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Life Styles and Psychographic Characteristics of Elderly Consumers as Determinants of Perceptions on Health Care

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BY

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Intentionally, I left for the end any mention of the contribution of my chairman, G. E. Kiser. It is not accidental that his students are always complimentary of his support. He offered unexpected amounts of time, patience, guidance, knowledge, and friendship. He helped me to narrow the topic to manageable proportions, to investigate thoroughly the pertinent issues, to choose appropriate methodology, and to improve the flow of this research. And he was always ready to help.

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Chapter 1

INTRODUCTION

Purpose

This thesis is intended to help policy makers design, implement, and control the delivery of preventive health care to older people. Life style and psychographic characteristics of elderly consumers, living in Arkansas, will indicate market segmentation possibilities, and through them, product characteristics, purchase location options, promotional alternatives, and pricing considerations.

Health Care Marketing: Definition

Health care marketing is a subset of generic marketing, a term used to isolate the "human activity directed at satisfying needs and wants through exchange processes."[1] More specifically, it is a process that discovers the needs or wants of a target market, translates them into product or service characteristics, and then

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[1]Philip Kotler, Marketing Management, Analysis, Planning, and Control, 4th ed. (Englewood Cliffs, NJ: Prentice-Hall, 1980), p. 19. See also: Richard P. Bagozzi, "Marketing as Exchange, Journal of Marketing, 39 (1975), 32-39.

converts "demand for these products, services, or ideas into a desired response."[2]

Health care marketing, as used here, derives its substance from the application of the marketing concept to those whose needs take the form of physical ailments associated with chronological age. Furthermore, Cooper writes,

> The marketing concept is a health systems management orientation that accepts that the key task of the system is to determine the wants, needs and values of a target market(s) and shape the system in such a manner to deliver the desired level of satisfaction.[3]

Hochbaum, however, explains that health care marketing differs from any other kind of marketing and that "the difference is in the promise." He claims that the principal obstacle may be the fact that the health care promise is not always a concrete, observable, directly experienced benefit. "Only rarely can a physician promise for sure that a particular treatment, medication, or surgery will cure the patient." Furthermore, he points out that marketing practices "based on promised consumer satisfaction, cannot be applied as universally or as simply in the health area without violating ethical principles to which the health professions adhere--or at least, to which they profess to adhere."[4]

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[2]Harry L. Hansen, Marketing Text and Cases, 4th ed. (Homewood, IL: Richard D. Irwin, 1977), p. 3.

[3]Philip D. Cooper, "What is Health Care Marketing?" Health Care Marketing, ed. Philip Cooper (Germantown, MD: Aspen System Corporation, 1979), p. 7.

[4]Godfred M. Hochbaum, "A Critical Assessment of Marketing's Place in Preventive Health Care," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 8.

Health care marketing's definition is here restricted to the market comprising elderly consumers by narrowing the study's objectives to the physical needs and wants of this segment, with respect to (a) disease diagnosis and prevention and (b) physical facilities offering health care services. As a conclusion, therefore, the definition of health care marketing as applied to elderly persons is essentially the delineation of the generic marketing definition, but is expanded to accommodate specifics of the elderly segment.

Health Care: Importance and Trends

Dollar amounts spent on health care comprise 8.96 percent of the nation's G.N.P. (1979).[5] Tables 1-1 and 1-2 illustrate some aspects of this outlay.

However, health care cannot be measured solely in monetary terms. It is a highly personalized service that has immediate effects (and significant spillover costs) on the nation's productivity, social tendencies, longevity, and happiness. Recently, however, personnel of the Joint Commission on Accreditation of Hospitals, indicated that "there appear to be no consideration of the patient's perception of care in the review procedures of these certifying, assuring, or accrediting agencies."[6]

From a marketing perspective, however, the customer's perception of the service offered is a *sine qua non* proposition.

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[5]U. S. Department of Commerce, Bureau of Census, *USA Statistics in Brief, 1980*.

[6]Eleanor Nelson-Wernick, et al, "Patient Perception of Health Care," *Health Care Management Review*, 6 (1981), 71.

Table 1-1

United States: GNP[a] and Health Care Expenditures

		Billions of Dollars				Percent	
		1965	1970	1975	1979	1970	1979
1.	GNP[b]	688	982	1529	2369	100	100
2.	Personal Consumption Expenditure on Services[b]	179	269	438	700	27.4	29.5
3.	Total National Health Expenditure[c]	42.0	74.9	132.1	212.2	100	100
	Spent by:[d]						
4.	Consumers	28.6	43.3	70.7	114.4	57.8	53.9
5.	Government	11.0	27.8	56.3	91.4	37.1	43.1
6.	Philanthropy and Industry	2.4	3.8	5.1	6.4	5.0	3.0
	Spent for:[d]						
7.	Hospital Care	13.9	27.8	52.1	85.3	37.1	40.2
8.	Physician Services	8.5	14.3	24.9	40.6	19.1	19.2

[a] In current prices.

[b] Source: U. S. Bureau of the Census, Statistical Abstract of the United States: 1980, 101st ed., (Washington, DC, 1980), p. 439, table no. 725.

[c] Ibid., p. 104, table no. 152.

[d] Ibid., p. 105, table no. 153.

Table 1-2

United States: Consumer Price Indexes (1967=100)

	1970	1975	1980 (May)
1. All items	116.3	161.2	244.9
2. Medical care	120.6	168.6	263.4
a. Physician services	121.4	169.4	267.4
b. Hospital room	145.4	236.1	410.1

Source: U. S. Bureau of the Census, Statistical Abstract of the United States: 1980, 101st ed. (Washington, DC, 1980), p. 487, table no. 808; see also: p. 107, table no. 159.

Smith noted,

> the need for hospital executives to have clear, accurate, and regular information regarding consumer satisfaction is equally as great as the need for executives in other industries, to have such information. In fact, the hospital executives' needs may be greater; in no other industry is the service so personal or the consumer so dependent.[7]

Also, hospital administrators seem to be cognizant of the need actually to market health care. The following statements are indicative: "People will no longer use a facility just because it is there," "Providing services that relate to the hospital's mission, serve a real need in the community, and are cost effective may be a better philosophical base for planning, . . . and a market oriented model views the consumer of health services as the focus of analysis."[8] The above indicate a need to study the consumer and the decision influencers before the marketing decision is made. It is necessary to study how the consumer perceives health care services and to help him make appropriate decisions if necessary.

It is not sufficient to think only in present perspectives; it is necessary also to examine trends associated with health care needs. There are predictions, for example, that expenditures on preventive health are increasing and that the increased longevity of the average American may indicate that money spent on health care for the aged may be proportionately increased in the future.[9] During his campaign,

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[7]R. B. Smith, "Patient Opinion Help Place Hospital Service in Perspective," Hospitals, 51 (1977), pp. 65-68.

[8]"Why Hospital Marketing?" Profiles in Hospital Marketing, 1 (1981), 94-95.

[9]Health Care's Decade of Change (Beverly Hills, CA: American Medical International, 1981).

Jimmy Carter said,

> prevention is both cheaper and simpler than cure, but we have stressed the latter and ignored to an increasing degree the former. In recent years we have spent 40 cents out of every health dollar on hospitalization. In effect we've made the hospital the first line of defense instead of the last. By contrast we've spent only three cents on disease prevention and control, less than one-half a cent on health education and one-quarter of a cent on environmental health research.[10]

Does this comment imply that our policy makers are aware of changing patterns of consumption in health prevention or of their importance? Possibly. Preventive health may be compounded, however, by another trend, namely, that the aged will comprise twelve percent of the population by 1990. In fact, "projected changes in the population distribution would bring the elderly's share of health care dollar to more than 32% . . . by 1990."[11]

Other significant trends may originate from technological and drug therapy advances. Hospitalization that previously required extensive inpatient therapies can now be treated outside the hospital. Emergency routines and many types of surgery can now be performed on an outpatient basis. These new forms of health care aim to the "substitution of outpatient care, with both lower cost and increased convenience for the patient."[12] In fact, a Blue Cross study shows that during the decade 1968-1978 the patient days of health care

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[10]M. Venkatesan, "Preventive Health Care and Marketing: Positive Aspects," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, Proceedings Series (Chicago, IL: American Marketing Association, 1978.), p. 12. Refers to: Des Moines (Iowa) Register, March 4, 1977, p. 1.

[11]Editorial, May 16, 1980, Hospitals, 54 (1980), 62.

[12]Jeff C. Goldsmith, "The Health Care Market: Can Hospitals Survive?" Harvard Business Review, 58 (1980), 102.

declined by 18.6 percent, whereas in the same period the outpatient visits increased by 137.6 percent.[13] Changing trends may occur also in the administrative procedures of health care institutions. It is also possible that current inefficient performance measurement tools will be replaced by new ones that will provide different data dimensions (and data quality). Milch writes,

> It seems safe to predict . . . that enlightened self-interest and increasing public and government pressures for change will cause hospitals to abandon, at least in respect to patient care activities, such traditional indices as bed occupancy ratios and patient origin as the scalar parameters appropriate for measuring performance, and will gradually force a transition towards strategic marketing concepts.[14]

Finally, the whole health care delivery system may be changing. Some predict that (1) the community hospital of the next decade will act as a full service center; (2) that the 100-250 bed hospital will become cost-effective for dependence on share services will provide access to high medical technologies; (3) that health delivery will become more personal and in familiar settings; (4) that increased sophistication of the paramedical professions will change their present role; (5) that "the advent of greater choice will force health care consumers to evaluate how much they will utilize the health care system and through which providers."[15]

In summary, it is observed that although health care

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[13] Blue Cross Plans Experience Sharp 10 Years Decline in Hospital Utilization Rate, Blue Cross and Blue Shield Associations January 18, 1980.

[14] R. A. Milch, "Product-Market Differentiation: A Strategic Planning Model for Community Hospitals," Health Care Management Review, 5 (1980), 10.

[15] Health Care's Decade of Change, op. cit.

expenditures comprise almost one tenth of G.N.P., there is little done on the consumers' perceptions on health care. From a marketing perspective, the consumer must be studied before "production" decisions are implemented. However, the consumer must be studied in a dynamic sense, where future trends will be integrated in the evolving environments. In this section significant trends were pinpointed, as well as, that health care expenditures as a percentage of the G.N.P., and the elderly's share of health dollar, are increasing.

The Arkansas Health Reality

The topical concentration of this thesis is targeted to the State of Arkansas and, ultimately to a sample of the State's elderly. This section aims to provide some insight on local characteristics and opinions on the State's health care situation.

With respect to most of the critical economic indicators and demographic characteristics, Arkansas ranks below the national averages. In contrast, comparative examination of health care statistics shows that Arkansas health matters are almost in line with the rest of the nation (Table 1-3).

