the patient's condition." Reasons for this include lack of expertise in or awareness of new treatments available to the elderly and the tendency to underestimate the life expectancy of the elderly. In the context of dental health care, dentists may find it less worthwhile to deal with the dental problems of the elderly, who, it may be rationalized, have few years to live and whose appearance is already far removed from the dental ideal; even the best dental restoration will make little difference in their oral health status (Foley, 1981). Kiyak (1981) reported research on treatment planning styles and dentists' stereotypes about the elderly. Dentists with the most stereotypes were significantly more likely to prefer extractions and dentures to crown and bridge treatment.

Other attitudes about aging and generational differences contribute to a preference for working with younger patients. Society is youth-oriented. Treating older adults may serve as an unpleasant reminder of the fact that given time, the valued attributes of youth will fade. Although the young dentist is not likely to be concerned about death, the midlife practitioners who are coming to

grips with their own aging may find contact with the elderly aversive.

Other factors may contribute to a reluctance to treat the aged. Problems associated with the relatively low economic status of many of the elderly (limiting the cost-effectiveness of the treatment), general health problems, lack of mobility and the attitudes of the elderly about seeking care may also reduce dentist-patient contact. Moreover, the elderly's perception of negative attitudes among health providers may further reduce their willingness to seek care. Shanas (1960) reported that half of the elderly felt that doctors were reluctant to treat them. On the basis of less formal data, Foley (1981) reports:

A young looking grandmother reported that she always told her dentist she was younger than her actual age to ensure greater interest. Another noted that she felt her new dentist (replacing one who had retired) viewed her as an old crock, and that his major interest was how much money could be made from frequently taken X-rays, even though her teeth were exceptionally good.

Stereotypic conceptions of the elderly may not only compromise the quality of care, but also the type of interaction. Rodin and Langer (1980) considered the extent to which negative stereotypes might affect actual interactions involving the elderly. In one study, the effects of expectations of the elderly on the demands that a younger person was willing to make on an older person was investigated. In what was ostensibly a study on interview

methods, older subjects were given easier questions than younger subjects, regardless of their competence level.

In a similar vein, practitioners typically underestimate the ability of patients to understand information about the origins, diagnosis, prognosis, and treatment of their disorders (Taylor, 1986). In dealing with the elderly, health professionals typically rely on the process of "infantilization; i.e., "actions and communications . . . that encourage another to remain or to become less competent and self-sufficient, than [that person] might otherwise be--to act as if [that person] were a young child . . ." (Sharlin & Polansky, 1972). Several anecdotes (cited in Dolinsky & Dolinsky, 1984, p. 151) illustrate this process.

Patients were left in a dental chair after local anesthetic injection. A dental assistant . . . would frequently bring magazines for them to read; however, she provided a popular children's publication for elderly patients because it had large print and was easier for them to read.

Another dentist rarely recommended prosthetic replacements for missing teeth to elderly patients. When an older patient did ask about a definitive treatment plan for the future, the dentist's response was "Don't worry, you'll get along fine." He then proceeded in an authoritarian manner to tell them his plan of care without asking for the patient's input. The consequences of infantilization are profound.

Avorn and Langer (1982) note that infantilization and overly intrusive help in self-care beyond clinical requirements can cause learned helplessness and further disability. Ransen (1978, p. 61) similarly finds that "overcare exists and is probably responsible for a major portion of the general decline commonly exhibited by the institutionalized aged." Jaeger and Simmons (1970, p. 48) aptly summarize the consequences of infantilization:

. . . treating aged patients like small dependent children is to be deplored and opposed. Such treatment is viewed as adding insult to injury, being an offense to one's esteem as an adult, and doing no one any special good. Indeed, it tends to further promote regressive traits themselves, makes for increased dependency, destroys self-reliance, intensifies feelings of helplessness, and mars as well as undermines any remaining sense of strength, power and adult dignity.

The evidence clearly indicates that attitudes toward the elderly have a profound impact on the way in which the dental health profession treats the elderly. Based on the aforementioned studies of Karuza and Firestone, it is intuitively reasonable to expect that the dental profession would endorse medical model assumptions for elderly dental patients. Such a reaction to the elderly on the part of the dental profession (i.e., lowered expectations for the elderly in taking responsibility for their dental health) would certainly have negative implications for dental health

status and care among the elderly.

It would also be interesting to determine whether dentists endorse medical model assumptions to a greater extent for certain groups of elderly. Paralleling the expected differences between elderly group ("new vs. "old") endorsement of medical model assumptions, it is possible to assess whether dentists have a correspondingly greater tendency to endorse medical model assumptions for the "old" elderly than for the "new" elderly. It may be that the "old" elderly exemplify to a greater extent the stereotypical conceptions in imagery of the elderly and, as such, may evoke greater reliance of medical model assumptions for these groups among the dental health profession. This will be explored in the proposed research.

Overview

The focus of this research will be on an examination of the psychological dynamics that determine responsibility for dental health care among the elderly. This analysis will be based on the theoretical framework developed by Brickman et al. (1982) which classifies helping approaches according to their assumptions about the cause of, and solution to, the client's problems.

Consistent with the aforementioned research of Karuza and associates on attribution of responsibility, it is proposed that both the elderly and the dental health professional will endorse a helping orientation based on a medical model; i.e., a dentist/patient relationship that

stresses low responsibility on the part of the elderly for their dental health care. However, it is the medical model, in comparison to the other models of helping, that is particularly problematic in dealing with the elderly (Rabinowitz, Karuza & Zevon, 1986). The danger inherent in a helping relationship based on a medical model orientation is that helpers do not see the recipient as responsible and as such, may socialize that person into a passive role. The medical model also reflects a status differential between recipient and helper. By definition, it is the helper who knows better what is really wrong, and what should be done to make it right. This status differential, while an important source of motivation and satisfaction for the helper, can further diminish the self-esteem and self-concept of the recipient who must now accept a position subservient to the helper in addition to an inability to solve the problem. This is especially insidious since the recipient may lose even the ability to do something they once did well because they have learned the "low responsibility script" that goes with being a subordinate or a dependent (Langer & Benevento, 1978).

This paradox in helping would also be expected in the context of the helping relationship of the dentist and the elderly patient. The beneficial effects for dental health status and psychological well-being among elderly who were induced to have greater control of and responsibility for their oral health have been demonstrated. However, these desired outcomes would be undermined by the endorsement of

the low responsibility helping orientation of the medical model on the part of both the elderly and the dentist.

Research Objectives

My research objectives are as follows: (1) to replicate the Karuza et al. (1986) finding that the elderly prefer to endorse a dental orientation based on medical model assumptions, with a larger and more representative sample in order to enhance the generalizability of the results; (2) to demonstrate differential medical model endorsement between age groups: "new" elderly, "old" elderly and the young; (3) to explore the relationship of model endorsement with self-esteem, dental self-esteem, general responsibility for dental health care and social desirability; (4) to demonstrate that dentists, in their approach to treating the elderly, endorse a medical model orientation; (5) to demonstrate differential medical model endorsement by dentists for different age groups--"new" elderly, "old" elderly and the young; (6) to provide insight into the implications for dental health among the elderly of a helping relationship based on medical model assumptions; (7) to recommend ways in which such a relationship may be modified in order to enhance the dental care of the elderly.

Hypotheses

1. It is hypothesized that age will be correlated to medical model endorsement for dental health care.
2. It is hypothesized that the elderly will endorse the

medical model to a greater extent than the young.

3. It is hypothesized that the "old" elderly will be more likely than the "new" elderly to endorse a medical model orientation.
4. It is hypothesized that the elderly will endorse a medical model orientation for dental health care to a greater extent than the other model orientations (i.e. compensatory, moral or enlightenment).
5. It is hypothesized that dentists will endorse a medical model orientation in their treatment of "new" and "old" elderly patients to a greater extent than the other model orientations (i.e. compensatory, moral or enlightenment).
6. It is hypothesized that dentists will endorse a medical model orientation to a greater extent for the "new" and "old" elderly than the young.
7. It is hypothesized that dentists will endorse a medical model orientation to a greater extent for the "old" elderly than the "new" elderly.

CHAPTER II

Method

Two studies were conducted to explore the attribution of responsibility for dental health care. The first study examined the dental orientation and dental health behavior and attitudes among the elderly. A group of younger cohorts provided a basis for comparison. The second study investigated the dental orientation endorsed by dentists. The responsibility for dental health care attributed to the elderly by the dentists was compared to that for younger cohort groups.

Study 1

Participants.

Both elderly and younger aged subjects participated in this study.

Elderly Participants

A total of 100 men ($n = 33$) and women ($n = 67$) ranging in age from 65 to 84 ($M = 73.14$, $SD = 6.05$) comprised the elderly sample. All were members of one of the following three senior centers: the Herricks Senior Center; the Roslyn Senior Center; or, the Great Neck Senior Center. The directors of the centers gave their permission for this research.

Elderly subjects were categorized as either "new" elderly or "old" elderly. Based on the most recent and simplified distinction of "new" and "old" elderly (Kiyak, in

Giangreggo, 1987), subjects aged 65-74 were classified as "new" elderly while subjects aged 75-84 were classified as "old" elderly. A total of 58 men ($n = 18$) and women ($n = 40$) comprised the "new" elderly subsample ($M = 68.67$, $SD = 2.96$). The "old" elderly subsample consisted of 42 men ($n = 15$) and women ($n = 27$), $M = 79.31$, $SD = 2.99$.

Young Participants. As a basis for comparison, a sample of 100 male ($n = 38$) and female ($n = 62$) Queens College students, ranging in age from 18 to 52 ($M = 28.97$, $SD = 9.75$) served as subjects. Each participant was enrolled in an introductory psychology course in one of the following undergraduate divisions: day, evening or A.C.E. (Adult Continuing Education). It was anticipated that the diversity of the sample, in terms of age and life experience, would be enhanced by including students from all three divisions.

Procedure

The current investigator encountered the elderly during their free time at the senior centers and the college students at the beginning of their psychology classes. All were asked to participate in a study involving attitudes toward their dental health behavior, status as well as feelings about themselves. Participants were advised that the study involves full informed consent, that it does not involve deception and that their participation is anonymous and fully voluntary. The directors of the senior centers, as well as the professors of the courses, gave their

permission to conduct this study.

Participants were assured that there were no "right" or "wrong" answers; only their opinions were important for the study. Subjects were tested in groups, but responded to the questionnaires individually. The investigator personally assisted some of the elderly subjects who had problems understanding the instructions. Large print questionnaires were provided to those elderly subjects that requested it. Approximately 75 percent of the elderly at the senior centers agreed to participate. Of those elderly, about 90 percent completed and returned the survey. All of the undergraduates asked to participate completed the survey.

Measures

The following measures were used for the first study:

Dental Orientation. Dental orientation will be assessed with the Dental Orientation Scale, developed and used by Karuza et al. (1986). Based on the work of Brickman et al. (1982), four orientations in dealing with oral problems are defined. Two of the orientations stress high responsibility of patients for solving or preventing problems, i.e., (I) a self-help orientation reflecting the assumptions of the moral model, and (II) a preventive orientation based on the assumptions of a compensatory model. The other two orientations stress low personal responsibility of patients for solving or preventing problems, i.e., (III) reliance on dentists to supervise and enforce good oral habits, based on the assumptions of the

enlightenment model, and (IV) reliance on dental treatment and technology to "cure" oral problems, reflecting the tenets of the medical model.

The extent to which individuals accept the assumptions underlying each helping model is based on responses to a series of 16 closed-ended statements; i.e., four statements reflecting the assumptions underlying each of the four models. The moral model is represented by statement numbers 1, 5, 9 and 13; the enlightenment by 2, 6, 10 and 14; the compensatory by 3, 7, 11 and 15; and, the medical by 4, 8, 12 and 16. In addition, two other questions assessing, in a general way, the respondents' responsibility toward their dental health behavior were included. All responses are evaluated in terms of a five (5)-point scale indicating the degree of agreement/disagreement with the statements (See Appendix A).

Available psychometric data has thus far addressed only the issue of reliability. Karuza (personal communication, May, 1988) treated the four (4) items representing each of the models as a subscale and reported the following reliability levels (Cronbach's alpha): moral = .62; enlightenment = .79; compensatory = .71; and medical = .80. More recently, the current researcher pilot tested the Dental Orientation Scale with a sample of young and elderly respondents ($N = 40$) in order to determine levels of reliability. The following alphas were generated for each of the model subscales: moral = .45; enlightenment = .51; compensatory = .52; and medical = .63. Overall, the alpha

levels of the Dental Orientation subscales indicated, at best, only a moderate degree of reliability. It is interesting to note that these results were fairly consistent with Karuza et al.'s (1990) recently reported alpha values (ranging from .5 to .7) for the subscales of a general help orientation measure.

General Responsibility. Two items included at the end of the Dental Orientation Scale will assess self-attribution of responsibility in general for dental health care. These items were originally described by Karuza et al. (1986). Attribution of responsibility for the cause of dental problems (Item #17) will be assessed with: "All in all, I feel that if I have dental problems, it is my own personal fault." Attribution of responsibility for the solution to dental problems (Item #18) will be assessed with: "All in all, I feel that it is my responsibility to take care of my teeth and mouth and to make sure that they are in good shape." Consistent with the Dental Orientation Scale, all responses are to be evaluated in terms of a five (5) point scale indicating the degree of agreement or disagreement with the statements.

Self-Esteem. Affective well-being was measured by Rosenberg's (1965) Self-Esteem Scale, a brief 10 item response instrument. Responses were evaluated in terms of a 4 point Likert scale, indicating the degree of agreement/disagreement with each of the statements (See Appendix B).

Dental Self-Esteem. Subjects' personal feelings about

and experience with their oral health status was assessed with four statements. Two positively worded statements (numbers 1, 3) examined how proud subjects were of their teeth and whether they felt that their teeth were in good condition. Two negatively worded statements (numbers 2, 4) addressed the issues of oral dysfunction and self-consciousness about their dental status. Responses were evaluated in terms of a 5-point Likert scale, indicating the degree of agreement/ disagreement with the statements (See Appendix C).

Pilot testing with a sample of elderly and younger subjects ($N = 40$) determined that subjects were able to answer all questions without problems. In addition, reliability testing yielded an $\alpha = .83$.

Social Desirability. A measure of social desirability was included in order to assess: (1) the need on the part of the young and elderly participants to respond in a socially desirable way; and, (2) to evaluate this need in terms of their model endorsement.

A brief, 10-item measure of social desirability developed by Greenwald and Satow (1970) was used (See Appendix D). This scale was created from Marlowe-Crowne and other social desirability items by ranking Likert item-total correlations and then pairing each positively keyed item with a negatively keyed item of corresponding rank. Greenwald and Satow (1970) indicate that as few as two items or as many as 10 of the highest ranked items were as effective of the Marlowe-Crowne Scale in evaluating social

desirability.

The Marlowe-Crowne Scale was initially used in pilot testing of elderly and young people ($N = 40$). However, the 33 item scale was found to be excessive for the elderly. As such, the short version of the social desirability scale was substituted.

Other Measures. Two questionnaires, the Dental Health Behavior Survey (see Appendix E) and the Functional Ability Scale (see Appendix F) were originally included in the research to assess antecedents and consequences of medical model endorsement. However, due to the elimination of the analyses of antecedents and consequences of the medical model, these two scales were subsequently omitted.

Study 2

Participants

The sample consisted of 100 dentists. All were members of the Queens County Dental Society. Dentists ranged in age from 28 to 70 ($M = 45.8$, $SD = 12.11$) and have been in practice from one (1) to 47 years ($M = 19.1$, $SD = 12.48$).

Male dentists ($n = 85$) ranged in age from 30 to 70 ($M = 47.17$, $SD = 12.35$) and have practiced dentistry from three (3) to 47 years ($M = 20.55$, $SD = 12.76$). Female dentists ($n = 15$) ranged in age from 28 to 52 ($M = 38.07$, $SD = 6.86$) and have practiced dentistry from one (1) to 25 years ($M = 10.87$ years, $SD = 6.22$). The relatively high proportion of male dentists (85%) included in the sample was a reflection of the traditional domination of men in the dental health

field, rather than any inadvertant sampling bias.

Dentists also provided estimates of the proportion of young (aged 25 to 55) and elderly (i.e., "new" elderly aged 65 to 74 and "old" elderly aged 75 to 84) treated in their practice. Dentists reported that "new" elderly comprised from 7% to 60% of their practice ($\underline{M} = 22.58\%$, $\underline{SD} = 10.84\%$) and that "old" elderly comprised from 0% to 60% of their practice $\underline{M} = 10.13\%$, $\underline{SD} = 8.02\%$). Younger patients comprised the highest proportion of patients: from 20% to 90% of their practice ($\underline{M} = 66.29\%$, $\underline{SD} = 15.33\%$).

For male dentists, the proportion of "new" elderly ranged from 7% to 55% ($\underline{M} = 22.8\%$, $\underline{SD} = 10.57\%$), and the proportion of "old" elderly ranged from 0% to 60% ($\underline{M} = 10.38\%$, $\underline{SD} = 8.42\%$). For female dentists, the proportion of "new" elderly varied from 10% to 60% ($\underline{M} = 21.33\%$, $\underline{SD} = 12.6\%$) and that for "old" elderly was from 5% to 20% ($\underline{M} = 8.67\%$, $\underline{SD} = 5.16\%$).

Procedure

The study was conducted by the current investigator at a monthly meeting (February, 1989) of the Queens County Dental Society. The investigator was introduced at the meeting by the president of the society as a doctoral student conducting research in psychology. The investigator asked the dentists to participate in an attitude study concerned with the perceived responsibility for dental health care among different age groups. Dentists were advised of the following: that the study was completely

anonymous; that the study did not involve deception; and, that their participation was fully voluntary.

Dentists who agreed to participate were given a questionnaire including self-explanatory instructions and a cover page stating the general purpose of the study. Dentists were asked to return the completed questionnaires at their earliest convenience in the stamped, pre-addressed envelopes provided by the investigator. A total of 300 questionnaires were distributed at the meeting. The first 100 responses received were included in the study.

Measures

The Dental Orientation Scale used in the first study was adapted in order to reflect dentists' attributions of responsibility for dental health care among three target groups: (1) the "new" elderly (aged 65-74); (2) the "old" elderly (aged 75-84); and (3) younger aged people (aged 25-55).

The extent to which dentists endorsed the assumptions underlying each helping model for each target group was determined by a series of 16 statements; i.e., four statements reflecting the assumptions underlying each of the four model. The moral model is represented by statement numbers 1, 5, 9 and 13; the enlightenment model by numbers 2, 6, 10 and 14; the compensatory model by numbers 3, 7, 11 and 15; and, the medical model by numbers 4, 8, 12 and 16. In addition, two other statements assessing, in a general way, the dentists' attitudes and responsibility for dental

health care among the target groups are included. Responses were evaluated in terms of a five (5) point scale indicating the degree of agreement/disagreement with the statement.

The Dental Orientation Scale developed for this study (See Appendix G) was structured such that dentists would read each statement and then sequentially indicate the agreement for each of the target age groups: the young, the "new" elderly and the "old" elderly. This format replaced an earlier version in which dentists responded to the scale independently for each target group. However, pilot testing of this version with a sample of dentists ($N = 30$) attending the New Jersey Dental Convention (June, 1988) found that dentists were antagonistic and bored responding to the same survey repeatedly for the three target groups.

In addition, the Dental Orientation Scale had not previously been used in this context (i.e., with dentists as subjects). As such, the Cronbach test of reliability was computed for the pilot data. The following alphas were found for each of the models: moral = .45; enlightenment = .71; compensatory = .76; and medical = .68.

The following information was also obtained from each dentist: (1) sex; (2) age; (3) years in practice; and, (4) an estimation of what proportion their practice is devoted to treating the elderly.

CHAPTER III

Results

Study 1

The results section consists of: (1) a preliminary analysis of the Dental Orientation Scale and the major research variables and (2) analysis of the research hypotheses and exploratory issues.

Preliminary Analysis of the Dental Orientation Scale

Means and standard deviations were determined for the items and models of the Dental Orientation Scale for the total sample and each of the age groups: young, elderly, "new" elderly and "old" elderly (see Table 1). Subsequent analyses evaluated the Dental Orientation Scale as a measure of attribution of responsibility for dental health care. The generally unimpressive reliability data previously reported for the model subscales (see Method section) warranted further examination of the models. To that end, this study provided the opportunity to examine for the first time the Dental Orientation Scale based on model reliability, model intercorrelations and a factor analyses of scale items assessing the existence of a four model conceptual scheme.

Reliability. The four items corresponding to each model were averaged to create four subscales. Alpha values calculated for each of the subscales were as follows: moral = .31; enlightenment = .41; compensatory = .51; and, medical

Table 1

Means and Standard Deviations of the Items and Models of the Dental Orientation Scale for the Total Sample, Young, Elderly, "New" Elderly and "Old" Elderly

	Total (N = 200)		Young (n = 100)		Elderly (n = 100)		"New" Elderly (n = 58)		"Old" Elderly (n = 42)	
	M	SD	M	SD	M	SD	M	SD	M	SD
<u>Items</u>										
1 (moral)	3.52	1.28	3.39	1.39	3.65	1.16	3.76	1.13	3.50	1.19
2 (enl.)	2.04	1.11	1.89	.92	2.19	1.25	2.09	1.29	2.33	1.20
3 (comp.)	3.61	1.00	3.47	.99	3.74	.99	3.86	1.00	3.57	.97
4 (med.)	3.74	1.03	3.60	1.03	3.88	1.02	3.93	1.11	3.81	.89
5 (moral)	2.34	1.21	2.25	1.06	2.43	1.34	2.22	1.33	2.71	1.33
6 (enl.)	2.90	1.19	2.56	1.01	3.24	1.26	3.24	1.39	3.24	1.08
7 (comp.)	3.22	1.16	2.85	1.07	3.59	1.13	3.47	1.19	3.76	1.03
8 (med.)	2.87	1.18	2.24	.88	3.50	1.11	3.41	1.17	3.62	1.01
9 (moral)	3.88	.82	3.86	.87	3.90	.77	4.09	.60	3.64	.91
10 (enl.)	3.60	.93	3.34	.93	3.85	.86	3.91	.94	3.76	.73
11 (comp.)	4.08	.72	4.10	.69	4.05	.76	4.14	.85	3.93	.60
12 (med.)	3.10	1.16	2.63	1.02	3.56	1.11	3.40	1.08	3.79	1.14
13 (moral)	3.96	.86	3.86	.90	4.06	.80	4.16	.77	3.93	.84
14 (enl.)	4.01	.65	3.92	.60	4.09	.68	4.14	.71	4.02	.64
15 (comp.)	3.84	.81	3.76	.82	3.91	.81	4.10	.79	3.64	.76
16 (med.)	2.54	1.05	2.35	.88	2.73	1.16	2.41	1.16	3.17	1.03
<u>Models</u>										
Moral	3.43	.61	3.34	.62	3.51	.58	3.56	.52	3.45	.66
Enlightenment	3.14	.59	2.93	.53	3.34	.58	3.35	.65	3.34	.49
Compensatory	3.68	.60	3.55	.54	3.82	.62	3.89	.64	3.73	.59
Medical	3.06	.73	2.71	.54	3.42	.72	3.29	.77	3.60	.61

= .56. These values indicate, at best, only a modicum of reliability.

Subsequent analyses considered the elimination of items in order to enhance the reliability of the models. For the moral model, eliminating the second moral item ("To maintain my oral health, I really don't need the help of my dentist") increased the alpha value to .37, which clearly does not represent a significant improvement. For the enlightenment model, eliminating the first enlightenment item ("To maintain my oral health, I need my dentist to stand over my shoulder and make sure I don't fall into bad habits such as not brushing my teeth") raised the alpha level to .49. For the compensatory model, item elimination did not improve the reliability. For the medical model, eliminating the first medical item ("If I don't see my dentist regularly, my teeth are going to get worse") raised the alpha value to .61.

Model Intercorrelations

In addition, correlational and factor analysis of the Dental Orientation Scale based on its use in Study 1 of this dissertation are reported. Correlations between the models were examined (see Table 2) as a subset of a correlation matrix (discussed later) of all of the research variables (age, sex, model endorsement, general responsibility, dental self-esteem and social desirability). A Bonferroni type adjustment was used in consideration of the number of correlations computed. Only correlations less than .0009 ($p < .05/55$ correlations) were considered significant. It is

Table 2

Model Intercorrelations of the Dental Orientation Scale
(Study 1) for the Total Sample and Subsample of Elderly

<u>Models</u>				
	Moral	Enlighten- ment	Compen- satory	Medical
<u>Total Sample (N = 200)</u>				
Moral	--			
Enlightenment	.07	--		
Compensatory	.02	.60*	--	
Medical	-.05	.47*	.40*	--
<u>Elderly Subsample (n = 100)</u>				
Moral	--			
Enlightenment	.07	--		
Compensatory	.08	.65*	--	
Medical	-.15	.51*	.39*	--

*Significant correlations using Bonferroni adjusted probabilities equivalent to $p < .05$.

noteworthy that the compensatory, enlightenment and medical models are significantly intercorrelated for the total sample ($N = 200$) and the sample of elderly respondents ($n = 100$). For the total sample, significant model intercorrelations were as follows: medical and enlightenment, $r = .47$; medical and compensatory, $r = .40$; and, compensatory and enlightenment, $r = .60$. For the elderly subsample, medical and enlightenment, $r = .51$; medical and compensatory, $r = .39$; and, compensatory and enlightenment, $r = .65$. The moral model was not significantly correlated with any of the other models. The magnitude of the model intercorrelations were, however, unexpected, considering the theoretical distinction among the types of models and the extremely low scale reliabilities which attenuate correlations.

Factor Analysis. Two factor analyses sought to confirm the four model conceptual scheme addressed by the Dental Orientation Scale. The factor analyses consisted of: (1) the preparation of the correlation matrix, (2) the extraction of the initial factors; i.e. the exploration of possible data reduction and (3) the rotation to a terminal solution; i.e. the search for simple and interpretable factors.

A correlation matrix of the 16 scale items was prepared (See Table 3). The generally low interitem correlations prompted a principal component analysis, a method of transforming a given set of variables into a new set of composite variables or principal components that are

Table 3

Dental Orientation Scale Item Intercorrelations

<u>Model Statements</u>																
	<u>Moral</u>				<u>Enlightenment</u>				<u>Compensatory</u>				<u>Medical</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<u>Moral</u>																
1 (1)	1.00															
2 (5)	.07	1.00														
3 (9)	.19	.02	1.00													
4 (13)	.12	.04	.24	1.00												
<u>Enl.</u>																
1 (2)	.02	.05	-.03	-.04	1.00											
2 (6)	-.01	-.08	-.03	.02	.10	1.00										
3 (10)	.08	-.18	.19	.45	.02	.22	1.00									
4 (14)	.06	-.22	.15	.22	.08	.22	.39	1.00								
<u>Comp.</u>																
1 (3)	.20	-.11	.04	.20	-.03	.19	.22	.24	1.00							
2 (7)	-.03	.00	.01	.02	.17	.57	.19	.24	.14	1.00						
3 (11)	.01	-.25	.14	.26	-.11	.26	.43	.40	.18	.19	1.00					
4 (15)	-.05	-.25	.05	.09	.14	.30	.24	.47	.21	.29	.35	1.00				
<u>Medical</u>																
1 (4)	.05	-.30	.05	.10	.06	.25	.18	.20	.33	.26	.26	.29	1.00			
2 (8)	.07	-.02	.02	.16	.13	.18	.31	.15	.07	.37	.06	.12	.23	1.00		
3 (12)	-.13	-.06	-.09	.06	.26	.31	.23	.29	.07	.36	.11	.25	.20	.46	1.00	
4 (16)	.01	.10	-.15	-.13	.19	.10	.03	.10	-.04	.16	-.11	.01	-.03	.28	.28	1.00

Note. N = 200. Significant correlations: $r > .18$ ($p = .01$); $r > .14$ and $< .18$ ($p = .05$).

Note. Numbers in parentheses refer to items in the Dental Orientation Scales.

orthogonal (uncorrelated) to each other. No particular assumptions about the underlying structure of the variables is required. Each component is defined as the best linear summary of variance left in the data after the previous components are taken care of. The analysis produced five principal components with eigenvalues greater than one (see Table 4). The percent of total variance explained by each of the principal components was as follows: I = 22.29%; II = 12.48%; III = 9.09%; IV = 7.17%; and, V = 6.42%. The five components accounted for 57.45% of the variance of the original variables. In order to simplify the factor structure, the five principal components were rotated with the widely used VARIMAX method of rotation (see Table 5). Factor loadings greater than .35 were deemed significant at the .01 level.

Factor I, with 13.42% of the variance, was represented by items from each of the four models. Included in this factor were: two compensatory items (#'s 11 and 15, i.e. to improve/maintain oral health, the patient and dentist must work with each other to prevent dental problems); an enlightenment item (#14, i.e. in order to improve oral health, the patient has to follow the dentist's instructions); and a medical item (#4, i.e. without regular dental visits, teeth are going to get worse). A moral item (#5, i.e. to maintain oral health, the dentist's help is not really needed) loaded negatively on that factor. Despite the inconsistency of model items within the factor, it was interpreted as a cooperative partnership between patient

Table 4

Principal Component Analysis of Dental Orientation Scale
(Unrotated Structure)

<u>Factors</u>					
<u>Item</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>
14 (enl)	.66	.15	-.03	.19	.20
10 (enl)	.63	.28	.28	.31	.00
15 (comp)	.62	.05	-.32	.04	.11
7 (comp)	.60	-.39	-.02	-.21	-.45
6 (enl)	.58	-.25	-.17	-.25	-.50
11 (comp)	.57	.41	-.19	.21	-.16
12 (med)	.55	-.50	.08	.23	.09
4 (med)	.54	.08	-.24	-.38	.18
16 (med)	.15	-.59	.25	.07	.27
5 (moral)	-.31	-.23	.55	-.09	-.42
1 (moral)	.07	.25	.49	-.57	.22
3 (comp)	.43	.26	.01	-.52	.14
2 (enl)	.18	-.44	.16	-.07	.34
9 (moral)	.15	.45	.39	.00	-.10
8 (med)	.50	-.37	.37	-.09	.09
13 (moral)	.35	.44	.48	.23	-.09

Note. N = 200.