The opinions on the health care situation in the State seem to vary according to the prevailing perspective, and differences in semantics, methodology, and priorities of other researchers. For example, Doyle found that if current utilization patterns prevailed and if the demographic structure did not change dramatically, no district was expected to experience a shortage of hospital beds in 1980s. In fact, she concluded that Arkansas seemed to fit, in the

Table 1-3

Comparative Health and Other Statistics:
Arkansas Versus United States

	Reference Year	ARKANSAS	UNITED STATES	Source* Page	Table
Resident population (000)	1978	2,158	218,228	12	10
Per capita personal income ($)	1979	6,785	8,706	447	740
Index of transfer payment to total personal income	1975	126	100	448	741
Median family income ($)	1975	10,106	14,094	445	753
Families below poverty level (%)	1975	14.1	9.0	467	777
High school graduates (%)	1976	56.2	66.6	151	242
Black resident population (% of total)	1976	17.2	11.5	36	42
Active physician (per 100,000 resident population)	1978	118	182	111	168
Number of hospitals	1978	96	7,015	117	182
Number of hospital beds (000)	1978	12.7	1,380.6	117	182
Number of beds (per 1000 resident population)	1978	5.86	6.33	a.	
Average daily hospital room charges	1979	77	115	114	177

*Source: U. S. Bureau of the Census, Statistical Abstract of the United States: 1980, 101st ed. (Washington, DC).

a. Estimated as: Number of hospital beds x 1000/resident population.

aggregate, the national pattern of a surplus in hospital beds.[16] In this sense, Doyle presented a rather optimistic view of the Arkansas health reality. A less optimistic assessment concerned allocation of the State's health resources among lifestyle modification, environmental improvement, and medical treatment where Linda Bilheimer concluded "that most major health problems in Arkansas were associated with lifestyle and environment."[17] In another study she questioned whether the average Arkansan would take advantage of health care services offered,[18] and her more recent opinion is alarming inasmuch as she alleges a "business as usual" approach to health and health care delivery, even though "the system is not meeting our needs and we are appalled at how much it is costing us."[19] (emphasis added) Therefore, it may be observed that in spite of the fact that Arkansas' health statistics seems to be in line with the national averages, research opinions with respect to the state's health reality appear to be diametrically opposed.

Research Objectives

The purpose of this study is to explore health care marketing

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[16]Rachel Jane Doyle, "An Empirical Investigation into the Factors Determining the Demand for Hospital Services in Arkansas," PhD dissertation, University of Arkansas, 1976.

[17]Linda Bilheimer, Health Care in Arkansas, Paying Too Much for the Wrong Thing (Little Rock, AR: Winthrop Rockefeller Foundation, 1980), p. 14.

[18]Linda Bilheimer, "Profile of Health in Northwest Arkansas," Project No. P-113, Department of Planning, State of Arkansas (July 17, 1970), p. 28.

[19]Bilheimer, Health Care . . ., op. cit., p. 37.

based on field research in Arkansas. This work aims to accomplish the following objectives:

1. To identify perceptions of the elderly consumer with respect to health care, generally, and disease prevention and health care's physical facilities marketing mix, specifically.

2. To associate those perceptions with demographic and biological characteristics of the elderly.

3. To determine the psychographic profile of the elderly consumer, in Arkansas.

4. To attempt to segment the elderly health care market on the basis of demographic and psychographic elements.

5. To provide specific marketing suggestions with respect to product design, promotion, pricing, and distribution of health services.

Justification

Health care consumes a significant percentage of this nation's resources. Additionally, health care's spillover costs and benefits have social and political effects whose exact repercussions are not always quantifiable. Health care marketing might be improved by adapting marketing research methodology to specific elements of distribution, communication, pricing, and salient product characteristics of health care. This will improve the design, implementation and control of the product that serves the need for health care.

> [However,] there is a precious little we can do to fit the product to the consumers' tastes or to package it attractively. Almost the best we can do is to make the painful a little less painful, the unpleasant a little less unpleasant, the frightening a little less frightening.[20]

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[20]Gofrey M. Hochbaum, "The Environment for the Marketing of Preventive Health," Marketing and Preventive Health: Interdisciplinary and Interorganizational Perspectives, eds. Philip D.

Specifically, the elderly have more chronic diseases and disabilities than the average citizen; life expectancy is reduced; and psychological problems are magnified because of the retirement transition and socially isolated lives.

This research aims to contribute to our knowledge (need, buying behavior, importance of purchase and so on) about this segment; in a sense it is a pilgrimage to the aging and an obligation to ourselves for the future. Additionally, this dissertation has a strong orientation toward the diagnostic health services, since their utilization may postpone therapeutic needs, or at least prevent some of the corresponding disagreeable episodes.

In deciding to undertake this research a basic consideration was the belief that in its final form it will provide useful information to policy makers, providers, and others related to the health care for the elderly. Conclusions may indicate areas of cost containment, or of hidden variables; they may provide new planning approaches and help improve the quality of life through better market targeting followed by appropriate resource reallocation.

A second consideration was to provide updated research. A third, to provide a useful framework not previously employed for analysis for future, similar projects. Last, but not least reason for undertaking this project, was that it has no exact parallel.

From the point of view of the specific area--the State of Arkansas--there are several important health care related contributions but none studies the elderly consumer from a similar

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Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 5.

perspective. Those studies include: Davis' work on the need-satisfying ability of hospitals, where he tests the hypothesis that "the satisfaction of some of the needs of various groups of people by an organization was directly related to management carrying out the accepted functions of management."[21] Bilheimer's dissertation that aimed "to explain certain patterns of output and manifest behavior in the hospital industry."[22] Butts' comparative cost evaluation of in-home and community-based health care programs for the aged; however, his study did not provide means to study the psychography of the elderly target population, nor to segment it accordingly.[23] Doyle's research on the demand for hospital beds;[24] Veuleman's work on hospital accounting practices leading to determining a "sound" cost accounting system,[25] and Harvey's model of hospital facilities through simulation, via operation research techniques.[26]

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[21]Thomas S. Davis, "The Need Satisfaction of Patients, Employees, and Physicians in Hospitals Related to the Performance of Management Functions," PhD dissertation, University of Arkansas, 1975, p. 12.

[22]Linda Bilheimer, "Hospitals in Arkansas: A Study in Firm and Industry Behavior," PhD dissertation, Harvard University, 1975.

[23]Doyle Morris Butts, "Selected Health Care Programs for the Aged in Northwest Arkansas as an Alternative to Institutionalization: A Cost-Effective Evaluation," PhD dissertation, University of Arkansas, 1979.

[24]Doyle, R. J., op. cit.

[25]Malcolm Wayne Veuleman, "An Inquiry into the Adequacy of Cost Information Systems of Selected Arkansas Hospitals," PhD dissertation, University of Arkansas, 1971.

[26]Aubrey Eaton Harvey, "A Study of Simulation Modeling in the Design of a Comprehensive Health Care System," PhD dissertation, University of Arkansas, 1974.

From the point of view of the type of approach utilized--market segmentation study through psychographic profiling of the health consumers--there are not many significant systematic contributions. Industry literature, for example, attempted recently to show hospital public relations managers how to see their markets. Although some market profiling was suggested, there was no evidence of utilizing psychographics in sketching the market, instead, the emphasis was based only on demographic variables.[27] Additionally, there is evidence that from an application perspective attempts to quantify profiles of public opinion are simplifying processes by bypassing the analysis of the consumer characteristics.[28] From an academic perspective, several works have aimed to study the health care consumer.[29] There is, however, only one work that includes an analysis of their life styles, perceptions, psychographics. Acito[30] attempted to factor analyze statements with respect to health

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[27]"A Do-It-Yourself Market Audit," Profiles in Hospital Marketing, 1 (1981), 42-48.

[28]R. H. Greene, "Community Survey Profiles Hospital's Image, Helps Set Goals," Hospitals, 55 (1981), 60.

[29]For example: Mabelle Goya Sonnenshein, "Consumer Choice in Matters of Health Care," PhD dissertation, Tufts University, 1979. Robert John Eng, "Study of Beliefs, Uncertainty and Information Seeking in Health Care Consumer Behavior," DBA dissertation, Indiana University, 1979. Joseph Felix Gauff, "Consumer Aspects of Marketing in Small Health Maintenance Organizations," PhD dissertation, University of Washington, 1979. William Bremner MacGregor Cassie, "Consumer Behavior in the Medical Care Services Setting: A Field Study of the Expectations, Attitudes, and Visit Satisfaction Evaluations of Medical Patients at a General Practice Clinic," PhD dissertation, University of Minnesota, 1971.

[30]Franklin Acito, "Consumer Preferences for Health Care Services: An Exploratory Investigation," PhD dissertation, State University of New York at Buffalo, 1976.

behavior, for the New York area, in 1976, as part of a broader thesis. This present dissertation will utilize a similar but modified and expanded methodology aiming solely on the elderly health care consumer.

Finally, from the point of view of the elderly consumer, only Wright[31] attempted to work on parallel grounds. His dissertation aimed to identify determinants of health services of the elderly. The study was developed in Wisconsin in 1973, and capitalized on a population sample derived from a relatively poor public housing community. Additionally, in terms of methodology, Wright's effort utilized strictly causal modeling approaches, regression, and path analysis.

Organization of the Study

This dissertation consists of five chapters. Chapter one introduces the study. Chapter two presents a review of health care literature from a marketing perspective. Chapter three presents an analysis of the research methodology employed. Chapter four presents the findings of the research from the previous chapter. Chapter five summarizes the study and the findings, and makes suggestions for further research.

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[31]Roosevelt Wright, "The Determinants of Health Service Utilization Within an Aged Population," PhD dissertation, University of Wisconsin-Madison, 1978.

CHAPTER 2

LITERATURE REVIEW

The previous chapter outlined the objectives of this dissertation which are concerned with marketing to the health care consumer. The objective of this chapter is to review pertinent earlier studies. This review will be developed at three different levels: (1) a discussion on evolution of national health care policies; (2) health care's marketing mix perspectives,[1] competition issues, regulatory issues and planning issues, as they apply to the general health care consumer; and (3) characteristics of and attitudes toward health of the elderly population segment[2] (Figure 2-1).