Note. Each of the factors have eigenvalues > 1.00.

Table 5

Rotated Factor Analysis of Dental Orientation Scale

<u>Item</u>	<u>Factors</u>				
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>
5 (moral)	[-.78]	.07	-.09	.01	.15
15 (comp)	.63	.12	.12	.01	.28
14 (enl)	.55	.23	.41	.03	.12
4 (med)	.53	.07	-.03	.41	.28
11 (comp)	.51	-.21	.47	.08	.27
16 (med)	-.09	[.70]	-.11	-.04	.01
12 (med)	.22	.65	.12	-.19	.32
8 (med)	.02	.63	.27	.05	.24
2 (enl)	.04	.58	-.14	.12	-.01
13 (moral)	.00	-.02	[.78]	.10	-.02
10 (enl)	.30	.17	.71	.01	.13
9 (moral)	-.09	-.16	.54	.23	-.05
1 (moral)	-.17	.05	.19	[.77]	-.11
3 (comp)	.31	-.04	.11	[.63]	.19
6 (enl)	.15	.06	.01	.05	[.84]
7 (comp)	.06	.25	.05	.04	[.83]

Note. N = 200. Loadings > .35 are significant at the .01 level.

instructions); and a medical item (#4, i.e. without regular dental visits, teeth are going to get worse). A moral item (#5, i.e. to maintain oral health, the dentist's help is not really needed) loaded negatively on that factor. Despite the inconsistency of model items within the factor, it was interpreted as a cooperative partnership between patient and dentist. This interpretation would seem to be substantiated by the significant intercorrelations of the medical, enlightenment and compensatory models demonstrated in the previous section. The reliability of this factor was low, however, with an alpha value = .11.

Factor II approximated the medical model. Included in this factor were three (3) medical items (#'s 8, 12, 16, i.e. to improve/maintain oral health, the dentist needs to solve/cure all dental problems and that poor oral health is a natural part of getting old) and an enlightenment item (#2, i.e. to maintain oral health, the dentist must make sure that the patient does not fall into bad habits). This factor was conceptualized in terms of the patient's helplessness and dependence. The reliability of this factor (alpha = .60) was consistent with that found for the medical model in the pilot (alpha = .63) and for the current study (alpha = .56).

The remaining factors were tentatively identified. Factor III was considered in terms of "patient blame," with two (2) moral items (#'s 9, 13; i.e. personal blame for poor oral health status) and an enlightenment item (#10; poor oral health is a result of patients' not doing what their

dentist tells them to do). Factor IV implied patient "self-reliance," with a moral item (#1; i.e., to improve oral health, patients must take care of their mouths by themselves) and a compensatory item (#3; people have poor oral health because they have not been taught how to take care of their mouths). Factor V was interpreted in terms of "patient ignorance" with an enlightenment item (#6) and a compensatory item (#7) indicating that without regular dental visits, patients may slip into bad habits and not know how to prevent dental disease. Due to the small number of items included in Factors III, IV and V, alpha levels were not computed.

A second factor analysis was undertaken to confirm the hypothesized structuring of variables in terms of the expected number of significant factors and factor loadings. The attribution of responsibility theory and research posit that there should be four factors corresponding to each of the models. As such, a forced four (4) factor solution was computed using a principal component analysis (see Table 6). The four principal components were then rotated (See Table 7) with the VARIMAX rotation method. The percent of total variance explained by each of the factors were as follows: Factor I = 15.91; Factor II = 14.63; Factor III = 12.04; and, Factor IV = 8.45. Inspection of Table 6 indicates that four factors corresponding to the models could not be meaningfully identified, as each factor consisted of items from several theoretical models. In addition, many of the items loaded significantly ($p < .01$) on more than one

Table 6

Four Factor Solution of Dental Orientation Scale (Unrotated Structure)

<u>Factors</u>				
<u>Item</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
14 (enl)	.66	.15	-.03	.19
10 (enl)	.63	.28	.28	.31
15 (comp)	.62	.05	-.32	.04
7 (comp)	.60	-.39	-.20	-.21
6 (enl)	.58	-.25	-.17	-.25
11 (comp)	.57	.41	-.19	.21
12 (med)	.55	-.50	.08	.23
4 (med)	.54	.08	-.24	-.38
16 (med)	.15	-.59	.25	.07
5 (moral)	-.31	-.23	.55	-.09
1 (moral)	.07	.25	.49	-.57
3 (comp)	.43	.26	.01	-.52
13 (moral)	.35	.44	.48	.23
8 (med)	.50	-.37	.37	.09
2 (enl)	.19	-.44	.16	-.07
9 (moral)	.15	.45	.39	.00

Table 7

Rotated Four Factor Solution of Dental Orientation Scale

<u>Factors</u>				
<u>Item</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
15 (comp)	.67	.17	.10	.05
5 (moral)	-.64	.20	.06	.08
11 (comp)	.62	-.09	.42	.00
4 (med)	.54	.12	-.03	.44
14 (enl)	.53	.21	.42	.01
6 (enl)	.47	.43	-.10	.28
12 (med)	.26	.71	.10	-.16
8 (med)	.04	.67	.27	.05
16 (med)	-.17	.63	-.08	-.10
7 (comp)	.36	.60	-.05	.25
2 (enl)	-.06	.49	-.09	.05
13 (moral)	.02	-.01	.77	.09
10 (enl)	.33	.20	.70	.00
9 (moral)	-.08	-.15	.54	.23
1 (moral)	-.27	-.02	.24	.70
3 (comp)	.31	.00	.12	.65

Note. N = 200. Loadings > .35 are significant at the .01 level.

factor, rendering interpretation somewhat ambiguous. It is not the objective of the current research to evaluate the meaning of these factors. However, given that the factors do not generally substantiate the existence of the four theoretical models, the results of this study must be viewed with caution.

Preliminary Analysis of the Research Variables

Mean and standard deviations for the other research variables (age, general responsibility, dental self-esteem, self-esteem and social desirability) are presented in Table 8. Pearson product-moment correlations between age, sex, model endorsement, general responsibility, dental self-esteem, self-esteem and social desirability were computed for the total sample (See Table 9) and the elderly subsample (See Table 10). As explained earlier, a Bonferroni type adjustment was used. Only correlations greater than .0009 ($p < .05/55$ correlations) were considered significant.

The Relationship of Age to Medical Model Endorsement

The first three hypotheses examined the relationship of age to medical model endorsement. The significant correlation between age and social desirability ($r = .39$, $p < .05$) for the total sample prompted consideration of the relationship between social desirability and model endorsement. However, since social desirability was not significantly correlated with the models, it was not included as a covariate in the subsequent analyses.

Table 8

Means and Standard Deviations of Age, General Responsibility, Dental Self-Esteem, Self-Esteem and Social Desirability for the Total Sample, Young, Elderly, "New" Elderly and "Old" Elderly

	Total (N = 200)		Young (n = 100)		Elderly (n = 100)		"New" Elderly (n = 58)		"Old" Elderly (n = 42)	
	M	SD	M	SD	M	SD	M	SD	M	SD
<u>Variables</u>										
Age	51.11	23.65	28.97	9.75	73.14	6.05	68.67	2.96	79.31	2.99
General Responsibility ^a	3.46	.98	3.32	4.18	3.60	.91	3.62	.99	3.57	.80
General Responsibility ^b	4.24	.61	1.03	.67	4.29	.54	4.36	.55	4.19	.51
Dental Self-Esteem	2.68	.39	2.70	.37	2.67	2.38	2.74	.43	2.58	.40
Self-Esteem	2.40	.22	2.42	.20	.42	.24	2.34	.26	2.43	.19
Social Desirability	.69	.31	.57	.32	.82	.25	.82	.28	.82	.20

^a Item #17 of the Dental Orientation Scale.

^b Item #18 of the Dental Orientation Scale.

Table 9

Pearson Product Moment Intercorrelations of Variables of the Total Sample (N = 200): Age, Model Endorsement, General Responsibility, Dental Self-Esteem, Self-Esteem and Social Desirability

	Model Endorsement										
	Age	Sex ^a	Moral	Enl.	Comp.	Med.	G.R. ^b	G.R. ^c	D.S.E. ^d	S.E. ^e	S.D. ^f
Age	—										
Sex ^a	.09	—									
Moral	.07	-.11	—								
Enl.	.37°	.14	.06	—							
Comp.	.24°	.03	.02	.60°	—						
Med.	.51°	.11	-.05	.47°	.40°	—					
G.R. ^b	.14	-.29°	.30°	.09	.04	.02	—				
G.R. ^c	.06	-.13	.14	-.04	.15	.04	.20	—			
D.S.E. ^d	-.01	-.13	.15	-.11	.09	-.09	.12	.11	—		
S.E. ^e	-.09	-.11	.16	-.18	-.16	-.19	.04	.02	.24°	—	
S.D. ^f	.39°	.25°	.00	.23	.17	.20	.06	.09	-.02	-.05	—

^{*} Significant correlations using Bonferroni adjusted probabilities equivalent to $p < .05$.

^a positive value = female; negative value = male

^b G.R. = General Responsibility. Item 17 of the Dental Orientation Scale ("All in all, I feel that if I have dental problems, it is my own fault")

^c G.R. = General Responsibility. Item 18 of the Dental Orientation Scale ("All in all, I feel that it is my responsibility to take care of my teeth and mouth and to make sure that they are in good shape")

^d D.S.E. = Dental Self-Esteem.

^e S.E. = Self-Esteem

^f S.D. = Social Desirability

Table 10

Pearson Product Moment Intercorrelations of Variables of the Elderly Subsample (n = 100):
Age, Model Endorsement, General Responsibility, Dental Self-Esteem, Self-Esteem and Social
Desirability

	Model Endorsement										
	Age	Sex ^a	Moral	Enl.	Comp.	Med.	G.R. ^b	G.R. ^c	D.S.E. ^d	S.E. ^e	S.D. ^f
Age	---										
Sex ^a	-.04	---									
Moral	-.22 [*]	.07	---								
Enl.	.06	.06	.07	---							
Comp.	-.02	-.10	.08	.65 [*]	---						
Med.	.27 [*]	.11	-.15	.51 [*]	.40 [*]	---					
G.R. ^b	-.08	-.11	.17	.09	.10	.06	---				
G.R. ^c	-.15	-.07	.30 [*]	.11	.29 [*]	-.08	.20	---			
D.S.E. ^d	-.11	-.12	.17	-.11	.25 [*]	-.12	.09	.13	---		
S.E. ^e	.09	-.12	.29 [*]	-.16	-.13	-.32 [*]	.09	.08	.23 [*]	---	
S.D. ^f	-.05	.34 [*]	.12	.13	.11	.01	.10	.07	.02	-.03	---

^{*} A significant correlation using Bonferroni adjusted probabilities equivalent to $p < .05$.

^a positive value = female; negative value = male

^b G.R. = General Responsibility. Item 17 of the Dental Orientation Scale ("All in all, I feel that if I have dental problems, it is my own fault")

^c G.R. = General Responsibility. Item 18 of the Dental Orientation Scale ("All in all, I feel that it is my responsibility to take care of my teeth and mouth and to make sure that they are in good shape")

^d D.S.E. = Dental Self-Esteem.

^e S.E. = Self-Esteem

^f S.D. = Social Desirability

Age as a Correlate of Medical Model Endorsement.

Hypothesis 1 stated that age will be correlated with medical model endorsement for dental health care. Age, in this context, was conceptualized as a continuous variable. For this analysis, the age of all subjects ($N = 200$) and the subsample of elderly subjects ($n = 100$) was correlated with model endorsements (See Table 11). Consistent with the hypothesis, age was significantly related to medical model endorsement for the total sample ($r = .51, p < .05$) and for the subsample of elderly ($r = .27, p < .05$).

It is noteworthy that for the total sample, age was also significantly correlated with the enlightenment model ($r = .37, p < .05$) and the compensatory model ($r = .24, p < .05$). Age was not significantly correlated with the moral model ($r = .07$). The significant correlations reported for the medical, compensatory and enlightenment models were not surprising given the high intercorrelations of these three models reported earlier.

A subsequent analysis sought to determine whether the correlation of age with the medical model ($r = .51$) was significantly greater than that for either the enlightenment model ($r = .37$) or the compensatory model ($r = .24$). A comparison of the correlations for this sample (see Cohen & Cohen, 1983, pp. 56-57 and Steiger, 1980) did in fact find the correlation of age and medical model endorsement to be significantly greater than that for the enlightenment model, $t(144) = 1.94, p < .05$; for the compensatory model, $t(144) = 3.49, p < .01$; and as expected, for the moral model, t

Table 11

Pearson Product Moment Correlations of Age and Model
Endorsement

<u>Age</u>		
<u>Model</u>	Total Sample (<u>N</u> = 200)	Elderly (<u>n</u> = 100)
Moral	.07	-.22
Enlightenment	.37*	.06
Compensatory	.24*	-.02
Medical	.51*	.27*

*A significant correlation using Bonferroni adjusted probabilities equivalent to $p < .05$.

(144) = 5.18, $p < .01$.

Differential Medical Model Endorsement. Hypotheses 2 and 3 examined medical model endorsement in terms of age as a categorical variable. Specifically, the sample of respondents was categorized in terms of three (3) groups: young, "new" elderly and "old" elderly. Mean model endorsement and standard deviations for the total sample as well as for each of the three groups is presented in Table 12.

A 3X4 MANOVA examined the effects of age category (young, "new" elderly and "old" elderly) with model type (moral, enlightenment, compensatory and medical). Effects were significant for age ($p < .001$), model type ($p < .001$) and age X model type ($p < .001$). These results are presented in Table 13. Contrast analyses based on the MANOVA examined differential medical model endorsement between age groups (See Table 14). Hypothesis 2 stated that the elderly will endorse the medical model to a greater extent than the young. Results confirmed this prediction: $F = 67.80 (1,197)$, $p < .001$. This was also demonstrated for both the "old" elderly, $F = 59.29 (1,197)$, $p < .001$; and the "new" elderly, $F = 31.64 (1,197)$, $p < .001$. Hypothesis 4 stated that the "old" elderly will be more likely than the "new" elderly to endorse the medical model. Results supported this prediction: $F = 5.79 (1,197)$, $p = .017$.

Table 12

Means and Standard Deviations of Model Endorsement by Age Category

<u>Models</u>									
<u>Category</u>	<u>N</u>	<u>Moral</u>		<u>Enlighten- ment</u>		<u>Compen- satory</u>		<u>Medical</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Total Sample	200	3.43	.61	3.14	.59	3.68	.60	3.06	.73
Young	100	3.34	.62	2.93	.53	3.55	.54	2.71	.54
"New" Elderly	58	3.56	.52	3.35	.65	3.89	.64	3.29	.77
"Old" Elderly	42	3.45	.66	3.34	.49	3.73	.59	3.60	.61
Elderly (overall)	100	3.51	.58	3.34	.58	3.82	.62	3.42	.72

Note. The higher the mean value, the greater the endorsement.

Table 13

MANOVA of Age Group with Models

<u>Effect</u>	<u>Test Name</u>	<u>Value</u>	<u>F</u>	<u>df</u>
Age	Wilk's Lambda	.68	10.54*	8,388
	Pillai Trace	.34	9.87*	8,390
Model	Wilk's Lambda	.50	65.67*	3,195
	Pillai Trace	.50	65.67*	3,195
Age X	Wilk's Lambda	.84	6.02*	6,390
Model Type	Pillai Trace	.16	5.79*	6,392

* $p < .01$

Note. Wilk's Lambda and Pillai Trace are reported since the former is traditionally the most commonly used to construct multivariate test statistics while the latter is considered to be the most robust. In all cases, the two agree.

Note. Degrees of freedom for the Pillai Trace are determined as follows: For between subject effects, F has a, b degrees of freedom where $a = pX (K-1)$, where K is the number of groups and p is the number of dependent variables; and $b = S (N-K-p+S)$, where $S = \min(K-1, p)$ and N is the number of cases in the analysis. By substituting values, $a = 4 \times 2 = 8$; and $b = 2(200-3-4+2) = 390$.

Table 14

Univariate Contrast Analyses of Medical Model Endorsement by Groups

<u>Group Comparison</u>	<u>df</u>	<u>MSe</u>	<u>F</u>
	1,197		
Elderly > Young		.40	67.80**
"Old" Elderly > Young		.40	59.29**
"New" Elderly > Young		.40	31.64**
"New" Elderly < "Old" Elderly		.40	5.79*

* $p < .05$. ** $p < .01$.

Note. Arrows indicate direction of greater medical model endorsement.

Preference for Medical Model Endorsement Compared to
Other Models

Hypothesis 4 stated that the elderly will endorse a medical orientation to a greater extent than the other model orientations (i.e. moral, enlightenment and compensatory). Contrast analyses examined differences between the medical model and each of the other models for each of the age groups (See Table 15).

For the elderly overall, results were mixed. The medical model was endorsed significantly more than the enlightenment model ($F = 11.38 (1,197)$, $p = .001$). However, the medical model was endorsed significantly less than either the compensatory model, $F = 23.63 (1,197)$, $p < .001$ or the moral model, $F = 19.21 (1,197)$, $p < .001$.

For the "old" elderly, the medical model was endorsed significantly more than both the moral model, $F = 13.80 (1,197)$, $p < .001$ and the enlightenment model, $F = 11.32 (1,197)$, $p = .001$. However, the compensatory model was endorsed more than the medical model, $F = 24.41 (1,197)$, $p < .001$.

For the "new" elderly, no significant differences between the medical model and each of the other models were demonstrated.

For the young, the medical model was endorsed significantly less than the moral model, $F = 19.21 (1,197)$, $p < .001$; the enlightenment model, $F = 11.38 (1,197)$, $p = .001$; and the compensatory model, $F = 23.63 (1,197)$, $p < .001$.

Table 15

Univariate Contrast Analyses of Medical Model Endorsement
Compared to Endorsement of the Other Models for the Age
Groups

<u>Age Category</u>	<u>df</u>	<u>MSe</u>	<u>F</u>
Young	1,197		
Med. < Moral		.85	19.21**
Med. < Enl.		.45	11.38*
Med. < Comp.		.47	26.63**
"New Elderly"	1,197		
Med. / Moral		.85	.03
Med. / Enl.		.45	.46
Med. / Comp.		.47	1.16
"Old" Elderly	1,197		
Med. > Moral		.85	13.80**
Med. > Enl.		.45	11.32*
Med. < Comp.		.47	24.41**
Elderly (overall)	1,197		
Med. < Moral		.85	19.21**
Med. > Enl.		.45	11.38*
Med. < Comp.		.47	23.63**

* $p < .05$. ** $p < .01$.

Note. $N = 200$.

Note. Arrows indicate direction of greater endorsement.

Exploratory Research

Affective Correlates of Model Endorsement

Two types of affect, self-esteem and dental self-esteem, were examined in terms of their relationship to model endorsement. For the total sample, neither measure of affect was correlated with model endorsement. However, for the subsample of elderly, self-esteem was significantly correlated with the moral model endorsement ($r = .29$, $p < .05$) and dental self-esteem was significantly correlated with the compensatory model ($r = .25$, $p < .05$).

The relationship of self-esteem and dental self-esteem was also evaluated. These two measures of affect were significantly correlated for both the total sample ($r = .24$, $p < .05$) and for the subsample of elderly ($r = .23$, $p < .05$).

General Responsibility

Two items assessed responsibility in general for dental health care. The first item assessed self-attribution of cause of dental problems (i.e. "All in all, I feel that if I have dental problems, it is my own personal fault"). The second item assessed self-attribution of solution to dental problems (i.e. "All in all, I feel that if I have dental problems, it is my responsibility to take care of my teeth and mouth and to make sure they are in good shape"). These two items were examined in terms of their correlation with model endorsement and measures of affect.

Model Endorsement. Self-attribution of cause for the

total sample was significantly and appropriately correlated with the moral model ($r = .30$, $p < .05$) which stresses high responsibility for dental problems. This item was not significantly correlated with either the enlightenment, compensatory or medical models ($r_s = .09$, $.04$ and $.02$, respectively). For the subsample of elderly, this item was not significantly correlated with any of the models.

Self-attribution for solutions to dental problems was not significantly correlated with any of the models for the total sample. For the subsample of elderly, this item was appropriately and significantly correlated with the moral model ($r = .30$) and compensatory model ($r = .29$); two models that stress high responsibility for solutions to problems. This item was not significantly correlated with either the enlightenment or compensatory models for the subsample of elderly.

Affect. General responsibility items were not significantly correlated with either self-esteem or dental self-esteem for either the total sample or the subsample of elderly.

Social Desirability

This measure was examined in terms of its relationship to model endorsement. Social desirability was not found to be correlated with any of the models for either the total sample or the subsample of elderly.

Social desirability was, however, significantly correlated with age for the total sample ($r = .39$, $p < .05$)

and being female, both for the total sample ($r = .25$, $p < .05$) and the subsample of elderly ($r = .34$, $p < .05$).

Study 2

Preliminary Analysis

Dental Orientation Scale

Model reliability was also determined for the Dental Orientation Scale as used in this study. Cronbach's coefficient alphas computed for each of the models yielded the following: medical = .79; enlightenment = .75; compensatory = .72; and, moral = .74. Model intercorrelations for each of the response categories (young, "new" elderly and "old" elderly) were determined for the Dental Orientation Scale (see Table 16). Model intercorrelations were run simultaneously for each response category. Once again, a Bonferroni type adjustment was made. Only correlations less than .008 ($p < .05/6$ correlations) were considered significant. The compensatory, medical and enlightenment models were significantly intercorrelated ($p < .05$) for the "new" elderly response category as follows: medical and enlightenment, $r = .32$; medical and compensatory, $r = .29$; and, compensatory and enlightenment, $r = .51$. For the "old" elderly response category, only the compensatory and enlightenment models are significantly correlated ($r = .28$). For the "young" response category, the enlightenment, compensatory and medical models were significantly

Table 16

Pearson Product Moment Correlation Matrix of Model
Endorsement for Age Groups with Subject Variables: Age of
Dentist, Years in Practice and Proportion of Elderly
Patients

<u>Model Endorsement</u>	<u>Subject Variables</u>		
	<u>Age</u>	<u>Years in Practice</u>	<u>Proportion of Elderly Patients</u>
<u>Moral</u>			
Young	-.03	-.03	.07
"New" Elderly	.09	.08	.12
"Old" Elderly	.18	.17	.12
Elderly	.14	.13	.12
<u>Enlightenment</u>			
Young	.08	.07	.06
"New" Elderly	.02	.01	-.01
"Old" Elderly	-.02	-.04	.06
Elderly	.00	.02	.03
<u>Compensatory</u>			
Young	.01	.00	.01
"New" Elderly	-.01	-.02	.06
"Old" Elderly	.08	.08	.06
Elderly	.04	.03	.06
<u>Medical</u>			
Young	.18	.17	.19
"New" Elderly	.23	.24	.14
"Old" Elderly	.20	.20	.06
Elderly	.23	.23	.10

Note. N = 100.

Note. None of the correlations are significant.

intercorrelated as follows: medical and enlightenment, $r = .33$; medical and compensatory, $r = .22$; and, compensatory and enlightenment, $r = .54$. For all response categories, the moral model was not correlated with any of the other models.

Control Variables

A Pearson correlation examined the relationship between control variables (i.e., age of dentist, years in practice and the estimated proportion of elderly patients in the practice) and model endorsement for each of the age categories (young, "new" elderly, "old" elderly, and elderly overall). Sex of the dentist was not included as a control variable due to the disparity in sample size of male dentists ($n = 85$) and female dentists ($n = 15$). The correlation matrix is presented in Table 17. No significant correlations were found. As such, these control variables were not introduced as covariates into the subsequent analyses.

The hypotheses of this study examined model endorsement for each of three response categories: young, "new" elderly and "old" elderly. In contrast to that for Study 1, this was a repeated measures, within subjects design, with respondents providing model endorsement for each of the three age categories.

Mean model endorsement for each of the age categories are presented in Table 18. A 3X4 MANOVA examined the effects of age group as a response category (young, "new" elderly and "old" elderly) and model endorsement (moral,

Table 17

Model Intercorrelations of the Dental Orientation Scale
(Study 2) for Each of the Response Categories

<u>Models</u>				
	Moral	Enlighten- ment	Compen- satory	Medical
<u>Young</u>				
Moral	--			
Enlightenment	.11	--		
Compensatory	.06	.54*	--	
Medical	-.17	.33*	.22*	--
<u>"New" Elderly</u>				
Moral	--			
Enlightenment	.11	--		
Compensatory	.15	.51*	--	
Medical	-.04	.32*	.29*	--
<u>"Old" Elderly</u>				
Moral	--			
Enlightenment	.11	--		
Compensatory	-.08	.28*	--	
Medical	-.21	.24	.16	--

*A significant correlation using Bonferroni adjusted probabilities equivalent to $p < .05$.

Table 18

Means and Standard Deviations of Model Endorsement for Young, "New" Elderly and "Old"
Elderly Response Categories

<u>Age Category</u>	<u>Models</u>							
	<u>Moral</u>		<u>Enlighten-</u>		<u>Compen-</u>		<u>Medical</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Young	3.16	.62	3.47	.66	3.58	.68	2.74	.60
"New" Elderly	2.77	.69	3.60	.59	3.74	.57	3.21	.74
"Old" Elderly	2.64	.72	3.68	.71	3.86	.61	3.44	.90

Note. N = 100 dentists.

enlightenment, compensatory and medical). Effects were significant for age category ($p < .001$), models ($p < .001$) and age X models ($p < .001$). This is presented in Table 19.

Hypothesis 5 stated that dentists will endorse a medical model orientation in their treatment of "new" and "old" elderly patients to a greater extent than each of the other model orientations (i.e. compensatory, moral or enlightenment). Contrast analyses based on the MANOVA compared medical model endorsement to endorsement of each of the other models for each age (response) category (see Table 20). Results provided only limited support for the hypothesis. For the "new" elderly response category, medical model endorsement was significantly less than that for either the enlightenment model, $F = 23.14 (1,99)$, $p < .001$; or the compensatory model, $F = 43.64 (1,99)$, $p < .001$; but significantly more than that for the moral model, $F = 17.91 (1,99)$, $p < .001$. For the "old" elderly response category, medical model endorsement was again significantly less than that for the compensatory model, $F = 14.18 (1,99)$, $p < .001$ and the enlightenment model, $F = 5.59 (1,99)$, $p < .05$; but significantly greater than that for the moral model, $F = 39.09 (1,99)$, $p < .001$. As a basis of comparison, medical model endorsement for the young response category was significantly less than that for the compensatory model, $F = 91.97 (1,99)$, $p < .001$; the enlightenment model, $F = 81.78 (1,99)$, $p < .001$; and, the moral model, $F = 22.14 (1,99)$, $p < .001$.

Hypotheses 6 and 7 examined differential medical model

Table 19

MANOVA of Age Group Response Categories with Model Endorsement by Dentists

<u>Effect</u>	<u>Test Name</u>	<u>Value</u>	<u>F</u>	<u>df</u>
Models	Wilk's Lambda	.35	60.70**	.3.97
	Pillai Trace	.65	60.70**	3.97
Age Group	Wilk's Lambda	.86	8.12**	2.98
	Pillai Trace	.14	8.12**	2.98
Models X	Wilk's Lambda	.56	12.52**	6.94
Age Group	Pillai Trace	.44	12.52**	6.94

** $p < .01$.

Note. Wilk's Lambda and Pillai Trace are reported since the former is traditionally the most commonly used to construct multivariate test statistics while the latter is considered to be the most robust.

Table 20

Univariate Contrast Analyses of Endorsement of the Medical Model Compared to Endorsement of the Other Models for Each Age Response Category

<u>Age Categories</u>	<u>df</u>	<u>MSe</u>	<u>F</u>
<u>Young</u>	1,99		
Med. < Comp.		10.25	91.97*
Med. < Enl.		8.46	81.78*
Med. < Moral		10.43	22.14*
<u>"New" Elderly</u>	1,99		
Med. < Comp.		10.39	43.64*
Med. < Enl.		10.25	23.14*
Med. > Moral		17.29	17.91*
<u>"Old" Elderly</u>	1,99		
Med. < Comp.		32.59	14.18*
Med. < Enl.		16.48	5.59*
Med. > Moral		26.03	39.09*

* $p < .01$.

Note. N = 100 dentists.

Note. Arrows denote direction of comparative endorsement.

endorsement in response to each of the age categories. Contrast analyses compared medical model endorsement for the age groups (see Table 21).

Hypothesis 6 stated that dentists will endorse a medical model orientation to a greater extent for the "new" and "old" elderly than the young age category. This result was confirmed. In comparison to the young, the medical model was endorsed to a significantly greater extent for the "new" elderly, $F = 55.36 (1,99), p < .001$; and, for the "old" elderly, $F = 65.39 (1,99), p < .001$.

Hypothesis 7 stated that dentists will endorse a medical model orientation for the "old" elderly to a greater extent than the "new" elderly. This prediction was supported, $F = 24.06 (1,99), p < .001$.

Table 21

Univariate Contrast Analyses of Medical Model Endorsement
for Each of the Age Categories

<u>Age Categories</u>	<u>df</u>	<u>MSe</u>	<u>F</u>
	1,99		
Young < "New" Elderly		.40	55.36*
Young < "Old" Elderly		.76	65.39*
"New" Elderly < "Old" Elderly		.23	24.06*

* $p < .01$.

Note. N = 100 dentists.

Note. Arrows denote comparative medical model endorsement.

CHAPTER IV

Discussion

The primary objective of this research was to examine the attribution of responsibility for dental health behavior on the part of the elderly. Two studies were conducted in order to elaborate the dual perspectives of attribution in the dental health care relationship. The first study sought to determine the attribution of responsibility held by the elderly for their dental health behavior. The second study sought to determine the attribution of responsibility for dental care by the elderly held by dentists. The studies attempted to provide a framework for understanding the implications of a helping relationship based on a medical model orientation.