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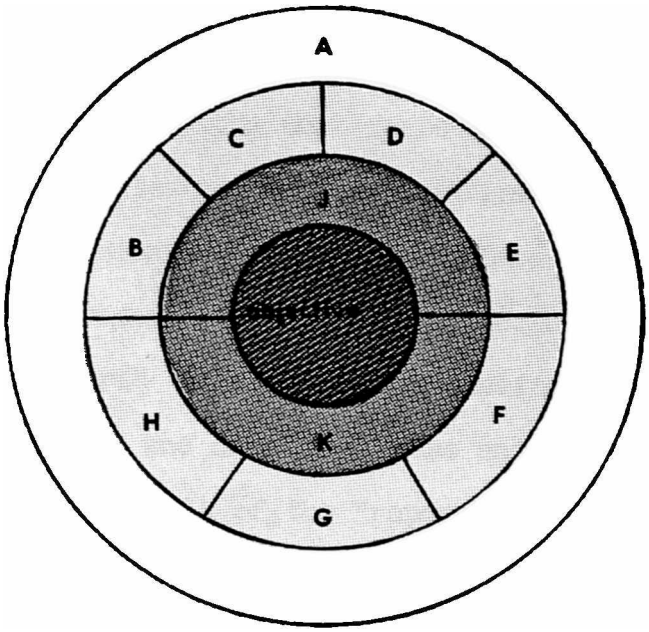
[1]Marketing mix is the "set of controllable variables and their levels that the firm uses to influence the target market:" Philip Kotler, Marketing Management: Analysis, Planning and Control, 4th ed. (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1980), p. 88. The term usually refers to McCarthy's framework of "4Ps" (product-price-place-promotion); E. J. McCarthy, Basic Marketing: A Managerial Approach, 7th ed. (Homewood, IL: Richard D. Irwin, 1981), pp. 40-45.

[2]In order to be consistent with previous studies and statistics hereby quoted, aged population was defined as the 55 and over segment, and specifically it was subdivided into three groups: (1) the pre-retirement one (55 to 64 years old), (2) the young-old (65 to 74 years old), and (3) the old-old (75 and older); George B. Glisan and G. Edward Kiser, A Study of the Elderly Consumer of Bank Services in Arkansas, (Fayetteville, Arkansas: Bureau of Business and Economic Research, University of Arkansas, 1982), p. 14.



LEGEND

Objective : The Elderly Health Care Consumer
I : Historical Perspectives (A)
II : Product (B), Promotion (C), Place (D), Price (E), Competition (F), Regulation (G), Planning (H)
III : Profile of the Elderly (J), Profile of the Health Care Consumer (K)

Figure 2-1

THE INTENT OF CHAPTER 2

Historical Focus on Health Policies

This introductory section highlights a basic change in state policies with respect to health care. In 1848, the Public Health Act in Britain announced that nation's intent to intervene directly into the lives of individuals and to safeguard the general health of the population and that of the work force in particular.[3] If the Public Health Act was a milestone marking the first health care revolution, a second one was indicated by the United States Surgeon General's report on health promotion and disease prevention.[4]

The "report" emphasized that Americans spent sufficient sums on health treatment and care of disease and disability, but not enough on prevention. The bulk of the "report" discussed and documented the fact that much is yet to be done, and stressed the role of life-style factors within each group. It further pinpointed the need to reorder priorities at least with respect to: (a) inadequacies in the existing health care system, (b) behavioral factors or unhealthy life-styles, (c) environmental hazards, and (d) human biological factors.[5] Its primary thesis was that "life-style factors should be amenable to change by individuals who understand and are given support in their attempt to change."[6] Finally, the "report" suggested that the Federal

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[3]Lesley Doyle and Imogen Pennell, The Political Economy of Health (London: Pluto Press, 1979), ch. 4.

[4]U. S. Department of Health, Education, and Welfare, Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention (Washington, DC: Government Printing Office, 1979). Hereafter, referred as the "report."

[5]Ibid., ch. 1, p. 9. [6]Ibid., ch. 1, p. 10.

government should provide supportive action in three directions: preventive health services,[7] health protection,[8] and health promotion.[9] Supportive roles by individuals,[10] families,[11] health professions,[12] health institutions,[13] schools,[14] business and labor,[15] communities,[16] and government[17] should augment the directional focus. The "report" placed the burden of its recommendations on the reform of individual behavior. This revolutionary approach by a public body has been strongly criticized in the Neubauer and Pratt study because it makes no attempt "to marshall public authority or significantly alter institutional practices, but rather relies on the capacity of individuals to redeem their less-than-healthy lifestyles."[18]

Having come full circle, we may say in summary that one hundred and thirty years ago a progressive public statement stressed the need to comprehend the importance of health care and enlisted the state's support in establishing acceptable standards of health delivery, while the 1979 Surgeon General's "report," established new directions by stressing preventive, rather than curative, health care. Health care,

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[7] Ibid., ch. 8. [8] Ibid., ch. 9.

[9] Ibid., ch. 10. [10] Ibid., ch. 11, p. 3.

[11] Ibid., ch. 11, p. 4. [12] Ibid., ch. 11, p. 4.

[13] Ibid., ch. 11, p. 4. [14] Ibid., ch. 11, p. 5.

[15] Ibid., ch. 11, pp. 5-6. [16] Ibid., ch. 11, p. 6.

[16] Ibid., ch. 11, p. 6. [17] Ibid., ch. 11, p. 1.

[18] Deane Neubauer and Richard Pratt, "The Second Public Health Revolution: A Critical Appraisal," Journal of Health Politics, Policy and Law, 6 (1981), 224.

therefore, becomes more the responsibility of the consumer than the state.

In an effort to link this historical sketch with this thesis' main thrust, we observe that recent policy changes turned the responsibility back to the consumer by stressing preventive and diagnostic needs and altered lifestyles. Altering young people's attitudes, however, is probably not very difficult; on the other hand, demanding such drastic change from people who have lived eighty percent of their lives is a totally different proposition. Given this difficulty, it is worthwhile to study the elderly's perceptions of health care needs and their perceived willingness to modify behavior at this late stage of their life. It is this latter concern that constitutes the major thrust of this dissertation. In turn, the stage is set for a comprehensive approach to marketing diagnostic and preventive health care facilities to the elderly.

Marketing Mix Components: Product

The previous section dealt with some historical perspectives on health care contained in statements of national health policy. The objective now is to document various attempts to: (a) describe the need for health care, (b) explore different agencies that specify the salient characteristics of health care, (c) discuss issues pertaining to health care's development, and (d) elaborate on diagnostic services. This exploratory work will center initially on a generic orientation followed by specific references to the elderly consumer.

Need Delineation of Health Care to Elderly

Since the meaning of "need" is inherent in all marketing definitions and imperative in determining product development, this section will begin by delineating need as it pertains to health care. The generic need will be discussed first, and need peculiar to the elderly will follow.

What makes the consumer visit a health care setting? Through coding the symptoms or complaints in the patients' own words, the National Ambulatory Medical Care Survey suggested the following code modules: "Symptoms; diagnostic; screening and preventive procedures; therapeutic procedures; process problems and counseling; injuries and adverse effects; follow-ups for test results; and administrative reasons for visits."[19]

A more functional classification of health care needs is:[20]

1. Health maintenance or promotion needs, specifically:
   a. Educational, preventive and monitoring services to enable people to maintain health through proper diet, exercise, and avoidance of risks, and
   b. Environmental services to minimize or eliminate pollution and hazards.

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[19]Don Schneider, "An Ambulatory Care Classification System: Design, Development and Evaluation," Health Service Research, 14 (1979), 12.

[20]Robin E. MacStravic, "Health Care Marketing Needs Rational, Ethical Approach," Hospital Progress, 61 (1980), 60.

2. Acute care needs:
    a. Diagnostic services, e.g., screening, early detection, routine physical examinations, and symptom-responsive efforts to detect and identify illness promptly, and
    b. Therapeutic services, e.g., nursing and physician care and medication.
3. Chronic care needs:
    a. Rehabilitation or habilitation services to help people adjust to effects of chronic diseases.
    b. Maintenance services to prevent any deterioration in functioning due to chronic conditions, and
    c. Palliative services to reduce physical and psychological pain and discomfort.

Although the above delineation presents definition overlaps, it will be accepted as the definitional basis of this research. In this regard, health care products may range from diet awareness cassettes, to nuclear medicine, to alcohol rehabilitation. The existence of those products is justified by the fact that they serve/ satisfy health related needs. However, this research will deal only with preventive needs and health facilities as they may be specified through the perceptions of elderly consumers. Particular emphasis will be placed on their considerations of diagnostic services as an integral part of their perception of health care's marketing mix.

Product Specification

In most products the final form is decided by the providers in respect to considerations of engineering, manufacturing, marketing,

and economic variables. In matters of health care this does not totally apply, since health standards may be imposed by congress, other agencies, technological breakthroughs, interested groups, etc. For example, it has been "hypothesized by Donabedian that the assessment of need by a medical care organization is determined by that organization's standards."[21] Those standards are determined by two different sets of objectives: (a) Client-oriented, in other words, centered around the patient's welfare, wishes and desires (such as access to service, use and quality of service, maintenance of patient's autonomy and dignity, responsiveness to client needs, and freedom of choice);[22] (b) Provider-oriented, which include freedom of professional judgment and activities, maintenance of professional proficiency and quality of care, adequate compensation, control over the conditions and terms of practice.[23] This hypothesis is strictly based on a specific organization's standards. Standards may change between organizations, environments, situations, and periods of time. Novelli writes:

> We often do not have the luxury of shaping our health prevention products or services. In many cases, we are hampered by the lack of technology. In other instances the product or service is shaped by the congress and passed on to product managers.[24]

But it is not only the individual organizations, congress, and technology that influence the quality and quantity of health care. Opinion leaders and other influencers often take critical stands with

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[21] Cooper and Maxwell, op. cit., p. 34; A. Donabedian, Aspects of Medical Care Administration: Specifying Requirements for Health Care (Cambridge: Harvard University Press, 1973).

[22] Ibid., p. 40. [23] Ibid., p. 41.

[24] Novelli, op. cit., p. 102.

respect to health care. Pope John Paul II, for example, recently stated, "It is necessary to make an effort for a 'repersonalization' of medicine . . . leading to a more unified consideration of the patient."[25]

Thus, it is apparent that the nonuniform objectives of agencies involved in health care product design may be causing discrepancies with respect to acceptable health care standards, both in terms of quality and quantity. More likely, however, the health care product is in a rapid transition. Goldsmith predicts that drastic change in the health industry will be evident in the following areas:

1. Outpatient Care: Much of prehospital care is offered traditionally in physician's offices. There is evidence that a "portion of prehospital care is rendered in captive outpatient facilities operated by the hospital, such as hospital-based clinics or emergency rooms."[26]
2. Outpatient Surgery: "Both hospitals and private physicians have established day surgery programs that provide all the logistical support for surgery."[27] Those surgeries offer the advantage of lower cost and greater convenience to the customer.
3. Freestanding Emergency Rooms: These facilities may provide most of the services of a hospital based emergency room, except

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[25]Pope John Paul II, "On Medical Ethics," Hospital Progress, 61 (1980), 19.

[26]Jeff C. Goldsmith, "The Health Care Market: Can Hospitals Survive?" Harvard Business Review, 58 (1980), 104.

[27]Ibid., p. 105.

for full-scale operations. According to a study conducted for the Robert Wood Johnson Foundation, "55 such facilities existed in the U. S. in late 1978."[28]

In summary, it seems that many different policy making bodies and other influencers are developing health care's specifications, in some instances following unrelated guidelines. Also, there is evidence that established forms of health care delivery are changing toward cheaper and more flexible concepts.