Study 1Preliminary Analyses

On a theoretical level, the attribution of responsibility models has provided an important conceptual framework for understanding dental health behavior and attitudes among the elderly. However, the Dental Orientation Scale, as initially used by Karuza et al. (1986) had not been adequately evaluated as a measure of attribution of responsibility. Their analysis of this scale was limited to the determination of model (subscale) reliability. Given the status of the alpha levels reported

for the Karuza et al. (1986) study and for the pilot study of this research (see Methods section), there existed a compelling need to further explore the nature and relationship of the model subscales and their correspondence to the theoretical assumptions of the models. Though not a major research objective, the current study has sought to expand the analysis of the Dental Orientation Scale beyond the scope of model reliability.

Reliability. The alpha values reported for the models point to obvious limitations in their internal consistency. Even with the elimination of certain items, the reliability scores did not improve appreciably. The four model theoretical framework obviously underscores the need to have four internally consistent models. Future research should certainly consider such issues as analysis, interpretation and the number of items in order to increase the reliability of the models.

Model Intercorrelations. The medical, enlightenment and compensatory models were significantly intercorrelated. However, the moral model was not significantly correlated with any of the other models. These results were reported for both the total sample and the subsample of elderly. While a moderate relationship would be expected between the models due to shared assumptions of high and low responsibility for cause of and solution to dental problems, the significantly high intercorrelations of the medical, enlightenment and compensatory models warrant attention. Despite their theoretical differences, these three models

share a common theme of dentist/patient interaction. Each of these models assume, despite differences in the nature of the interaction and role of the participants, that professional help is needed. In contrast, the moral model posits a "self-help" approach in which the essential agent of change is the individual with the problem.

The high intercorrelations of the medical, enlightenment and compensatory models may reflect the respondents' willingness to accept dental health care, despite the type of interaction implied by each of these models. Thus, their perceived need for dental health care is translated into an endorsement of those models that are based in general on help provided by a dental health professional. Succinctly stated: The participants of this study are willing to accept all available help for their dental health care, regardless of their perceived responsibility for the cause of or solution to their dental problems.

It may also be possible to speculate an alternative explanation for the high model intercorrelations. The items themselves, though apparently representative of the models, may have been worded or expressed ambiguously. The items may not have been worded carefully enough to distinguish the unique characteristics of the models. Perhaps the high model intercorrelations indicate that the items were perceived similarly despite their intended difference in meaning. In fact, in re-examining the items of the Dental Orientation Scale, the enlightenment and compensatory items

would appear to be highly similar in content, as both locate the patient and dentist in a cooperative partnership to solve the patient's problem. Obviously research is needed to assess the accuracy of the respondents' understanding of the items in terms of their stated responsibility assumptions.

Factor Analyses. Two factor analyses sought to assess the validity of the four model conceptual scheme introduced by Brickman et al. (1982) and adapted by Karuza et al. (1986) to examine attribution of responsibility for dental health. The existence of the four models was not confirmed. These rather disappointing results were, however, mitigated by the results of the first factor analysis which provided a potentially "new and improved" way of conceptualizing the models. The medical model, as presented in the Dental Orientation Scale, emerged as a factor (Factor II) with three of the four medical model items included. Considering the importance of the medical model for the current research, this result was indeed gratifying.

The other factors that emerged did not correspond to the other models as originally presented. However, their interpretation generated further insight into the development of models of attribution.

The first factor, which consisted of positive loadings on medical, compensatory and enlightenment items and a negative loading on a moral item was evaluated in terms of a cooperative partnership with the dentist. Despite the diversity of model representation, these items collectively

demonstrated a type of dentist/patient relationship in which both the patient and the dentist work as a team, by collaborating their efforts for dental health care. The patient and the dentist are both viewed as responsible for dental health care. The negative loading on the moral item further supports the idea that it is not independence from the dentist, but rather a cooperative relationship that determines dental care. Extremely low reliability for this factor (.11) suggests that this post hoc explanation for this construct is only suggestive.

The third factor, consisting of positive loadings on moral and enlightenment items, was indicative of personal blame or guilt for one's oral health status. The onus of responsibility for dental health care was on the patient rather than the dentist. From this perspective, patients are thought to perceive themselves as ultimately responsible for their oral health care and status. Parenthetically, two other factors were also tentatively identified (i.e. "self-reliance" and "patient ignorance") but, with only two items included in each, the case for these factors was not as compelling as that for the aforementioned factors.

Though speculative at this time, it might be interesting and worthwhile to consider these three factors as the basis for examining attribution of responsibility for dental health care. Perhaps in the narrowly defined area of dental health care, responsibility may be effectively examined in terms of a medical model orientation, a cooperative partnership orientation (corresponding to the

enlightenment and compensatory models) and a personal responsibility orientation (corresponding to the moral model).

Before any reformulations of the models take place, however, attention must be directed at evaluating the items of the Dental Orientation Scale in terms of their identification with the models. Items may need to be revised in order to unambiguously reflect the underlying assumptions of the models. With greater clarity and understanding of the items, research may successfully demonstrate the existence of the four models.

Implications of the Preliminary Analyses

Taken together, the results of the preliminary analyses (i.e. reliability, model intercorrelations and factor analyses) provide a less than favorable evaluation of the Dental Orientation Scale as a measure of attribution of responsibility. The limitations demonstrated for model reliability and validity have obvious implications for the interpretation of the results of the current study. The results will necessarily be viewed as less than firm, given the current status of the scales and the models in this research.

Research Hypotheses

The hypotheses of the study addressed the following issues: (1) the relationship between age and medical model endorsement and (2) the preference for the medical model

compared to other models.

Medical Model Endorsement. It was hypothesized that increasing age would be directly related to medical model endorsement. Age was conceptualized for this study as both a continuous and categorical variable.

As a continuous variable, age was found to be significantly correlated with medical model endorsement, thus providing support for the prediction that medical model endorsement and age are directly related. That age was also significantly correlated with the enlightenment and compensatory models was explained in terms of the significant intercorrelations reported for the medical, enlightenment and compensatory models. However, the fact that the correlation between age and medical model endorsement was found to be significantly greater than that for either the enlightenment or compensatory model provided greater support for the hypothesized relationship between age and medical model endorsement.

Medical model endorsement was also examined in terms of age as a categorical variable. As anticipated, the elderly (including both the "new" and "old" elderly) endorsed the medical model to a significantly greater extent than the younger comparison group. Stated succinctly, of all respondents endorsing the medical model, the elderly respondents demonstrated greater preference for this model than the younger respondents. In comparing medical model endorsement between "new" and "old" elderly subsamples, it was expected that the "old" elderly would be more likely

than the "new" elderly to endorse a medical model orientation. Results confirmed this prediction; of those elderly endorsing the medical model, the "old" elderly preferred the medical model to a greater extent than the "new" elderly.

Age, as both a continuous and categorical variable, was related to medical model endorsement. These results were consistent with the previous research on helping and coping strategies. Gleason et al. (1981) found that elderly respondents endorsed medical model assumptions more often than young respondents. More recently, Karuza et al. (1990) found that the elderly, compared to the young, significantly preferred the medical model.

In the context of dental health care, greater medical model endorsement may be explained in terms of the prevailing negative stereotypic conceptions of the elderly as weak, helpless and incompetent. Internalizing this view, the elderly may ultimately reject personal responsibility for dental health care, especially if declining or dysfunctional oral health status is seen as a necessary concomitant of aging. The underutilization of dental health services as well as the negative attitudes toward dental health care provides support for the view that the elderly eschew feelings of personal responsibility for their dental health care.

As expected, the "old" elderly were more likely to endorse the medical model than the "new" elderly. It is not clear from the research whether the differential medical

model endorsement observed for these two groups is an age or cohort effect. The research presented in the introduction strongly suggests the importance of considering a cohort effect, especially in the context of dental health care. The "old" elderly demonstrated their greater willingness to accept the medical model compared to the "new" elderly, presumably due to the "old" elderly's initial exposure to an archaic era of dentistry. By the time advances in dentistry had been made, the "old" elderly were likely to have suffered declines in their oral and dental health status and unfortunately, taking responsibility for their dentate status was never a meaningful part of their behavioral repertoire. In contrast, the "new" elderly experienced, first hand, advances in dental technology and care. The newer generation of elderly were encouraged to take care of their teeth and were provided with the opportunity to do so. To determine whether the observed differences in medical model endorsement are due to age or cohort, future research should consider an assessment of the elderly respondents' experience with dental care.

Differential Model Endorsement. Endorsement of the medical model was compared to endorsement of the compensatory, enlightenment and moral models. The expectation that the elderly would prefer the medical model compared to the other models received only limited support. For the elderly, the medical model was endorsed more than the enlightenment model but less than both the compensatory and moral models. Greater endorsement of the compensatory

and moral models was essentially unexpected considering their implicit assumptions about responsibility for dental health care.

A somewhat different picture emerged, however, when differential model endorsement of the elderly subsamples were examined. For the "new" elderly, endorsement of the medical model was not found to be significantly different than endorsement of the other models. For the "old" elderly, the medical model was endorsed significantly more than both the moral and enlightenment models, but significantly less than the compensatory model.

Differential model endorsements were also examined for the young group as a basis for comparison. As might be expected, the medical model was endorsed significantly less than any of the other model orientations.

Interpretation of differential model endorsement is only suggestive, as the results of the reliability and factor analyses do not provide construct validity for the models. It is not necessarily valid to compare endorsement of the medical model to that of the other models without confirmation that the dental orientation models do in fact exist. While there is preliminary support for the medical and moral models, the compensatory and enlightenment models remain unsubstantiated as distinct orientations in the context of attribution of responsibility for dental health care.

It might be more appropriate, considering the status of the models, to explain the diminished preference of the

medical model relative to the other models demonstrated in this study to that reported in the previous research. Karuza and associates (Gleason et al., 1981; Karuza et al., 1986; Karuza et al., 1990; and Zevon et al., 1981) consistently found preference for the medical model among the elderly. Preference for the medical model in the context of dental health care (Karuza et al., 1986) was found for a small sample ($N = 26$) of elderly women recruited from a senior center and from a skilled nursing facility. The specific characteristics of the sample (i.e. age range or the proportion of elderly recruited from the nursing facility) are not known, thus limiting the generalizability of their results.

The sample of the current study was comprised totally of community based elderly who were members of senior centers located in middle-class suburban neighborhoods. The only subject variables included were age and sex; thus it is not known how representative this sample is to the general population of elderly in terms of such important variables as income, education, marital status, experience with and attitudes toward dental health care, intellectual and cognitive capabilities, activity level and, perhaps most importantly, physical and psychological well-being. The demonstrated preference of the elderly in this study for models that stress personal responsibility for oral health care may be more indicative of elderly who are motivated to seek out social interaction, community involvement and activity through their participation in a senior center than

those that do not. Medical model endorsement might be more indicative of those elderly that tend to stay at home or reside in geriatric facilities.

The elderly's stated preference of the compensatory and moral models over the medical model might also be indicative of their generation's willingness to accept greater personal responsibility for their dental health care. A recent National Health Survey (U.S. Department of Health and Human Services, 1988) noted, between 1983 and 1986, a 29% increase in visits by those 65 and older. According to the survey, older adults currently make more visits per year on average than those in the "all ages combined" category. This recently documented increase in dental visits indicates that the elderly age group should be considered when assessing dental care demand or utilization on a population basis.

A just-published report (Meskin, Dillenberg, Heft, Katz and Martens, 1990) substantiates this finding. A total of 747 general dental practitioners in five states (Arizona, Colorado, Connecticut, Florida and Minnesota) responded to a questionnaire in 1988 by completing a detailed productivity report of patient services performed during a specified period. The results indicated that stereotypes of older adults as underutilizers of dental care are incorrect; i.e. the elderly make up a substantial portion of regular patients and that their utilization of dental services should increase throughout 1990.

It would seem that the image of the elderly presented in the introduction is fast becoming outdated. The elderly,

despite their preference for the medical model compared to younger respondents, nevertheless prefer models that stress high responsibility for dental health care (i.e., the compensatory and moral models) over the low responsibility orientation of the medical model.

An alternative explanation may also account for the unexpected reluctance to endorse the medical model compared to that of the compensatory and moral models among the elderly. The study was conducted by the current investigator, who is approximately half the age of the elderly respondents. Given the significant correlation between age and social desirability, it is possible to suggest that the elderly wanted to appear to the relatively young investigator as responsible, competent and committed to their dental health care. Preference for the medical model, though accurate, might cast the elderly in a negative light (i.e. as incompetent, dysfunctional, helpless) in the presence of a young experimenter. Their stated preference for models that stress responsibility for oral care may be their way of avoiding potential embarrassment and humiliation and maintaining their dignity. Future research should assess the effects of including an elderly "investigator." Perhaps relating to a peer might mitigate the elderly's face-saving efforts.

Exploratory Issues

Affective Correlates of Model Endorsement. Model endorsement was examined in terms of self-esteem and dental

self-esteem. While these two measures of affect were different from those used in the previous research of Karuza and associates, it was nevertheless expected that positive affect would be related to models that stress responsibility for oral health care and the negative affect would be related to models that stress low responsibility for dental health care. For the total sample, model endorsement was not correlated with affect. However, for the subsample of elderly, enhanced self-esteem was related to moral model endorsement, a model that stresses high responsibility for dental health care. The demonstrated relationship between self-esteem and responsibility for dental health care is consistent with the previous research of Kiyak and associates (Kiyak, 1980; Kiyak & Mulligan, 1985; Price & Kiyak, 1981). Their work cogently demonstrated the self-esteem enhancing effects among the elderly of interventions designed to increase personal control over their oral health care. Obviously, the cause and effect relationship demonstrated by Kiyak and associates cannot be extrapolated to the correlational results of this study; however, it suggests a way of explaining the nature of the relationship between moral model endorsement and self-esteem. Though speculative, it is possible to suggest that a responsible attitude toward oral health care might result in favorable oral and dentate status, which subsequently might stimulate a positive self-evaluation (cf. Berkey et al., 1985). The obverse causal sequence may also be considered: A favorable self-image might motivate the elderly to forestall age-

related deficits by taking a responsible attitude toward their dental health care to insure functional and aesthetically appealing dentition.

It is noteworthy that the two measures of affect, self-esteem and dental self-esteem, were significantly correlated. It underscores the importance of introducing the concept of dental self-esteem as an integral part of the individual's self-concept. It strongly suggests that consideration be given to dental self-esteem in evaluating the psychological well-being of the elderly. It is also possible to suggest that the significant positive correlations between these two measures may reflect a consistent response pattern for that testing period. Perhaps if these two measures were presented at different times, the correlation would not be evident.

General Responsibility. Two statements assessing, in general, the self-attribution of responsibility for cause of and solution to dental problems were examined in terms of their correlation to model endorsement and measures of affect. Consistent with the research of Karuza and associates (e.g. Karuza et al., 1990) self-attribution of cause was, as would be expected, correlated with moral model endorsement (for the total sample) while self-attribution for solution was predictably correlated for the sample of elderly respondents with the moral and compensatory models, which stress responsibility for oral health care.