Product Development

Different organizations have aimed to improve their product in various ways. For example, "in recent years, hospitals have become sensitive to what can only be called the marketing implications of status at 'teaching' hospitals in attracting both patients and medical staff."[29] Product development practices at some institutions include remodelling in an attempt to create a more appealing design for both users and staff. Also, through a better layout, graphics, human scale, etc., they try to enhance their market position.[30] Other product development examples may include tomographic scanners,

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[28]Ibid., p. 105; see also "Preliminary Survey of Freestanding Emergency Centers" (Silver Spring, MD: Orkand Corporation, February 1979).

[29]"How to Pick a Good Hospital," Business Week, April 27, 1981, p. 145.

[30]R. M. Pospula, "HMO Facility is Designed with Needs of Users and Staff in Mind," Hospitals, 55 (1981), 89-94.

hospital-based helicopters,[31] and alcoholism programs.[32] It must be understood, however, that "with respect to product concept . . . a desirable product in the eyes of the designer . . . is not necessarily a desirable product in the eyes of the consumer."[33]

In such instances, marketing may help lead health care product designers toward better targeting, after taking into consideration the marketplace and the marketplace's trends.

Diagnostic Services

In the present research, particular attention is given in the study of diagnostic services.[34] The term "preventive" as used in this section may be considered as a term synonymous with "diagnostic."

"Preventive actions differ radically,"[35] in terms of money spent, time spent, how often they are repeated, what discomfort they

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[31]For an example of hospital-based helicopters, see corporate advertisement: Rocky Mountain Helicopters, Inc. (1616 Glenarm, Suite 1370, Denver, CO 80202), in Hospitals, 54 (1980), 97.

[32]In Chicago, the Grand Hospital started in 1968 an alcoholism program as a two-bed operation. Now it has been developed into a 21-bed facility with 7,000 a year outpatient visits. In Jerome A. Koncel "Alcoholism Unit Expands to Meet Community Demands," Hospitals, 55 (1981), 57.

[33]Robert John Eng, "Preventive Health Care and Marketing: Some Misconceptions," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, eds. Philip D. Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 86.

[34]Refer to section "Need Delineation of Health Care to Elderly."

[35]Mark Moriarity, "Problems and Limitations of the Implementation and Diffusion of Marketing Practices in Preventive Care," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, eds. Philip D. Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Markeing Association, 1978), p. 125.

present, and so on. However, in all cases they represent costs: human costs in terms of discomfort and time spent, expenditures in terms of facilities, technologies and staff, and social costs in terms of spillover implications. There is, however, an ongoing argument that preventive services actually reduce the cost of health care by arresting the more expensive therapeutic needs before they develop. Kehoe writes:

> In an historical sense, it was noted that the health care area has experienced changes in its corporate mission during this century. From the early part of the century to the late 50s, the mission was one of curative nature . . . it was not until the 1970s that the cost benefits of preventive care were given consideration.[36] Preventive medicine is a way of controlling costs.

However, the issue of preventive-diagnostic services demands a multi-dimensional examination. It is "not single actions but multiple preventive actions which cumulatively reduce the risk of disease."[37] Therefore, preventive actions must be jointly promoted and these joint actions must be determined before any marketing technology can undertake the task of promoting the product to appropriate populations.[38] Still, the multiple nature of the preventive actions represents the complete but static reality of health care. It is possible that we are ante portas of the next level of health care

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[36]W. J. Kehoe, "Conceptulizing the Integration of Marketing and Preventive Health Care," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, eds. Philip D. Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 125.

[37]Moriarity, op. cit., p. 91; for a study of multiple preventive behaviors related to heart disease, see also: William S., Allan F., and Henry Wechler, "Health Service Report, 87," (December 1972), pp. 969-976.

[38]Moriarity, op. cit., p. 91.

needs, the treatment of chronic diseases and their respective rehabilitation needs.

Clearly, both of the considerations above have a prominent significance to elderly populations for there is a need for complete diagnostic services and also a need to cater to chronic diseases and subsequent rehabilitation needs. In fact, the elderly segment is prone to need them most. Moriarity states:

> The primary concern of the medical practitioner has evolved from preventing and treating acute diseases to combating the ill effects of chronic diseases. It might logically be expected that a shift in concern from acute diseases to chronic diseases would entail a different approach to delivering and practicing health care. However, in the United States, the personnel, equipment, and facilities of the contemporary medical system seem to be established according to the classic or acute care form of delivery.[39]

In summary, it may be stated that diagnostic services seem to be one answer to the spiralling costs of therapeutic needs. They are found in great variety and they demand multiple preventive actions, not single ones. Also, the present health system is not geared to providing diagnostic services. Moreover, older people are those that may need these services more than other groups. Minimization of their exposure to therapeutic services is not only reducing incurred costs, but has an effect on their quality of life, especially since their life expectancy is narrower. Also, in the communities in which they will be living, an important feature may be the existence of facilities that provide for treatment of chronic diseases and rehabilitation.

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[39]Moriarity, op. cit., p. 90; see also: Coe, Rodney M. and Henry P. Brehm, Preventive Health Care for Adults (New Haven: College and University Press, 1972).

Marketing Mix Components: Promotion

This section reviews research concerning the promotion of health care. Morton writes: "This activity [promotion] has been a taboo, and hospital administrators' experience is limited to the annual reports, news releases, and inducements to physicians to refer patients.[40] Murphy, et al support this opinion by stating "little intensive mass advertising has been undertaken to date . . .,"[41] and Crawford even questions promotion's effectiveness when he says: "the area of advertising and personal selling leaves us with questions: 'what works?'"[42]

At present, health care's promotion remains a debatable issue with strong proponents on both sides.[43] The fact is that hospital advertising achieved legitimacy [only] in 1977 when both the American Hospital Association and the Federation of American Hospitals

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[40]Reed L. Morton, "Problems in Hospital Marketing of Preventive Health Services," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, eds. Philip D. Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 99.

[41]P. E. Murphy, P. D. Cooper, and W. J. Kehoe, eds., "Reflections on Marketing Preventive Health," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 130.

[42]Charles O. Crawford, "A Review of Critical Issues and Opportunities to Further the Development of Marketing and Preventive Health Care," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, eds. Philip D. Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 121.

[43]William A. Flexner and Eric N. Berkowitz, "Media and Message Strategies: Consumer Input for Hospital Advertising," Health Care Management Review, 6 (1981), 35.

recognized the need to advertise their services."[44] Since that time twenty percent of American hospitals have been active in some form of patient-oriented promotion.[45] It may be observed, therefore, that health care's promotion is both a recent and an infrequent effort. Further, it seems that there exists a strong difference of opinion between physicians and hospital administrators about the merits of advertising.[46]

Forms of Promotion

At present only one industry publication, Profiles in Hospital Marketing,[47] primarily aims to publicize hospitals' promotional ideas. However, hospital promotion has been innovative and successful, judging from results and case analyses found in different management oriented publications of the health care industry. Those attempts vary from cruise offers, to diagnostic devices, to maternity centers.[48] Two promotion forms seem to be more prominent: publicity and public relations.

Publicity, which can be "a mixed blessing, . . . [since positive publicity] . . . must be balanced against the risks entailed

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[44] Ibid., p. 36.

[45] Ibid., see also: F. B. Whittington, Jr. and R. D. Dillon, "Marketing by Hospitals: Myths and Realities," Health Care Management Review, 4 (1979), 33-37.

[46] Flexner and Berkowitz, op. cit.

[47] 24 West King Street, Lancaster, Pennsylvania 17603.

[48] An effort to increase the demand to a maternity care program was also reported in John M. Lee, "Marketing Ensures Success of Maternity Care Program," Hospitals, 55 (1981), 91.

in media exposure,"[49] and public relations in a broader sense, aims at everyone entering the hospital,[50] including patients, visitors, doctors, nurses, administrators, regulators, suppliers, trustees, contributors, volunteers and staff alumni.

Health Care Promotion: Insights

In general, promotion leads to more information, and more (and better) information reduces the individual's uncertainty and eventually increases the probability of engaging in risk-reducing behavior.[51] Irrespective of the type of health care needed (maintenance, acute, chronic), "if advertising campaigns are undertaken to promote long-run lifestyle changes . . . the task is unique in that people are asked to give up habits."[52] Therefore, the older the target population is, the more difficult it becomes to affect their hardened behavioral patterns, and consequently more tedious and expensive. In addition, any introduction of advertising expenditure on health promotion will impose demands on the existing allocation of priorities.[53] Obviously, if this expenditure is planned

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[49]Suzanne S. Edwards, "The Benefits and the Risks of Publicity, Hospitals, 54 (1980), 94.

[50]D. E. L. Johnson, "Hospitals Emphasize Guest Relations," Modern Healthcare, 11 (1980), 42.

[51]Robert John Eng, "A Field Study of Beliefs, Uncertainty and Information Seeking in Health Care Consumer Behavior" (DBA dissertation, Indiana University, 1979), pp. 137-138.

[52]Mark Moriarity, "Advertising Preventive Health Care," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, eds. Philip D. Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 54.

[53]Ibid.

to promote habit changes in the older population segment, more reactions are to be expected; the segment not only needs more promotion money than other segments, but also significant problems may exist, such as lower mobility, higher rehabilitation needs, and so on. Several observations are in order:

1. Since promotion may result in allocation of priorities, a question arises about who will pay these expenditures. Further, what happens if financial support is withdrawn? Moriarity writes, "Dependence on multiple groups for support sometimes leads to conflicts over goals and policies and when these goals are in conflict, support is on occasion withdrawn."[54]
2. It appears that some ethical issues are present, especially when the advertising is geared to stimulate demand for <u>specific</u> services. Claims for a healthier life associated with specific behavioral changes will have to be documented in order to satisfy the guidelines of Federal Trade Commission. It appears that "present agencies regulating advertising will be sufficient to handle the advertising of health care."[55]
3. Health care promotion may result in an unexpected rise in the demand for preventive/diagnostic services. According to recent public documentation "several studies have indicated that at least three-quarters of health care is undertaken without intervention by health professionals. It is clear that individuals can and do share with providers the responsibility

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[54]Ibid., p. 55. [55]Ibid., p. 57.

for decisions about health care."[56] Subsequently, it is possible that greater health care awareness may result in higher levels of generic health care demand due to the fact that at present a large proportion of health care is not served through professional channels.

4. Flexner studied the attitudinal profile of consumers who favor or oppose hospital advertising.[57] His work suggested "that a potentially large segment of consumers view advertising as an appropriate way to communicate about hospital services and rates."[58]

In summary, from the previous mentioned works it appears that promotion has been a recent and infrequent practice. Also, (1) it is dubious in respect to its ethical basis, (2) it usually takes the form of publicity and public relations, (3) there is a positive relation between an increase in the generic demand for health care through professionals and increases in promotion expenditures, (4) health care advertising is an appropriate way to promote health care messages, and (5) promotion's effectiveness on elderly people involves higher costs.

Marketing Mix Components: Place

This section introduces the concept of location with respect to health care delivery. It has been argued for example, that "too many people lived too far from medical attention . . . and lacked

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[56] U. S. Department of Health, Education, and Welfare, Health Research Activities of the Department of Health, Education, and Welfare (December 1979), p. 164.

[57] Flexner and Berkowitz, op. cit. [58] Ibid., p. 41.

transportation"[59] as well as that hospitals are acquired and developed for business purposes in areas where their survival is assured. DiPaolo writes:

> Factors tending to make hospitals better acquisition targets include being located in a market with growing population and without much competition, being a well established hospital and offering public services that draw public attention to the facility.[60]

With respect, therefore, to the location options there are two opposing philosophies: the financial survival of the health care organization versus comprehensiveness and area coverage in health delivery. A suggestion to planners of comprehensive health care programs is that they should "consider the long term implications of location decisions as opposed to the short term benefits of housing under one roof or the convenience of existing facilities."[61] In agreement with this view, Zupco, director of the American Medical Association's practice department, says "the time of 'oh, that's a nice place, let's go over there,' is over . . . [in addition] . . . there is a different need for different specialities in different areas."[62]

Industry practices, however, offer innovative solutions in order to compromise between a unit's efficiency and the health care's comprehensiveness. An approach that many hospitals are employing is

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[59]Alston Fitts, "Hospital-Affiliated Clinics Meet Health Needs of Rural Poor," Hospital Progress, 62 (1981), 40.

[60]Vince DiPaolo, "Competition Intense as Investors Bid Up Price of Prime Hospitals," Modern Healthcare, 11 (1981), 54.

[61]Eng, "Preventive . . . ," op. cit., p. 87.

[62]Susan Tompor, "Doctors Turn to Marketing to Get Patients," The Wall Street Journal, September 1, 1981, p. 29.

the usage of a distribution system that aims to bring patients to the hospital. Those networks vary from hospital based limousine fleets to mobile intensive care vans to fixed-wing air ambulances.[63]

Other alternatives include the "adoption" of small rural health units (which cannot survive by themselves) by large efficient hospitals, and the modification of these units in order to replicate the operation of wings of the mother institution. The standardized operation results in significant cost savings and the mother institution may run the satellite unit through a shuttle service that transports the required items daily.[64]

The future, in fact, seems to promise more efficient and more economical solutions. The introduction of shared hospital services and improved medical technologies will make cost effective the 100-250 bed community hospital that will offer patients advanced care, which at present is limited to large metropolitan institutions. It is believed, that in the eighties, community hospitals will act as full service health centers and that their role will be expanded to providing outpatient services as well. The changing medical practices will increase the competition for patients because of the increase of paramedical professions and institutions, and more and more Americans will be receiving sophisticated health care closer to home.[65]

In summary, this section has attempted to indicate that the

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[63]Goldsmith, op. cit., p. 108.

[64]Judith Marie Keith, "Satellite Hospital: Innovation in Rural Health Care," Hospital Progress (March 1980).

[65]Health Care's Decade of Change, op. cit.

present incomplete health care delivery (due to location constraints) is slowly but certainly improving. There is thorough study of location planning, industry practices are bridging existing location weaknesses through innovative solutions, and the future of medical technologies and hospital practices promises cost-effective small community structures.

Marketing Mix Components: Price

This section focuses on pricing considerations with respect to health care's marketing mix. The analysis contains some theoretical considerations and cost perspectives.

Theoretical Considerations

It has been argued that the demand for preventive/diagnostic health services is negative whereas the demand for therapeutic care needs is price inelastic. Cooper and Maxwell point out such an inelastic demand: "It is almost universally true that if one is on the critical list, cost is of little consequence until the patient recovers and must pay the bill."[66] However, they reverse the argument with respect to preventive health which they claim is "largely a voluntary act."[67] Morton goes further when he writes:

> to date demand for free preventive measures has been quite elastic. . . . Negative financial prices may be necessary. Nonfinancial costs--time, energy--must be minimized to consumate exchanges with consumers who, judging from life-styles, do not value preventive measures.[68]

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[66] Cooper and Maxwell, "Entry Points . . . ," op. cit., p. 41. For negative demand's definition, see Kotler, op. cit., p. 26.

[67] Ibid., p. 43. [68] Morton, op. cit., p. 98.

In addition to the different types of demand and price structures (according to the type of health service offered), there is also a price differentiating factor due to the hospital per se. In general, hospital services "deviate from the standard of perfect competition and hence . . . the hospital is a price setter not a price taker."[69] Hospitals may, for example, achieve price differentiation on the grounds of medical education, reputation, relationships with other institutions, quality of medical staffs, and so on.[70] In the long run, however, pricing is not only a market game. It must consider costs. A few implications follow.

Cost Considerations

Table 1.2 presented some cost increases in the health care area. The indexes there showed that the increases in the health care industry surpassed increases in the consumer price index (CPI) levels. A generally accepted justification of those increases is that they are "due to the augmented prices of supplies and related costs."[71] The area of hospital supplies, however, is, on the one hand, in the midst

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[69]David S. Salkever, "Competition Among Hospitals," Hospitals and Health Services Administration, 25 (1980), 57.

[70]Emily Friedman, "Competition and the Changing Face of Hospital Care," Hospitals, 54 (1980), 64; see also: "How to Pick a Good Hospital," Business Week, April 27, 1981, pp. 144-145.

[71]Pamela Sherrid, "Health Care," Forbes, 34th Annual Report on American Industry, January 4, 1982, p. 212.

of innovative studies;[72] and, on the other, it presents suppliers' practices which include guaranteed price protection from future increases when health care centers are ordering agreed amounts from specific sources.[73]

There are also areas where health care costs have been drastically reduced (e.g., kidney dialysis),[74] not to mention that new cost-saving medical technologies are introduced daily. However, size may be the single most important factor that will determine future cost reductions.

> Health delivery systems in the 1980s will be made to order for mass distribution of everything from bandages to bioengineering instruments. Indeed, the management skills and the mass purchasing clout that bigness can provide offer the best possible chance to arrest runaway U. S. medical costs.[75]

Summarizing the previous points, it seems that health care's pricing covers a very broad range of demand situations, which is also sensitive to nonprice criteria.[76] Additionally, prices which recently were augmented disproportionally to the Consumer Price Index may entertain only modest future increases due to cost-containment

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[72]G. E. Kiser and C. P. Rao, "Important Vendor Factors in Industrial and Hospital Organizations: A Comparison," Industrial Marketing Management, 6 (1977), 289; Marian Hall, "Methods of Classification for Rehabilitation Product Information Programs and the ABLEDATA System" (Washington, DC: Catholic University of America, 1981) (Mimeographed).

[73]"American Hospital Supply's Pricing Promise," Sales and Marketing Management, 124 (1980), 24.

[74]Sherrid, op. cit.

[75]"Health Care: The Opportunities in a Huge Market," Business Week, January 11, 1982, p. 84.

[76]Eng, "A Field . . ." op. cit., p. 86.

factors. However, at least two opposing considerations must be pointed out:

a. The for-profit health care sector has exhibited in the past a strong profit-maximization orientation, and there is no reason to believe that this philosophy will change in the future (see Table 2-1), and,

b. Klein's statement:

> Assuming that the systems of health care planning and finance could be aligned, with consequent saving through more efficient use of resources, achievement of cost containment does not necessarily follow. For there remains another objective of policy: To improve quality, and what price tag, if any, is there on this achievement.[77]

The topics discussed to this point are at the peripheral zone of this dissertation's intent. However, place and pricing may be of particular significance for the research design and interpretations of results.

Market Competition

The literature review thus far has served to conceptualize health-care-related issues through an investigation of health care's marketing mix. The objective now is to examine certain more specific issues, the first of which provides an insight into the competitive dimensions of the health industry. In this section, the analysis will indicate, first, some competitive forms found in health care, and second, certain complications arising from the competitive nature of

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[77] Rudolf Klein, "Reflections on the American Health Care Condition," Journal of Health Politics, Policy and Law, 6 (1981), 195.

Table 2-1

Comparative Profitability and Growth of Health Care Industries Versus All Industries

	Profitability			
	Return on Equity		Return on Total Capital	
	Five Year Average	Latest Twelve Months	Five Year Average	Latest Twelve Months
Health Care Industry	19.2	19.2	13.4	13.1
All Industries	15.5	14.7	11.1	10.9

	Growth (Five Year Average)	
	Sales	Earnings Per Share
Health Care Industry	20.2	21.8
All Industries	14.0	12.5

Source: Pamela Sherrid, "Health Care," Forbes, 34th Annual Report of American Industry, January 4, 1982, p. 213.

the industry. As a prologue to the following review, Stockman's opinion is that:

> Health care providers really only have two critical choices . . . either they accept an increasing bureaucratized, highly regulated health system—in which they will be essentially employees of the federal government, directly or indirectly--or they opt for a competitive marketplace in which normal market forces would be the primary determinants of health care spending . . . the marketplace dynamics--not government--'would decide on such factors as the share of GNP devoted to health care, appropriate bed/population ratios, the types of delivery systems'. . . .[78]

Competitive Forms

Competition in the health care industry originates from a variety of sources. Hospitals, for example, which may be considered as the core of the institutional care, "face threats from emerging alternative forms of health care,"[79] like the different paramedical organizations. Even more important is the struggle for patients between nonprofit versus for-profit organizations. For example, Humana, a for-profit corporation, carefully selects its locations and therefore the type of customers it expects. This allows Humana to charge what the market (and government) will bear, and also to skim the best customers leaving the difficult, costly, and medicare/ medicaid cases to the nonprofit sector.[80]

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[78]Michael Lesparre, "Stockman Sees Competition Plan as 'Only Way to Go,'" Hospitals, 54 (1980), 58.

[79]Goldsmith, op. cit., p. 101; see also: Health Care's Decade of Change, op. cit.

[80]"Humana's customers paid $241 per day versus $217 in all community facilities [although] . . . in fiscal 1979, its average cost per inpatient case came to $1,452 versus the community hospitals' average of $1,564." Source: Gwen Kinkead, "Humana's Hard-Sell Hospitals," Fortune, 102 (1980), 81.

Another significant competition problem for hospitals is the attempt to confront freestanding entities, like the Health Maintenance Organizations (HMO) "that do not have the community and regulatory responsibilities that hospitals have."[81] HMOs may present effective competition to the individual hospital through providing reduced hospitalization rates for their members.[82]

HMOs in actuality are customers' associations. From the supply side, an emerging force is the multi-hospital systems, which are forecast to control, directly or indirectly, the majority of U. S. hospitals in fifteen to twenty years.[83] Therefore it is anticipated that the present competition--among thousands of organizations--will have to be redefined as competition between the few dozen multi-hospital systems.