The reported correlations of self-attribution of responsibility for dental health care with model endorsement

suggest that self-attributions of responsibility be used as a measure of concurrent validity of the models (cf. Karuza, 1990). This analysis must begin with the development of separate scales assessing responsibility for cause of and solution to dental health problems. Multiple regression analyses including the responsibility-attribution scales as the criteria and the four models of helping and coping scales as predictors might help clarify our understanding of the meaning of the dental orientation models.

Social Desirability. It was expected that social desirability would have an impact on model endorsement, especially as it relates to the compensatory model. Contrary to expectations, social desirability was not directly related to the models. However, social desirability was significantly related to age. This suggests that as people get older, they become more self-conscious of the way they appear to others. Perhaps a better way, then, of evaluating the effects of social desirability in the context of geriatric dental health might be in terms of actual oral health status, rather than model endorsement, per se. Presumably, social desirability might be related to favorable oral and/or dentate status which, in turn, might be related to endorsement of models that stress personal responsibility for oral health care (i.e. compensatory or medical models).

Study 2

Preliminary Analyses

The analyses of the Dental Orientation Scale, as used

in this study, present a somewhat more favorable view of this instrument. The alpha values of the four (4) model subscales, ranging from .74 to .79, indicate a moderate degree of model reliability.

Significant model intercorrelations were demonstrated for each of the response categories (i.e. young, "new" elderly and "old" elderly). For the young and "new" elderly categories, the enlightenment, compensatory and medical models were highly intercorrelated. It is noteworthy that the highest of the model correlations for these two groups and the only significant model correlation observed for the "old" elderly group was that for the compensatory and enlightenment models. This strongly suggests that: (1) Dentists were unable to make a distinction between compensatory and enlightenment model items. Obviously, some consideration must be given to the development of items that are clear and unambiguous representations of the models. (2) Dentists may attribute responsibility for dental care in terms of a cooperative interaction between patient and dentist, as exemplified by both the enlightenment and compensatory models. It is obviously too premature to draw any firm conclusions. More work must be done to insure that the items accurately reflect the tenets of their respective models.

The second study assessed the perceived attribution of responsibility for dental health care toward young and old on the part of the dentists. As in the first study, the following general issues were addressed: (1) medical model

endorsement in terms of age, category and (2) differential model endorsement.

Interpretation of Results. As in the first study, interpretation of these results is rife with difficulty. The Dental Orientation Scale, as used in this study, has no "track record;" i.e., in order to assess attribution of responsibility for dentists, the Dental Orientation Scale used in the first study was adapted for use in the second study. However, the inherent limitations of the Dental Orientation Scale, as identified previously, diminishes the impact of the results. Interpretation must be regarded as tentative and with caution until confirmation of the four model conceptual schema is presented.

Medical Model Endorsement. It was hypothesized that in response to the age categories, medical model endorsement would be greater for the "new" and "old" elderly than for the young. Results confirmed this hypothesis; dentists endorsed the medical model significantly more for the elderly age categories than for the young age category. Differences in medical model endorsement were also examined for the elderly age categories. As predicted, medical model endorsement was found to be significantly greater for the "old" elderly than for the "new" elderly. This suggests that the medical model, though not the most endorsed, is more salient or appropriate for the perceived attribution of responsibility for the elderly compared to the young, and for the "old" elderly compared to the "new" elderly. Dentists may endorse the medical model to a greater extent

to the elderly, perhaps because of the tenacity and pervasiveness of the negative stereotypic conceptions of the elderly as incompetent and dependent.

Differential Model Endorsement. The expectation that the dentists would endorse the medical model in their treatment of elderly patients to a greater extent than the other model orientations (i.e., compensatory, moral or enlightenment) was not confirmed. In their response to "new" and "old" elderly age categories, dentists preferred both the compensatory and enlightenment models to the medical model; only the moral model was endorsed significantly less than the medical model. In response to the "young" age category, the medical model was endorsed significantly less than any of the other models.

The reported preference of the enlightenment model over the medical model was not that surprising considering its low responsibility orientation for oral health care. However, the most unexpected and noteworthy finding of this study was the demonstrated preference for the compensatory model compared to the medical model. Some explanations have been offered to account for this result.

It certainly is reasonable to suggest that compensatory model endorsement may be indicative of the dental community's recent enlightened views on geriatric dentistry. (Gilbert, 1989). The importance of geriatric dentistry has been communicated to dental practitioners through professional journals, conferences and post graduate courses and seminars. Dentists are now more aware of their

responsibility to: (1) provide effective and appropriate treatment to the elderly; (2) educate the elderly as to the beneficial effects (both physical and psychological) of favorable oral health status; (3) encourage the elderly to control the "destiny" of their oral health status by practicing necessary dental behaviors; and (4) treat the elderly, not in terms of negative attitudes or stereotypes, but with dignity. Dentists may be more amenable to perceiving the elderly as responsible for their dental health care than previously realized.

An alternative explanation for these results suggests that dentists endorsed the compensatory model for the elderly over the medical model because it was more "socially desirable" to do so. Dentists may be reticent to indicate their preference for a medical model orientation since it casts the elderly in a negative light. Despite their actual view of the elderly in terms of their responsibility for dental health care, dentists may feel more comfortable endorsing an orientation that is more consistent with a dental ideal than a dental reality.

It is also possible to suggest that the preference for a compensatory model endorsement for the elderly over other models may be an artifact of the sampling. The sample consisted of dentists attending a monthly dental society meeting. Perhaps dentists that are motivated enough to attend these meetings (including lectures, guest speakers and an interchange of ideas) are more likely than dentists who simply pay their dues (and not attend meetings) to be

interested in and aware of the current trends, developments and advances in dentistry. As such, the dentists of the current sample may be particularly cognizant of the need to view the elderly as responsible rather than helpless, incompetent and dependent. Future research should consider including a wider range of dentists (for example, those that attend professional meetings as well as those that do not) in order to enhance the generalizability of the study.

An additional explanation may also account for the endorsement of the compensatory model for the elderly. The Dental Orientation Scale developed for this study was structured such that dentists would read each statement and then sequentially indicate their agreement for each of the target age groups: the young, the "new" elderly and the "old" elderly. It may be that dentists, in their preference for the compensatory model for the young target group, may have developed a response set for preferring the compensatory model for the elderly. To obviate this difficulty, future research should, at the very least, consider presenting the response categories in such a way that development of a response set can be avoided. Perhaps the most efficient way to accomplish this would be to have separate samples of dentists responding to each age category separately.

Implications for the Dentist/Patient Relationship

Endorsement of models that stress responsibility for oral health care by both the elderly and dentists, though

unexpected, is gratifying. It suggests that the elderly are not viewed by either themselves or dentists as responsible for the cause of their oral health status. Whatever the reason for the current condition of their teeth (e.g., growing up in an era when dentistry was not seen as important as it is today), the elderly are not held responsible for the cause of their dental condition, but are considered responsible for the solution to their dental problems. In the dental health context, responsibility implies a sense of control over the inexorable decline over their oral health.

The view of the elderly as a responsible agent in their dental health care is incongruous with the image of the elderly that emerges from the literature review presented in the introduction. Accordingly, the elderly as a group are characterized as resistant to taking responsibility for their dental care. Their low utilization rates are indicative of a number of impediments to dental health care. Obviously, practical considerations such as cost of dental care and lack of mobility deter the elderly from seeking dental care. Attitudinal factors (e.g., lack of perceived need or importance of dental health care; the belief that dental health declines with age; and, that the deterioration of oral health status is inevitable), especially among the "old" elderly are impediments to seeking dental health care.

Dentists were also characterized in a negative light in the introduction. Their response to the dental needs of the elderly was compromised by their stereotypic view of the

elderly as helpless and incompetent. Such a view would certainly not be consistent with a compensatory model endorsement. Perhaps the demonstrated preference for this model among the dentists and the elderly underscores their recently heightened awareness of the need and importance of appropriate dental care for the elderly. Moreover, dentists and the elderly are not immune to the changing perceptions and role of the elderly in society. It is no longer acceptable to stigmatize the elderly by treating them in terms of negative attitudes and stereotypes. The elderly are to be viewed in terms of their functional status rather than their presumed debilitated status. The image of elderly as dysfunctional individuals who are waiting to die has been shattered by such groups as the Gray Panthers who view the elderly as capable of taking control of their lives. The revitalization of the elderly spirit may be translated to a wide variety of functional areas, one of which may be the responsibility for dental health care.

Helper/Client "Matching". It is also especially significant that both the elderly and the dentists attribute responsibility for dental health care in terms of the compensatory model. "Given the effect of attributions about responsibility on the helping process, an important factor on the success of intervention is the proper matching of the helping models preferred by helper and clients" (Karuza et al., 1982, p. 122). It is beneficial that the elderly and dentists both endorse the same model. Inconsistencies in helping models between client and helper may negative affect

the interaction: "If the helping model of the client does not mesh with that of the helper, a great deal of time and effort in the intervention may revolve around the resolution of this strain, thus detracting from the energy available to work on the original problem" (Karuza et al., 1982, p. 123). It would appear that the shared preference for the compensatory model between the elderly and the dentist may enable them to circumvent the aforementioned relational difficulties and instead focus on the actual objective of their interaction; i.e., the enhancement of the oral health status of the elderly.

A "Paradox" in Helping. The implications of mutual endorsement of models that stress responsibility for oral care by both the elderly and the dentists is different than that for mutual medical model endorsement. As indicated in the introduction, the helping implied by the medical model represents a "paradox" in treating the elderly; i.e., preference for the medical model despite the greater adaptive effectiveness of other models (Karuza et al., 1982). Such a "paradox" would not be anticipated based on this research. However, consideration should be given to the relationship between enhanced medical model endorsement with age. Though not the model of choice, preference for the medical model was greatest for the elderly (especially the "old" elderly) among the respondents (the elderly of Study 1 and the dentists of Study 2) choosing the medical model. As such, there may be a greater susceptibility to developing a dentist/patient relationship based on medical

model assumptions in treating the elderly.

Directions for Future Research

The current research represents an initial step into the systematic analysis of the attribution of responsibility of the elderly in the context of the dentist/patient relationship. Despite the problems of the Dental Orientation Scale, attribution of responsibility remains a viable topic of study in the context of dental health care among the elderly. Attribution of responsibility needs to be examined from the dual perspectives of the dentist and the patient. Understanding responsibility in terms of the parameters of the dental health care relationship may provide insight into the dental health care behavior of the elderly.

However, the "first order of business" must be the development of a valid and reliable measure of dental orientation that is consistent with the theoretical framework provided by Brickman et al. (1982). In addition, consideration must be given to examining the correlates of model endorsement. Self-attribution of responsibility was examined in this study, but in a limited way (i.e., with only one item assessing self-attribution of responsibility for cause and one item assessing self-attribution of responsibility for solution to problems). A scale of self-attribution of responsibility must be developed (cf. Karuza et al., 1990) in order to help validate the Dental Orientation Scale. Future research might also want to

examine the implications of model endorsement for actual oral/dentate status and the practice of dental health behaviors.

APPENDIX A

Dental Orientation Scale

THE FOLLOWING STATEMENTS CONCERN ISSUES IN DENTAL HEALTH. PLEASE CIRCLE THE NUMBER NEXT TO EACH OF THE STATEMENTS THAT BEST APPLIES TO HOW YOU FEEL.

- 1 = strong disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

	<u>strongly</u> <u>disagree</u>	<u>disagree</u>	<u>neutral</u>	<u>agree</u>	<u>strongly</u> <u>agree</u>
1. In order to improve my oral health, I must take care of my mouth by myself.	1	2	3	4	5
2. To maintain my oral health, I need my dentist to stand over my shoulder and make sure I don't fall into bad habits (such as not brushing my teeth)	1	2	3	4	5
3. I believe that people have poor oral health because they have not been taught how to take care of their mouths	1	2	3	4	5
4. If I don't see my dentist regularly, my teeth are going to get worse.	1	2	3	4	5

	<u>strongly</u> <u>disagree</u>	<u>disagree</u>	<u>neutral</u>	<u>agree</u>	<u>strongly</u> <u>agree</u>
5. To maintain my oral health, I really don't need the help of my dentist.	1	2	3	4	5
6. If I don't see my dentist regularly, I'm likely to slip into bad habits when it comes to maintaining my dental health	1	2	3	4	5
7. If I don't see my dentist regularly, I won't know how to prevent dental disease	1	2	3	4	5
8. In order to improve my oral health, I must rely on a dentist to cure all my dental problems	1	2	3	4	5
9. If I don't see my dentist regularly, I will have no one to blame but myself for dental problems	1	2	3	4	5
10. I believe that people have poor oral health because they do not do what their dentist tells them to do.	1	2	3	4	5
11. In order to improve my oral health, I must work with my dentist so that I can prevent dental problems	1	2	3	4	5
12. To maintain my oral health, I need my dentist to solve my dental problems for me	1	2	3	4	5

	<u>strongly</u> <u>disagree</u>	<u>disagree</u>	<u>neutral</u>	<u>agree</u>	<u>strongly</u> <u>agree</u>
13. I believe that people have poor oral health because they do not take care of their mouths	1	2	3	4	5
14. In order to improve my oral health, I have to follow the instructions of my dentist	1	2	3	4	5
15. To maintain my oral health, my dentist has to work with me so that I can stop dental problems before they happen	1	2	3	4	5
16. I believe that people have poor oral health because it is a normal part of getting old	1	2	3	4	5
17. All in all, I feel that if I have dental problems it is my own personal fault	1	2	3	4	5
18. All in all, I feel that it is my responsibility to take care of teeth and mouth and to make sure that they are in good shape	1	2	3	4	5

APPENDIX B

Self Esteem Scale

THE FOLLOWING STATEMENTS CONCERN YOUR PERSONAL FEELINGS ABOUT YOURSELF. CIRCLE THE NUMBER NEXT TO EACH STATEMENT THAT BEST INDICATES YOUR FEELINGS.

1 = strongly disagree
2 = disagree
3 = agree
4 = strongly agree

	<u>strongly disagree</u>	<u>disagree</u>	<u>agree</u>	<u>strongly agree</u>
1. On the whole, I am satisfied with myself	1	2	3	4
2. At times I think I am no good at all	1	2	3	4
3. I feel that I have a number of good qualities	1	2	3	4
4. I am able to do things as well as most other people	1	2	3	4
5. I feel I do not have much to be proud of	1	2	3	4

	<u>strongly disagree</u>	<u>disagree</u>	<u>agree</u>	<u>strongly agree</u>
6. I certainly feel useless at times	1	2	3	4
7. I feel that I am a person of worth, at least on an equal plane with others	1	2	3	4
8. I wish I could have more respect for myself	1	2	3	4
9. All in all, I am inclined to think that I am a failure	1	2	3	4
10. I take a positive attitude toward myself	1	2	3	4

APPENDIX C

Dental Self Esteem

THE STATEMENTS BELOW CONCERN YOUR FEELINGS ABOUT THE CONDITION OF YOUR TEETH. CIRCLE THE NUMBER NEXT TO EACH STATEMENT THAT BEST INDICATES YOUR FEELINGS.