Finally, another form of competition that has critical importance is the present competition between teaching versus nonteaching institutions, the latter presenting better cost configurations, and the former educating future doctors at an additional price. There is an argument that teaching hospitals may survive on their own merit.[84] However, "certain teaching hospitals

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[81]Emily Friedman, "Competition," op. cit., p. 64.

[82]Goldsmith, op. cit., p. 102.

[83]Ibid., p. 112.

[84]"How to Pick a Good Hospital," op. cit., pp. 145-146.

could be especially vulnerable [for] they can hardly expect to succeed in direct price competition with other hospitals. [85]

Competition Issues

Three areas of interest are discussed here: Entry barriers, performance of tax-exempt hospitals, and future trends.

a. Entry Barriers. The hospital market exhibits an oligopolistic character. This is because of the existence of entry barriers, as legal requirement and accreditation standards, to mention just the two most prevailing.[86] Complications may arise from other competitive alternatives, HMOs and multi-hospital systems, whose ability to bypass regulatory obstacles is facilitated by their operational nature (know-how, size, funds, etc.).

b. Tax-exempt Hospitals. It is argued that their "market performance . . . has not, on balance, been particularly distinguished."[87] The implication here is that those institutions may not be sponsored (or tax exempt), since this practice allows inefficient organizations to survive the market tests. Obviously, policy considerations may dictate opposing rulings.

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[85] J. W. Colloton, oral testimony on Health Incentive Reform Act, by the Association of Medical Colleges to the Subcommittee on Health, Committee on Finance, U. S. Senate, March 19, 1980.

[86] Salkever, op. cit., pp. 56-69.

[87] R. A. Milch, "Product-Market Differentiation: A Strategic Planning Model for Community Hospital," Health Care Management Review, 5 (1980), 7.

c. Future Trends. Many critical changes are imminent in the health care industry. They will signal new competitive practices and will demand different regulatory theses. These may be: (1) both supply and demand will be clustered around more powerful units (multi-hospitals and HMOs); (2) many paramedical organizations will appear; (3) hospitals will be forced to become full health centers;[88] (4) the market test will be vital for hospital survival; (5) new medical technologies will permit the existence of satellite units and small community hospitals; and (6) costs will probably stop increasing, at least at the present rates.[89]

With respect to the elderly, many questions are coming into focus. What may be their attitudes and preferences toward for-profit versus nonprofit hospitals, given past performance? Toward the Humana-type--more customized--operations? Toward the multi-hospital systems? The HMOs? The teaching versus the nonteaching medical institutions? The freestanding emergency rooms? The low-performing tax-exempt organizations? Also, given the indicated future trends, how do the elderly feel with respect to those changes?

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[88]Douglas C. Carpenter, Jr., "Hospitals Should Be Fitness Centers, " Hospitals, 54 (1980), 148-152; see also: W. McNerey, "As Health Costs Soar . . . Needed: 'A New Direction for Our Medical System'," U. S. News and World Report, March 28, 1977, pp. 39-45.

[89]Tompor, op. cit., p. 29.

Regulation Issues

It was seen in the previous section that the health care industry is in a rapid transition phase, and that the changes will probably trigger new policies and activate different regulations. In examining the behavior of a specific segment, therefore, there is a need to be cognizant of the regulatory modifications that may appear. It is the nature of health care providers that they comply with an enormous amount of regulation. Since 1966 the federal government's growth in the hospital business has been dramatic. A recent study indicates that there exist 164 agencies regulating hospital functions,[90] and another one indicated that in 1976, New York hospitals alone spent more than one billion dollars just to cope with government regulations.[91]

Nevertheless, there are other indications that this regulatory-mania is declining based on the argument that "regulations may or may not be a source of rights [that] compassion and respect for individuals cannot be regulated." We probably have to accept that all regulatory efforts, especially towards the elderly, must basically seek to prevent abuses of power.[92]

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[90] I. D. Snook, Hospitals: What They Are and How They Work. (Rockville, MD: Aspen Systems Corporation, 1981), p. 6.

[91] Goldsmith, op. cit., p. 17.

[92] Janice M. Caldwell and Marshal B. Kapp, "The Rights of Nursing Home Patients: Possibilities and Limitations of Federal Regulation," Journal of Health Politics, Policy and Law, 6 (1981), 40-46.

With respect to regulation there is also another significant trend. It appears that regulations are originating from state and local governments at an increasing rate.[93] This trend may indicate that in the future greater orientation toward local needs will be demonstrated in health regulations.

In conclusion, in this section it has been shown that new regulations can be more flexible, more adapted to local community needs, and probably less expensive. With respect to this thesis, regulating the elderly's health care appears to have some very sensitive elements. On occasion, the elderly's health care exhibits some distressing dimensions (lack of attention, lack of proper facilities, etc.). On the one hand, regulations cannot assure the abolishment of power abuse; on the other hand, regulations comprise a preventive mechanism, especially protecting the aged, that assures that minimum acceptable standards would be respected. At any rate, the elderly is a large and growing segment of this nation. If regulatory efforts are not strictly for humanitarian reasons, it must be understood that the elderly pose important political significance through their voting power, and a very large amount of buying power. Political and economic power may portend rapid and significant impact on regulatory mechanisms.

Planning Issues

Should health care practices and respective regulations change,

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[93]Quote from S. C. Jain in American Journal of Public Health, 71 (1981, Supplement), 12.

the managerial counterbalancing effort will be toward better planning. This section discusses a few peripheral positions with respect to marketing and health care planning, as well as some observations of more direct interest to the elderly segment.

"Formal long range planning began to gain more widespread acceptance in hospitals during the middle 1960s."[94] As a national effort, planning has the potential to ration the use of health care dollars by assuring that these high cost services are available as needed; marketing may be considered as a starting point of proper planning.[95] As a hospital planning tool, marketing is needed to provide "accurate advance assessments of product usage by integrating user inputs with definitions of quality."[96] "A marketing approach starts the planning process with the consumer, letting the consumer's needs and wants guide the strategy of the organization."[97]

It follows that among the numerous product/market combinations that a typical general hospital considers, only a very few of these combinations may uniquely identify the institution to the specific charactistics of its markets, and enable the hospital to capitalize on

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[94]Terrence J. Rynne, "The Third Stage of Hospital Long-Range Planning: The Marketing Approach," Health Care Management Review, 54 (1980), 7.

[95]Cooper and Maxwell, op. cit., p. 46.

[96]Rynne, op. cit., p. 10.

[97]Ibid., p. 11; see also: E. N. Berkowitz and W. A. Flexner, "The Marketing Audit: A Tool for Health Service Organizations," Health Care Management Review, 3 (1978), 52.

them and on the respective differential advantages.[98] Hence, if we assume that a particular market segment is composed primarily of elderly people, planning considerations of the following nature may be more critical than otherwise:

- "Ongoing services to patients who are about to be discharged from the hospital."[99]
- Nursing home care may be more humane, efficient, and economical than an institutionalized one.[100] Examples of retirement communities, hospital sponsored housing projects, and so on, may be even more effective solutions.
- The existence of comprehensive systems of home health and support services, as a compensating factor to the nursing homes' misuses, high costs, kickbacks, and their reliance on untrained and unlicensed personnel.[101]

It is evident that planning would be better targeted and more efficient in resource allocation if it capitalized on marketing. It has been argued, too, that planning may be more effective if geared

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[98] S. G. Hillstad and Richard Berry, "Applying Strategic Marketing," Hospital and Health Services Administration, 25 (1980, Special II), 13.

[99] Ruth Ellen Lindenberg and Claudia Coulton, "Planning for Posthospital Care: A Follow-Up Study," Health and Social Work (National Association of Social Workers, Inc., 1980), pp. 45-50.

[100] James Adams, "Alternate Forms of Care Benefit Young and Old," Hospitals, 54 (1980), 92.

[101] Subcommittee on Long-Term Care, U. S. Senate Special Committee on the Aging, "Introductory Report--Nursing Home Care in United States: Failure of Public Policy," supporting papers 2 and 4 (Washington, DC: U. S. Government Printing Office, 1974), pp. 7-8.

toward local communities instead of the state or national level.[102]

The Health Care Consumer

Since this research topic is concentrated on the elderly health care consumer, it will now be narrowed in two directions. First, to the health care consumer from a general perspective, and second to issues pertaining exclusively to the elderly segment of the population.

In spite of the topical importance, the health care consumer has been ignored, at least in terms of academic research. Probably the best collection of studies on consumer opinion and satisfaction with medical services may be found in the Locker and Dunt study (1978).[103] There, a noteworthy element is that both in Europe and in the United States, none of the works quoted date before the sixties. This is probably one of the reasons why the concept of health care consumer "remains open to debate."[104] Whatever the academic arguments of the exact definition of the health care consumer may be, the fact is that in 1981 American health care consumers spent 279 billion dollars on health care, and by 1990 spending is expected to balloon to "$3,309 annually for every man, woman, and child in the U. S."[105]

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[102]M. M. Melum and S. S. Locke, "Helping People Evaluating Health Plans: The Minnesota Hospital Association Criteria," Health Care Management Review, 15 (1980), 78.

[103]David Locker and David Dunt, "Theoretical and Methodological Issues in Sociological Studies of Consumer Satisfaction with Medical Care," Journal Science in Medicine, 12 (1978), 283-92.

[104]W. J. A. van den Heuvel, "The Role of the Consumer in Health Policy," Social Science Medicine, 14A (1980), 425.

[105]"Health Care: The Opportunities in a Huge Market,"

Health care consumers must not be ignored. It is not only the dollar amount they represent in the marketplace; there are also a host of humanitarian and social reasons which oblige us to study them. In the previous sections health care's marketing mix elements, and competition, regulatory, and planning perspectives, were discussed. In this section the following perspectives with respect to the health care consumer will be analyzed: (a) general considerations on consumer behavior, dynamics of purchase, importance of purchase, risk perception, readiness to act, and types of health behaviors; (b) specific considerations on health care's choice; and, (c) specific considerations on health prevention.

General Considerations of Purchase Behavior in Health-Care Decisions

With the exception of the routine rebuys (like periodic replacements—e.g., aspirin, mouthwash, etc.—dental inspections, and so on), the health care consumer is poorly aware of what exactly he needs. In a parallel sense Howard and Sheth state:

> When a buyer is just beginning to purchase a product class, such as making a purchase required by a change in his life style, he lacks experience; he has neither well defined choice criteria nor any knowledge of the various brands and their potential. He, therefore, actively seeks information . . . [and through information modification to] . . . suit his own frame of reference.[106]

The dynamics of the buying behavior of the health care consumer depend on his need. For example, if he wants to buy antacid "TUMS,"

Business Week, January 11, 1982, p. 85.