- 1 = strong disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

	<u>strongly</u> <u>disagree</u>	<u>disagree</u>	<u>neutral</u>	<u>agree</u>	<u>strongly</u> <u>agree</u>
1. I am basically proud of my teeth	1	2	3	4	5
2. The condition of my teeth prevents me from doing simple things like smiling or chewing	1	2	3	4	5
3. In comparison to people my age, my teeth are in good condition	1	2	3	4	5
4. I am self-conscious about my teeth in social situations or interactions	1	2	3	4	5

APPENDIX D

Social Desirability Scale

THE FOLLOWING STATEMENTS CONCERN PERSONAL ATTITUDES THAT YOU MAY OR MAY NOT HAVE AT ONE TIME OR ANOTHER. INDICATE WHETHER THE STATEMENT IS TRUE (T) OR FALSE (F) AS IT PERTAINS TO YOU PERSONALLY.

1. No matter who I am talking to, I am always a good listener _____
2. I have sometimes taken unfair advantage of another person _____
3. I am always courteous, even to people who are disagreeable _____
4. I sometimes try to get even rather than try to forgive and forget _____
5. I am quick to admit making a mistake _____
6. I sometimes feel resentful when I don't get my way _____
7. I'm always willing to admit when I've made a mistake _____
8. There have been occasions when I took advantage of someone _____
9. I would never think of letting someone else be punished for my wrongdoings _____
10. At times I have wished that something bad would happen to someone I disliked _____

APPENDIX E

Dental Health Behavior

The practice of dental health behaviors that are critical for the maintenance of favorable oral health status and the prevention of oral disease and dysfunction was assessed with a series of questions. These questions were developed on the basis of recommendations by the American Dental Association for oral health care, treatment and prevention of disease (Guide to Dental Health, 1988).

The first three questions examined the recency, the frequency and the primary reason(s) for visiting the dentist.

The last set of questions focused on the actual practice of dental health behaviors. Subjects with natural teeth were asked to indicate on a seven (7) point continuum, ranging from never to an optimum standard, the extent to which they practiced the following dental behaviors: brushing, flossing, rinsing, massaging their gums and visiting their dentist for an exam and cleaning. Subjects with full or partial dentures assessed the degree to which they practiced the following dental behaviors: removing their dentures while sleeping, rinsing their mouth after removing their dentures, brushing their dentures, soaking and cleaning their dentures and having their gums and dentures examined by a dentist. In addition, subjects were asked to indicate whether they thought that their practice of a particular dental health behavior was enough.

Pilot testing with a sample of elderly and younger cohort groups ($N = 40$) indicated the usefulness of these questions in determining the practice of dental health behaviors. Participants were able to subjectively evaluate their dental health behavior.

The Dental Health Behavior Survey was subsequently considered as a possible measure of validity of the models and the general responsibility statements. Presumably, the practice of dental health behaviors should be related to: (1) endorsement of models that stress high responsibility for dental health care (i.e. moral and compensatory models) and (2) self-attribution of general responsibility for dental care. However, problems in the analysis of the Dental Health Behavior Survey precluded its application as a measure of validity. The measure was not consistent for all subjects; rather, respondents answered different sets of survey questions depending on their dentate status (i.e. only natural teeth, completely edentulous with false teeth or natural teeth with partial dentures). It would thus be impossible to determine a unitary dental health behavior "score" for all subjects. Separate analyses for each of the groups (based on their dentate status) would also be problematic. It would be difficult to eliminate the effects of age; the edentulous and partially edentulous group are primarily comprised of elderly respondents. In contrast, the "natural teeth" group are comprised mostly of younger respondents.

Dental Health Behavior Survey

THE FOLLOWING QUESTIONS CONCERN YOUR DENTAL HEALTH BEHAVIOR.

1. When was the last time you visited the dentist? (choose one)
 - a. Six months ago or less
 - b. A year ago
 - c. Two years ago
 - d. Three or four years ago
 - e. Five years ago or more
2. About how often do you visit the dentist? (choose one)
 - a. Every six months to a year
 - b. Every year to two years
 - c. Every three to four years
 - d. Every five years or more
3. If you do visit the dentist, is it primarily for
 - a. preventive health care and treatment of dental problems, or
 - b. treatment of dental emergencies, such as pain, a broken tooth, cap or denture, or a cracked filling
4. For each dental behavior listed below, circle the dot that best indicates how often, if at all, you practice these activities. Use the end points to guide your choice.

IF YOU HAVE NATURAL TEETH, ANSWER THE FOLLOWING:

BRUSHING YOUR TEETH

never three times a day

Do you think this is enough? yes/no (circle one)

FLOSSING YOUR TEETH

never three times a day

Do you think this is enough? yes/no (circle one)

RINSING YOUR MOUTH WITH WARM SALT WATER

never two times a day

Do you think this is enough? yes/no (circle one)

MASSAGING YOUR GUMS

never one time a day

Do you think this is enough? yes/no (circle one)

VISITING YOUR DENTIST FOR AN EXAM AND CLEANING

never six months

Do you think this is enough? yes/no (circle one)

IF YOU HAVE FULL OR PARTIAL DENTURES, ANSWER THE FOLLOWING:

REMOVING YOUR DENTURES WHEN YOU SLEEP

never every night

Do you think this is enough? yes/no (circle one)

RINSING YOUR MOUTH WITH WARM SALT WATER AFTER REMOVING YOUR DENTURES

never every night

Do you think this is enough? yes/no (circle one)

BRUSHING YOUR DENTURES

never three times a day

Do you think this is enough? yes/no (circle one)

SOAKING AND CLEANING YOUR DENTURES

never every night

Do you think this is enough? yes/no (circle one)

HAVING YOUR GUMS AND DENTURES EXAMINED BY A DENTIST

never every year

Do you think this is enough? yes/no (circle one)

APPENDIX F

Functional Ability

The Multi Level Assessment Instrument (MAI) is designed to systematically assess behavioral competence in the domains of health, activities of daily living, cognition, time use and social interaction of the elderly (Lawton, Moss, Fulcomer & Kleban, 1982). For this research, the Activity Subscale of the MAI will be used in order to assess functional ability of the elderly. For this 16 item subscale, subjects were asked to indicate how often in the past year they have participated in a variety of activities (e.g., attending a religious service, or senior citizen group, going to the movies, theater or sporting event, playing card games or bingo, painting or playing a musical instrument, working on a hobby, eating in a restaurant, babysitting for children, visiting friends and going out of town). The degree of involvement in these activities reflects the functional ability of these elderly respondents

CHOOSE THE NUMBER THAT BEST INDICATES HOW OFTEN YOU PARTICIPATE IN THE FOLLOWING ACTIVITIES.

1	2	3	4	5	6	7
•	•	•	•	•	•	•
NEVER			SOMETIMES			VERY OFTEN

In the past year, how often have you

1. gone to a senior center or attended a senior citizens group? _____
2. attended a church or synagogue service? _____

3. gone to meetings of a church group or other groups
or clubs? _____
4. gone to the movies, theaters, concerts or
lectures? _____
5. gone to a sporting event? _____
6. participated in a sport like swimming, fishing,
bicycling, hunting or golf? _____
7. played cards, bingo, pool or some other game? . _____
8. taken care of house plants or done any outdoor
gardening? _____
9. worked on a hobby or handiwork like sewing,
knitting or woodworking? _____
10. painted pictures or played a musical instrument? _____
11. eaten out in a restaurant for a special occasion
with friends or relatives? _____
12. babysat for grandchildren or other children? . . _____
13. visited a friend or relative out-of-town for
overnight or longer? _____
14. gone out-of-town for a vacation? _____
15. had a visit from a friend or relative who lives
more than 100 miles away? _____
16. done volunteer work? _____

APPENDIX G

Dental Orientation Scale

PLEASE INDICATE YOUR RESPONSE IN TERMS OF THE FOLLOWING:

RESPONSE CATEGORIES

- 1 = strong disagree
 - 2 = disagree
 - 3 = neutral
 - 4 = agree
 - 5 = strongly agree
-

1. In order to improve their oral health, people in this age group must take care of their mouths by themselves.
 - a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
2. In order to maintain their oral health, people in this age group need their dentist to stand over their shoulder and make sure they do not fall into bad habits (such as not brushing their teeth).
 - a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
3. I believe that people in this age group have poor oral health because they have not been taught how to take care of their mouths.
 - a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
4. If people in this age group do not see their dentist regularly, their teeth are going to get worse.
 - a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____

5. People in this age group really do not need the help of their dentist to maintain their oral health.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
6. If people in this age group do not see their dentist regularly, they are likely to slip into bad habits when it comes to maintaining their dental health.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
7. If people in this age group do not see their dentist regularly, they will not know how to prevent dental disease.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
8. In order to improve their oral health, people in this age group must rely on a dentist to cure all of their oral problems.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
9. People in this age group will have no one to blame but themselves for dental problems if they do not see their dentist regularly.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____

10. I believe that people in this age group have poor oral health because they do not do what their dentist tells them to.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
11. In order to improve their oral health, people in this age group must work with their dentist in order to prevent dental problems.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
12. In order to maintain their oral health, people in this age group need their dentist to solve their dental problems for them.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
13. I believe that people in this age group have poor oral health because they do not take care of their mouths.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
14. In order to improve their oral health, people in this age group have to follow the instructions of their dentist.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____

15. Dentists have to work with people in this age group so they can maintain their oral health and stop dental problems before they happen.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
16. I believe that people in this age group have poor oral health because it is a natural part of the aging process.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
17. All in all, I feel that if people in this age group have dental problems, it is their own personal fault.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____
18. All in all, I feel that it is the responsibility of the people in this age group to take care of their teeth and mouth and make sure they are in good shape.
- a. people aged 25-45 _____
 - b. people aged 65-74 _____
 - c. people aged 75-84 _____

In addition, please estimate the percentage of people in each of the following groups that you typically treat:

people aged 25-45 _____ %

people aged 65-74 _____ %

people aged 75-84 _____ %

REFERENCES

- Abella, R. & Heslin, R. (1984). Health, locus of control, values and the behavior of family and friends. An integrated approach to understanding preventive health behavior. Basic and Applied Social Psychology, 5, 283-293.
- American Dental Association. (1978). Utilization of Dental Services by the Elderly Population. Bureau of Economic Research and Statistics. Chicago, American Dental Association.
- Anatasi, A. (1968). Psychological Testing 3rd Ed., Macmillan: Canada.
- Andersen, R. M. & Newman, J. F. (1973). Societal and individual determinants of medical care utilization in the U.S. Milbank Memorial Fund Quarterly, 51, 96-124.
- Antczak, A. A. & Branch, L. D. (1985). Perceived barriers to the use of dental services by the elderly. Gerodontology, 1, (4), 194-198.
- Arling, G., Harkins, E. B. & Capitman, J. A. (1986). Institutionalization and personal control. Research on Aging, 8, 38-56.
- Averill, J. R. (1973). Personal control over aversive stimuli and its relationship to stress. Psychological Bulletin, 80, 286-303.
- Avorn, J. & Langer, E. (1982). Induced disability in nursing home patients: A controlled trial. Journal of the American Geriatric Society, 30, 397.
- Bandura, A., Adams, N. E., Hardy, A. B. & Howells, G. N. (1980). Tests of the generality of self efficacy theory. Cognitive Therapy and Research, 4, 39-66.
- Bagramian, R. A. & Heller, R. A. (1977). Dental health assessments of a population of nursing home residents. Journal of Gerontology, 32, 168-174.
- Banting, D. W. (1971). Dental care for the aged. Canadian Journal of Public Health, 62, 503-504.
- Banziger, G. & Drevenstedt, J. (1984). Age as a variable in achievement attributions: The Weiner model and beyond. Basic and Applied Social Psychology, 5, 97-104.

- Barofsky, I. (1978). Compliance, adherence and the therapeutic alliance: Steps in the development of self-care. Social Science and Medicine, 12, 369-376.
- Baum, B. J. (1981). Current research on aging and oral health. Special Care, 1, 105-109.
- Beck, J. (1981). Iowa survey of dental health: Utilization behavior. Journal of Dental Res., 60, 617.
- Beck, J. D., Ettinger, R. L., Glenn, R. E., Paule, C. L. & Holtzman, J. M. (1979). Oral health status: Impact on dental students' attitudes toward the aged. Gerontologist, 19, 580-585.
- Bennet, R. & Eckman, J. (1973). Attitudes toward aging: A critical examination of recent literature and implications for future research. In C. Eisdorfer & M. P. Lawton (Eds.) The Psychology of Adult Development and Aging. Washington, D.C.: American Psychological Association.
- Berkey, D. B., Call, R. L. & Loupe, M. J. (1985). Oral health perceptions and self-esteem in non-institutionalized older adults. Gerodontology, 1, 213-216.
- Bhaskar, S. N. (1968). Oral lesions in the aged population. Geriatrics, 127-139.
- Brickman, P., Rabinowitz, V. C., Karuza, J., Jr., Coates, D., Cohn, E. & Kidder, L. (1982). Models of helping and coping. American Psychologist, 37, 368-384.
- Brock, A. M. (1985). Communicating with the elderly patient. Special Care in Dentistry, 5, 157-159.
- Brody, D. S. (1980). The patient's role in clinical decision making. Annals of Internal Decision Making, 93, 718-722.
- Butler, R. (1970). Myths and realities of clinical geriatrics. Image and Commentary, 12, 26-29.
- Cameron, R. (1988). The clinical implementation of behavior change techniques: A cognitively oriented conceptualization of therapeutic "compliance" and "resistance". In J. P. Forey & D. P. Renthjen (Eds.) Cognitive Behavior Therapy: Research and Application. New York: Plenum.
- Cassileth, B. R., Zupkis, R. V., Sutton-Smith, K. & March, V. (1980). Information and participation preferences among cancer patients. Annals of Internal Medicine, 92, 832-836.

- Chamberlain, B. B. & Chamberlain, K. R. (1985). Depression: A psychologic consideration in complete denture prosthodontics. Journal of Prosthetic Dentistry, 53, 673-675.
- Collette-Pratt, C. (1976). Attitudinal predictors of devaluation in old age in a multigenerational sample. Journal of Gerontology, 31, 193-197.
- Cohen, J. & Cohen, P. (1983). Applied Multiple Regression/Correlation for the Social Sciences, New Jersey: Erlbaum Associates.
- Crandall, R. (1973). The measurement of self-esteem and related constructs. In J. P. Robinson & P. R. Shaver (Eds.) Measures of Social Psychological Attitudes. Michigan: University of Michigan Press.
- Cyrus-Lutz, C. & Gaitz, C. M. (1972). Psychiatrists' attitudes toward aging and the aged. Gerontologist, 132, 163-167.
- Davis, R. H. (1976). Aging: Prospects and Issues. In R. H. Davis (Ed.) Aging: Prospects and Issues (pp. 1-15). Calif.: Univ. of Southern California Press.
- Dental Health (1987). Special Issue, Journal of the American Dental Association, 47-49.
- Diehnelt, D. & Kiyak, H. A. (1984). Predictors of oral health behaviors among elderly Japanese Americans. Special Care in Dentistry.
- Dolinsky, E. & Dolinsky, H. (1984). Infantilization of elderly patients by health care providers, Special Care, 4, 150-154.
- Empey, G., Kiyak, H. A. & Milgrom, P. (1983). Oral health in nursing homes. Special Care in Dentistry, 3, 65-67.
- Ettinger, R. & Beck, J. (1982). The new elderly: What can the dental profession expect? Special Care in Dentistry, 2, 62-69.
- Ettinger, R. & Beck, J. D. (1984). Geriatric dental curriculum and the needs of the elderly. Special Care, 4, 207-213.
- Foley, J. M. (1981). Can dentists find happiness working with elderly patients? Negative attitudes and possibilities for change. Special Care, 1, 197-203.
- Gambert, S. (1983). Aging - An Overview. Special Care, 3, 146-151.