[106]John A. Howard and Jagdish N. Sheth, The Theory of Buyer Behavior (New York: John Wiley and Sons, Inc., 1969), p. 26.

"BEN-GAY," or dental floss, his behavior will be directed either from repeat buying of the same product class, or from a display stimulus, in the same way that he will shop for "NESCAFE" or napkins. In these cases the 'Importance of Purchase' bears only a low degree of subjective risk.[107] However, the patient-consumer does not have the same attitude when the subjective risk is high and the purchase bears inconvenience, discomfort, and a higher price. In some cases the patient-consumer will proceed simply through a 'generalization from similar buying situations.'[108] An example of this case is the extraction of a tooth. In the other cases, assuming that the consumer has the time to make a choice, "the cognitive state of the buyer which reflects those attributes of the brands in the product class that are salient in the buyer's evaluation" (choice criteria),[109] will be employed and thoroughly studied before engaging in any buying (e.g., hospital facilities, rehabilitation potential, etc.).

It was discussed in the price section that there are indications that preventive health services have a negative demand, whereas therapeutic and acute needs exhibit a price inelastic behavior. Therefore, the buyer, even if he has fully evaluated the salient product characteristics of the product needed (e.g., to undergo a prostate operation), he may be postponing his purchase

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[107] Ibid., p. 73; see also: Raymond A. Bauer, "Consumer Behavior as Risk Taking," ed. R. S. Hancock, Dynamic Marketing for a Changing World, Proceedings of the 43rd Conference of the American Marketing Association, pp. 389-400.

[108] Howard and Sheth, op. cit., p. 43.

[109] Ibid., p. 118.

(because of the previously mentioned negative demand due to inconvenience, discomfort, etc.), for the consumer's psychological state of readiness to take specific actions depends on his perception of his susceptibility, his perception of the seriousness of his health problem, and his perception of benefits from taking such actions.[110] In a rather more methodical fashion it has been stated that health care consumers may be evaluated through a 'readiness to act factor,' where, (a) their perceived seriousness of the problem, and (b) their perceived vulnerability are weighted together.[111] At any rate, the following frame seems to encompass in a broad way the expected behavior of the health care consumer:

> Health Behavior: activities undertaken by a person who believes himself healthy, for the purpose of preventing or detecting disease.
>
> Illness Behavior: activities undertaken by a person who feels ill, for the purpose of defending the state of his health and of discovering a suitable remedy.
>
> Sick-role Behavior: activities undertaken by a person who considers himself ill.[112]

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[110] Venkatesan, "Preventive," op. cit., p. 20; see also: Irwin M. Rosenstock, "Why People Use Health Services," Milbank Memorial Fund Quarterly, 44 (1966), 94-127.

[111] Philip D. Cooper, "A Consumer Perspective on Preventive Health Care Service Usage," Marketing and Preventive Health Care: Interdisciplinary and Interorganizational Perspectives, eds., Philip D. Cooper, William J. Kehoe, and Patrick E. Murphy, Proceedings Series (Chicago, IL: American Marketing Association, 1978), p. 46.

[112] Venkatesan, "Preventive," op. cit., p. 14; see also: S. V. Kasl and Sidney Cobb, "Healthy Behavior, Illness Behavior and Sick-Role Behavior," Archives of Environmental Health, 12 (1966), 216-267.

A health care consumer, therefore, will engage in purchasing according to his 'readiness to act' perception, his evaluation of product characteristics, the importance of the sale, the risks involved, the urgency of his health need, and also his own particular behavior towards health/illness understanding.

Choice Criteria

Except for the health care product/services that may be classified as routine rebuys, a question arises whether the consumer actually makes a choice. The type of near-by facilities, the physician's preference, etc., may preclude the patient's right to choose, and in fact may dictate the one or the other solution even against the customer's preferences. There is also the opinion that with respect to health care, individuals can exercise only two basic choices: The first is the purchase of insurance coverage, the second is the decision to utilize the market for health care. These decisions depend respectively on the individual's degree of risk aversion and on their socio-cultural, demographic, and economic characteristics.[113] However, the considerations mentioned in the previous subsection suggest that the health care consumer does employ his own criteria of selection. It seems only appropriate that we must hypothesize that the particular target population perceives that it has freedom of choice and well established criteria. Following the primary research, we shall draw conclusions on this issue. At this point, however, since health care behaviors and choice criteria will

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[113]Maybelle Goya Sonnenschein, "Consumer Choice in Matters of Health Care (PhD dissertation, Tufts University, 1979), p. 52.

be examined here, it may be beneficial to mention other statements/ hypotheses derived from the literature, with respect to our target population:

- Patients are more concerned with convenience than the cost of care.[114]
- Patients trust the teaching hospitals more.
- Patients make sure the hospital is large enough to provide adequate care.
- Practitioner-patient agreement is associated with greater expectations of improvement.[115]
- Hospital accreditation by the Joint Commission on Accreditation of Hospitals (JCAH) is necessary.
- Existence of JCAH standards is necessary for nursing care.
- Patients must examine the control systems that regulate the experience and qualifications of the hospital staff.
- Patients must examine the existence of residency programs,[116] etc.

The above choice criteria comprise a small part of the set of potential criteria ("blanket") that the health care consumer has. This "blanket" comprises the health care's elements of marketing mix components, and the degree of segmentation. It is often studied

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[114]James Y. Greene, Morris Weinberger, and Joseph J. Mamlin, "Patient Attitudes Toward Health Care: Expectations of Primary Care in a Clinic Setting," Social Science Medicine, 14A (1980), 138.

[115]Barbara Starfield, et al, "The Influence of Patient-Practitioner Agreement on the Outcome of Care," American Journal of Public Health, 71 (1981), 127.

[116]"How to Pick," op. cit., pp. 145-146.

through an analysis of psychographics and the life style of the target population.

Health Care: Prevention

Early detection of disease symptoms and the undertaking of preventive measures reduced the therapeutic services that the prospect will need at a later stage. However, it seems that "preventive health behavior is particularly congruent with subgroups in society which have a predominantly future orientation."[117] Studies, for example, of HMOs (which predominantly have preventive orientation) recommended that the "target group . . . should be younger employees."[118] Since there have been no studies on preventive health behavior of the elderly, it will be worthwhile to attempt to investigate this area here, since it preassumes time orientation and specific predispositions with respect to socio-cultural factors. Moriarity writes:

> A difficulty with preventive health care is that there is not a dramatic change in immediate health status as a result of behaving preventively. Since the rewards of preventive behavior are deferred, it is likely that a consumer's time orientation has a significant impact on his/her predispositions with regard to adopting preventive health behaviors . . . predispositions may be strongly rooted in cultural, social class and ethnic norms which are highly resistant to change.[119]

Following the above thoughts, an analysis directed toward segmenting the target population into age groups and socio-cultural characteristics may reveal useful findings which help to infer future

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[117]Moriarity, "Problems and Limitations," op. cit., p. 91.

[118]Venkatesan, "Preventive," op. cit., p. 67.

[119]Moriarity, "Problems and Limitations," op. cit., p. 91.

attitudes of the presently younger age groups. However, an elderly target population may be more knowledgeable and sensitive in health care matters since it is more associated with individuals "subject to long-term care where the quality of care can be synonymous with the quality of life."[120]

Concluding this section it is evident that a specific study of health behaviors with respect to health care choice criteria and attitudes toward health prevention is highly desirable since this study will (1) help to determine the elderly's perspectives toward health care issues, (2) offer tools useful in targeting future marketing efforts directed to this group at least with respect to the type of facilities employed, and (3) indicate potential segments into which the health market of older people may be divided, offering to each of them a more satisfactory and more economical product.

The Elderly Population

The previous section discussed characteristics of the health care consumer. This section will review studies which (a) detail the health status of the elderly in the United States, (b) summarize economic characteristics and the elderly's financial potential, (c) classify the elderly into demographic and social groups, and (d) discuss implications arising from the elderly's migration.

Health of the Elderly: Perceptions and Facts

This subsection aims at elaboration in two dimensions: how older people perceive their own health status, and pertinent

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[120]Locker and Dunt, op. cit., p. 283.

statistical facts with respect to the health of elderly populations in the United States. However, since this dissertation aims to study the perceptions of the elderly in health related dimensions, it is crucial to review other works on the topic. For example, there is evidence that the elderly's self assessment of health does not necessarily coincide with respective clinical evaluations;[121] nevertheless, health related questions of this research will be primarily based on self assessments.

This may not be a significant obstacle, for different studies indicate that the perceptions of older people with respect to their health status are "fairly realistic."[122] Evidently, this realistic perception is influenced by factors such as stress (of basic external origin) and its resulting strain,[123] and by age perception, which is often viewed in terms of family life cycle.[124] Elements discussed in the previous section, such as health behavior, risk-orientation, and personal medical history, may additionally polarize the otherwise realistic self health rating. For example, Campbell and Chenoweth, working with figures from the National Center of Health Statistics (1977), report that seventy-five percent of older people describe themselves as well, eighty-six percent have one or more chronic

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[121]Kyriakos S. Makrides and Harry W. Martin, "Predicting Self-Rated Health Among the Elderly," Research on Aging, 1 (1979), 98.

[122]Ibid., p. 108.

[123]Ross Stagner, "Stress, Strain, Coping and Defense," Research on Aging,3 (1981), 3-27.

[124]M. B. Reed and F. D. Glamser, "Aging in a Total Institution: The Case of the Old Prisoners," The Gerontologist, 19 (1979), 359.

conditions and thirty-nine percent are limited in major activities.[125]

A paradox of the above nature may be explainable inasmuch as the clinical evaluation may indicate a chronic condition, while, at the same time, the patient accustomed to the chronic effects and treatments, may feel good. In contrast, age, health behavior, etc., may dictate "sick-roles" to individuals who are clinically in good health.

The following tables (Table 2-2 through 2-10) offer data with respect to the average older American's age, life expectancy, sex composition, acute and chronic conditions, and so on. These data are important here to facilitate observations concerning market-segmentation opportunities. The contents of these tables pinpoint that: (1) through the years the American elderly segment increased both as a proportion of the total population, and in absolute numbers; (2) at retirement they have at least an average life expectancy of sixteen years and at the age of eighty they still have an average life expectancy of eight years; (3) their life expectancy will increase in the future; (4) women are the proportionately greater part of the older population, and chances are that this proportion will be even greater in the future; (5) the over-65 group has significantly fewer incidents of acute conditions per year than the average, but, every incident commands more disability and more restricted activity days for the aged persons than the national averages of all ages; (6) due to chronic conditions there is three times more activity limitation

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[125]Ruth Campbell and Barbara Chenoweth, "Health Education as a Basis for Social Support," The Gerontologist, 21 (1981), 619.