- Giangreggo, E. (1987). Dentistry and the older adult. Journal of the American Dental Association, 114, 298-307.
- Gift, H. C. (1979). The seventh age of man: Oral health and the elderly. Journal of the American College of Dentistry, 40, 204-213.
- Gilberg, G. H. (1989). "Ageism" in dental care delivery. Journal of the American Dental Association, 118, 545-547.
- Gilmore, S. S. & Kiyak, H. A. (1985). Predictors of dental health behaviors among the elderly. Special Care in Dentistry, 169-173.
- Gleason, T., Karuza, J., Jr. & Zevon, M. A. (1981, November). Personal Responsibility in Coping. Paper presented at the meeting of the Gerontological Society, Toronto.
- Greenwald, H. J. & Satow, Y. (1970). A short social desirability scale. Psychological Reports, 27, 134-135.
- Gron, P. (1981). Preventive dental health programs for the elderly: Rationale and preliminary findings. Special Care, 129-135.
- Guide to Dental Health (1988). Special Issue, Journal of the American Dental Association.
- Haug, M. (1979). Doctor patient relationships in the older patient. Journal of Gerontology, 34, 852-860.
- Hunter, K. I., Linn, M. W. & Harris, R. (1981). Characteristics of high and low self-esteem in the elderly. International Journal of Aging and Human Development, 14, 117-126.
- Jaeger, D. & Simmons, L. (1970). The Aged Ill. New York: Appleton/Century/Crofts.
- Janis, I. L. & Rodin, J. (1979). Attribution, control and decision making: Social psychology and health care. In G. C. Stone, F. Cohen & N. E. Adler (Eds.) Health Psychology: A Handbook. San Francisco: Jossey-Bess.
- Karuza, J., Jr. & Firestone, I. J. (1979a, September). Choice of helping strategies: Effects of recipient age and intimacy. In J. D. Fisher (Chair). Factors Affecting Helping. Symposium presented at the meeting of the American Psychological Association, New York.
- Karuza, J., Jr. & Firestone, I. J. (1979b, November). Preferred Ways of Helping Across Generations. Paper presented at the meeting of the Gerontological Society, Washington, D.C.

- Karuza, J., Miller, W. A. & Thines, T. (1985, November). Oral health impact on quality of life: Methodological and conceptual concerns. In W. A. Miller (Chair), Does Oral Health Influence Quality of Life. A symposium, Gerontological Society of America, New Orleans.
- Karuza, J., Miller, W. A., Thines, T. & Nikov, A. (1986, August). Psychological Antecedents of Oral Status in Elderly Adults. Paper presented at the American Psychological Association, Washington, D.C.
- Karuza, J., Zevon, M. A., Gleason, T. A., Karuza, C. M. & Nash, L. (1990). Models of Helping and Coping, Responsibility Attributions, and Well-Being in Community Elderly and Their Helpers. Psychology and Aging, 5 (2), 194-208.
- Karuza, J., Zevon, M. A. & Rabinowitz, V. (1980, September). The Dangers of Helping: Implications for Community Psychology. Paper presented at the meeting of the American Psychological Association, Montreal.
- Karuza, J., Jr., Zevon, M.A., Rabinowitz, V. C. & Brickman, P. (1982). Attribution of responsibility of helpers and recipients. In T. A. Wills (Ed.) Basic Processes in Helping Relationships. New York: Academic Press.
- Kerlinger, F. & Pedhazur, E. (1973). Multiple Regression in Behavioral Research. New York: Holt, Rinehart & Winston.
- Kiyak, H. A. (1980). Clinical Test: Preventive Dentistry for the Elderly. Grant No. R 23 DE05235, Final report submitted to NIDR.
- Kiyak, H. A. (1981). Psychological factors in dental needs of the elderly. Special Care in Dentistry, 1, 22-30.
- Kiyak, H. A. (1985). Predicting Older Persons' Use of Dental Services. Paper presented at meeting of the AADR, Las Vegas.
- Kiyak, H. A., Crinean, J., Stockinger, S. (1985, November). Older Persons' Use of Dental Services Compared to Other Health Services. Paper presented at meetings of the Gerontological Society of America.
- Kiyak, H. A. & Miller, R. R. (1982). Age differences in oral health attitudes and dental service utilization. Journal of Public Health Dentistry, 42, 29-40.
- Kiyak, H. A. & Mulligan, K. (1985, November). Studies of the relationship between oral health and psychological well-being. In W. A. Miller (Chair), Does Oral Health Influence Quality of Life. Symposium presented at the Gerontological Society of America, New Orleans.

- Kiyak, H. A. & Mulligan, K. (1986). Final Project Report: Self-monitoring to Improve Oral Health of Depressed Aged. Grant No. R 03 DE07290.
- Lachman, M. E. (1986). Locus of control in aging research: A case for multidimensional and domain specific assessment. Psychology and Aging, 1, 34-40.
- Langer, E. & Benevento, A. (1978). Self-induced dependence. Journal of Personality and Social Psychology, 36, 866-893.
- Langer, E. J. & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. Journal of Personality and Social Psychology, 34, 191-198.
- Lawton, M. P., Moss, M., Fulcomer, M., & Kleban, M. H. (1982). A research and service oriented Multilevel Assessment In Instrument. Journal of Gerontology, 37, 91-99.
- LeShan, E. (1990, June 30). "Where is My Tooth Fairy?" Newsday, Part II, 5.
- Leventhal, E. A. (1984). Aging and the perception of illness. Research on Aging, 6, 119-135.
- Mandel, I. (1983). Preventive dentistry for the elderly. Special Care, 3, 157-163.
- Manderson, R. D. & Ettinger, R. L. (1975). Dental status of the institutionalized elderly population of Edinburgh. Community Dentistry and Oral Epidemiology, 3, 100-107.
- Manne, S. & Mehre, R. (1983). Accuracy of perceived treatment needs among geriatric denture wearers. Gerodontology, 2 (2).
- Marinelli, R. D., Sreebny, L. M. & Kamen, S. (1982). Special Care in Dentistry, 2 (4), July-August.
- Matarazzo, J. D. (1982). Behavioral health's challenge to academic, scientific and professional psychology. American Psychologist, 37, 1-14.
- Meichenbaum, D. & Genest, M. (1980). Cognitive behavior modification: An integration of cognitive and behavioral methods. In F. H. Kanfer & A. P. Goldstein (Eds.) Helping People Change. Oxford: Pergamon.
- Merriam, S. B. & Dimmock, K. (1985). Measuring older adults' attitudes. Educational Gerontology, 11, 1-7.

- Meskin, L. H., Dillenberg, J., Heft, M. W., Katz, R. V. & Martens, L. V. (1990). Economic Impact of Dental Service Utilization by Older Adults. Journal of the American Dental Association, 120 (6), 665-668.
- Moosbrucker, J. B. & Giddon, D. B. (1966). Effect of experience with aged, chronically ill, and handicapped patients on student attitudes. Journal of Dental Education, 39, 278-286.
- Morris, R. (1977). Panel on socio-economic aspects of dental care for the elderly. VA and Harvard School of Dental Medicine Symposium: The Geriatric Dental Patient, Dentistry's Growing Challenge, Boston.
- National Council on the aging. (1975). The Myth and Reality of Aging in America. Washington, D.C.: NCOA.
- Needham, P. L. (1968). Evaluation of a special patient training program. Journal of Dental Education, 32, 276-278.
- Neugarten, B. (1977). Personality and aging. In J. E. Birren & K. W. Schare (Eds.) Handbook of the Psychology of Aging (pp. 626-649). New York: Van Nostrand Reinhold.
- Parsons, T. (1951). The Social System. New York: Free Press.
- Perry, J. S. & Slemp, S. R. (1980). Differences among three adult age groups in their attitudes towards self and others. Journal of Genetic Psychology, 136, 275-279.
- Price, S. C. & Kiyak, H. A. (1981). A behavioral approach to improving oral health among the elderly. Special Care in Dentistry, 1, 267-274.
- Rabinowitz, V. C., Karuza, J. & Zevon, M. (1986). Models of helping used by and for the aged. To appear in M. Baltes & P. Baltes Aging and Control. Princeton: Erlbaum Press.
- Rakowski, W. (1982). Temporal context and the perceptions of geriatric patients. Social Science Medicine, 241-244.
- Rakowski, W. (1984). Health psychology and later life. Research on Aging, 593-620.
- Ransen, D. L. (1978). Some determinants of decline among the institutionalized aged: Overcare. Cornell Journal of Social Relations, 13, 61-74.

- Reid, D. W. & Ziegler, M. (1981). The desired control measure and adjustment among the elderly. In H. M. Lefcourt (Ed.) Research With the Locus of Control Construct. Vol. I. Assessment Methods (pp. 127-159). New York: Academic Press.
- Reisine, S. T. (1981). Theoretical considerations in formulating sociodental indicators. Social Science and Medicine, 15, 745-750.
- Reisine, S. T. (1984). Dental disease and work loss. Journal of Dental Research, 3 (19), 1158-1161.
- Reisine, S. T. (1985). Dental health and public policy: The social impact of dental disease. American Journal of Public Health, 75, 27-30.
- Reisine, S. T. & Miller, J. (1985). A longitudinal study of work loss related to dental diseases. Social Science Medicine, 21 (12) 1309-1314.
- Richard, R. (1975). Non-users of medical facilities: The emergence of self-reliance. Canadian Journal of Public Health, 66, 477-480.
- Riley, M. W. & Foner, A. (1968). Aging and Society. New York: Russellsage.
- Rodin, J. (1978). Somatopsychics and attribution. Personality and Social Psychology Bulletin, 4, 531-540.
- Rodin, J. & Janis, I. L. (1979). The social power of health-care practitioners as agents of change. Journal of Social Issues, 35 (1), 60-81.
- Rodin, J. & Langer, E. (1980). Aging labels: The decline of control and the fall of self-esteem. Journal of Social Issues, 36 (2), 12-29.
- Rosenberg, M. (1965). Society and the Adolescent Self-Image. New Jersey: Princeton Univ. Press.
- Rotter, J. B. (1966). Generalized expectancies for internal vs. external control of reinforcement. Psychological Monographs, 80 (whole No. 609, 1).
- Rotter, J. B. (1975). Some problems and misconceptions related to the concept of internal versus external control of reinforcement. Journal of Consulting and Clinical Psychology, 35, 651-655.
- Schorr, D. & Rodin, J. (1982). Perceived control in practitioner-patient relationships. In T. A. Wills (Ed.) Basic Processes in Helping Relationships. New York: Academic Press.

- Schulz, R. (1976). Effects of control and predictability on the physical and psychological well-being of the institutionalized aged. Journal of Personality and Social Psychology, 33, 563-573.
- Schulz, R. (1980). Aging and control. In J. Garber & M. E. P. Seligman (Eds.) Human Helplessness: Theory and Applications. New York: Academic Press.
- Schulz, R. & Hanusa, B. H. (1978). Long-term effects of control and predictability-enhancing interventions: Findings and ethical issues. Journal of Personality and Social Psychology, 36, 1194-1201.
- Schultz, N. R. & Moore, D. (1984). Loneliness: Correlates, attributions and coping among older adults. Personality and Social Psychology Bulletin, 10, 67-76.
- Shklar, G. Oral pathology. (1977). VA and Harvard Symposium: The Geriatric Patient: Dentistry's Growing Challenge, Boston.
- Seligman, M. E. P. (1976). Helplessness. San Francisco: W. H. Freeman.
- Seeman, M. & Seeman, T. E. (1983). Health behavior and personal autonomy: A longitudinal study of the sense of control in illness. Journal of Health and Social Behavior, 24, 144-160.
- Shanas, E. (1960). The Health of Older People: A Social Survey. Massachusetts: Harvard University Press.
- Shanas, E. (1980). Old People in Three Industrial Societies. New York: Arno Press.
- Sharlin, S. & Polansky, N. (1972). The process of infantilization. American Journal of Orthopsychiatry, 42, 93.
- Smith, R. A., Woodward, N. J., Wallston, B. S., Wallston, K. A., Rye, D. & Zylstra, M. (1988). Health care implications of desire and expectancy for control in elderly adults. Journal of Gerontology: Psychological Sciences, 43, 1-7.
- Soloman, K. & Vickers, R. (1979). Attitudes of health workers toward old people. Journal of American Geriatric Society, 27, 186-191.
- Steiger, R. (1990). Tests for Comparing Elements for a Correlation Matrix. Psychological Bulletin, 87, 245-251.

- Stiff, R. A. & Phipps, G. B. (1964). Attitudes of dental students toward chronically ill, aged and disabled persons. Journal of Dental Education, 28, 149-154.
- Strickland, B. R. (1978). Internal-external expectancies and health-related behaviors. Journal of Consulting and Clinical Psychology, 46, 1192-1211.
- Taylor, S. (1986). An Introduction to Health Psychology. New York: Random House.
- Thoresen, C. E. & Mahoney, M. J. (1974). Behavioral Self Control. New York: Holt.
- U.S. Department of Health and Human Services. (1988). Use of Dental Services and Dental Health, United States: Washington, D.C.: Government Printing Office, DHHS Publication No. 88-1593 (National Health Survey, Series 10; No. 165).
- Wallston, B. S. & Wallston, K. A. (1984). Social psychological models of health behavior: An examination and integration. In A. Baum, S. E. Taylor & J. E. Singer (Eds.) Handbook of Psychology and Health (Vol. 4), Hillsdale, New Jersey: Erlbaum.
- Wallston, K. A. & Wallston, B. S. (1980). Health locus of control scales. In H. Lefcourt (Ed.) Advances and Innovations in Locus of Control Research. New York: Academic Press.
- Wallston, K. A., Wallston, B. S. & DeVellis, R. (1978). Development of the multidimensional health locus of control (MHLC) scale. Health Education Monographs, 6, 161-170.
- White, R. W. (1959). Motivation reconsidered: The concept of competence. Psychological Review, 66, 297-323.
- Wilkes, M. S. & Shuchman, M. (1989). What is Too Old?, New York Times Magazine, June 4, 58-60.
- Zevon, M. A., Karuza, J., Jr. & Nash, L. (1981, August). The Role of Client Responsibility in Community Based Agencies. Paper presented at the meeting of the American Psychological Association, Los Angeles.