Table 2-2

United States: Populations per Age Group by Year (in thousands)

	55-64	65-over	All Ages
1960	15,572 (8.7%)	16,560 (9.2%)	179,323
1970	18,602 (9.2%)	19,972 (9.8%)	203,235
1979	20,952 (9.5%)	24,658 (11.2%)	220,099

Source: U. S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States 1980, 101st Edition, Table 33, p. 29.

Table 2-3

United States: Average Life Expectancy in Years

Age at	55	60	65	70	75	80	85
Expectation of Life in Years	23.5	19.7	16.3	13.1	10.4	8.1	6.4

Source: U. S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States 1980, 101st Edition, Table 108, p. 73.

Table 2-4

United States: Persons 65 Years of Age: Life Expectancy (in years)

	1976	2000
Males	13.7	14.2
Females	18.0	19.1

Source: U. S. Department of Commerce, Bureau of Census, Current Population Reports, Series P-25, No. 704.

Table 2-5

United States: Number of Males per 100 Females: Estimates and Projections of the Sex Ratio of the Population

Year	65 Years and Over
1970	72.0
1975	69.4
1978	68.5
1985	67.6
2000	66.6

Source: U. S. Department of Commerce, Bureau of Census, Current Population Reports, Series P-25, Nos. 704, 721, 800.

Table 2-6

United States: Accute Conditions: Number of Incidents and Days of Restricted Activity: 1977-1978

	All Ages	Over 65 years old
Incidents of accute conditions per 100 persons, per year	219.0	111.0
Restricted activity per condition in days	4.5	10.9
Bed disability per condition in days	2.0	4.6

Source: U. S. Department of Health, Education and Welfare, Public Health Service, National Center for Health Statistics. Accute Conditions: Incidents and Associated Disability. July 1977-June 1978, p. 5.

Table 2-7

United Staetes: Persons With Activity Limitation, by Selected Chronic Conditions: 1978: Both Sexes

	All Ages	Over 65 years
Persons with limitations (millions)	30.3	10.3
Percent limited by		
Heart conditions	16.1	23.8
Arthritis/rheumatism	16.4	24.7
Hypertension (no heart involvement)	6.5	7.5
Impairment of back/spine	7.7	3.7
Percent of all persons with		
No activity limitation	85.8	55.0
Activity limitation	14.2	45.0
In major activity	10.6	38.3

Source: U. S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States, 1980, 101st ed., p. 127, table 202.

Table 2-8

United States: Hospital Episodes: Days per Person With Episodes: 1979 (Survey Data)

Episodes	All	1	2	3+
All ages	9.3	6.5	16.7	34.0
65 years and over	13.6	9.5	19.8	38.4

Source: U. S. Department of Health and Human Services, National Center for Health Statistics. Current Estimates for the National Health Interview Survey: United States, 1980, series 10, No. 139, table 17, p. 27.

Table 2-9

United States: Persons With Elevated Blood Pressure: Rate per 100 Persons: 1971-74

	Age Groups		
Total	45-54	55-64	65-74
18.1%	24.2%	33.2%	40.7%

Source: U. S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States 1980, 101st ed., table 203, p. 128.

Table 2-10

United States: Time Interval Since Last Physician Visit: 1979 (Survey Data)

	Total Population	Under 6 Months	6-11 Months	1 Year	2-4 Years	Over 5 Years
All (000)	217,923	127,370	35,870	23,447	20,966	8,115
%	100.0	58.4	16.5	10.8	9.6	3.7
65 years and over (000)	23,891	16,473	2,495	1,433	1,883	1,467
%	100.0	69.0	10.4	6.0	7.9	6.1

Source: U. S. Department of Health and Human Services, National Center for Health Statistics, Current Estimates from the National Health Inteview Survey: United States 1980, series 10, No. 139, table 21, p. 31.

for the over-65 segment than for the average American; (7) incidents of arthritis and heart problems in the over-65 group are fifty percent higher than average; (8) elderly people stay in the hospital longer for every episode; (9) older people have significantly higher blood pressure; and (10) older people visit their physicians much more regularly.

In conclusion, we may say that the elderly have a "fairly realistic" view of their health conditions, having accepted their impairments and given their perceptions on factors affecting health ratings. However, statistics and national surveys indicate the existence of the previously mentioned problems and these may lead us to conclude that the elderly tend to be more dependent on the existence of health services and more prone to seek and accept medical treatments.

Economic Considerations

This subsection profiles the older consumer by identifying, general trends with respect to the aged persons' economic status, considerations of the elderly's income and asset potential, and considerations of the elderly's purchasing power.

A. Economic Trends

"Public social welfare expenditures for programs providing age-related benefits have risen significantly over the past 50 years."[126] This rise was a direct result of a change in priorities

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[126]R. L. Clark and J. A. Menefee, "Federal Expenditures for the Elderly: Past and Future," The Gerontologist, 21 (1981), 132.

that obliged Congress to take specific legislative actions.[127] For example, "support for the elderly's health needs was not directly provided until 1960"[128] when the Medical Assistance for the Aged Act was authorized. Since then, an impressive increase of Federal expenditures for persons over 65 years of age has taken place. By 1960, Federal expenditure per aged individual was $768 per annum (2.52% of the GNP and 13% of the Federal budget); in 1970, this amount had reached $1,902, and in 1978, $4,678 per aged individual (5.3% of the GNP and 24% of the Federal budget).[129]

Evidently, the trend will continue, at least because the aged population is proportionately increasing. It is projected that projected government payment on behalf of persons 65 years of age or older will increase by the year 2000 to $20,353 (6.77% of the GNP), by 2010 to $39,332, and by 2025 to $80,443 (10.15% of GNP).[130]

B. Income and Assets

One must keep in mind that the cash incomes that the elderly receive is not their total income. Because of the taxation exemptions, no F.I.C.A., Medicare, and Housing benefits, their actual income increases sometimes more than twenty-five percent over their cash income. For example, Tongren calculated that a cash income of $6,000 represents to the elderly a total real income of $8,216, and a

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[127] Ibid., p. 137. [128] Ibid., p. 132

[129] Ibid., p. 134; see also: J. A. Califano, "The Aging of America: Questions for the Four Generation Society," The Annals of the American Academy of Political and Social Science (July 1978), pp. 96-107.

[130] Ibid., p. 136.

$12,000 annual income corresponds to $15,618.[131] At any rate, the elderly, in general, are not economic paupers in our society. Table 2-11 illustrates the elderly's comparative family income distribution; in 1975, for example, two-thirds of them had more than $10,000 annually as family income.

Glisan summarized the picture of the elderly's imputed income by writing, "when other factors are taken into account, the economic picture of the elderly suggests a prosperous outlook for most seniors."[132] Income, however, is only one side of this segment's economic vitality. Aged people have usually amassed during their lives assets that augment their economic potential, as any economic taxtbook may testify in the analysis of the life-cycle hypothesis.[133]

C. Purchasing Power

From an economic perspective, income alone is not the only determinant of consumption.[134] The fact that older persons have saved assets, have available durable goods, and have low levels of debts, increases their spending power. Glisan and Kiser, in a study of the Arkansas consumer, concluding that "older citizens are active in the

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[131] H. N. Tongren, "Imputed Income as a Factor in Purchasing Power of the Over-65 Age Group," Proceedings: Southern Marketing Association (1976), pp. 127-129.

[132] G. B. Glisan, "An Investigation of Social Class as a Criterion for Deriving Market Segments Among an Elderly Population" (PhD dissertation, University of Arkansas, 1981), p. 27.

[133] R. J. Gordon, Macroeconomics (Boston: Little, Brown and Company, 1978), pp. 378-381; see also: Glisan, op. cit., p. 31.

[134] W. P.Albrecht, Economics, 2d ed. (Englewood Cliffs, NJ: Prentice-Hall, 1979), pp. 170-172.

Table 2-11

United States: Distribution of Family Income for the Elderly (%)

Income Class ($)	1975 (actual)	1985 (projected)
Under $5,001	8.0	3.0
5,001-10,000	27.2	17.9
10,001-15,000	20.4	18.7
15,001-20,000	13.9	15.2
20,001-35,000	17.3	25.1
35,001 and over	13.2	20.0

Source: Fabian Linden, "Age and Income--1985," The Conference Board Record (June 1976), pp. 8-13.

marketplace,"[135] and they were also active consumers irrespective of their age group.[136] Finally, another important finding of this study was that as age progresses, the percentage of cash paying buyers also increased.[137]

In conclusion, the previously stated opinions and data indicate that the elderly consumer, on the average, although not affluent, does have a significant buying power, and that he actively engages in purchases. His equivalent income is higher than what statistics indicate, he has an added potential to spend because of his asset accumulation and lower personal debt structure, and, most importantly, he is expected to become financially stronger in the future.

Demographic and Social Considerations

The purpose of this subsection is to present certain demographic characteristics of the Arkansas elderly (Table 2-12), as well as social considerations with respect to the aged persons in general.

Although this research is not limited to the over-65 group, there is evidence this segment is affected more than the younger people by chronic diseases, such as diabetes, arthritis, arteriosclerosis, hypertension, and osteoporosis. Pomerantz writes "The chronic diseases . . . are frequently characterized by the production of significant disability after the age of 65"[138] (Table

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[135]Glisan and Kiser, op. cit., p. 35.

[136]Ibid., p. 18. [137]Ibid., p. 33.

[138]R. S. Pomerantz, "Geriatric Rehabilitation," Geriatrics, 35

Table 2-12

Demographic Characteristics of the Arkansas Elderly

	Total	% of Total
1. Arkansas population	2,286,435	
2. Arkansas households	898,593	
3. Persons over 65		
Total	312,477	13.7
White	264,738	84.7
Black	46,385	
4. Persons 65-74 years old		
Total	192,447	8.4
Female	106,244	55.2
5. Persons 75-84 years old		
Total	93,676	4.1
Female	56,270	60.0
6. Persons over 85 years old		
Total	26,354	1.2
Female	17,222	65.3
7. Persons over 65: Household type and relationship:		
In Family Household:		
Householder [sic]	115,461	37.0
Spouse	69,046	22.1
Other relatives	20,697	6.6
Nonrelatives	923	
In Non-Family Household:		
Male householder [sic]	19,240	6.2
Female householder [sic]	68,650	22.0
Nonrelatives	1,471	
In Group Quarters:		
Inmate or institutionalized	15,940	5.1
Other	848	

Table 2-12
(Continued)

Demographic Characteristics of the Arkansas Elderly

	Total	% of Total
8. Households with one person over 65	85,884	9.5
9. Households with 2 or more persons over 65:		
Family households	134,622	15.0
Non-family households	2,633	
10. Occupied housing units with one or more persons over 65:		
Total:	223,139	
Householder under 65 [sic]	19,588	
Householder over 65 [sic]	203,551	91.2
Rented occupied:	102,293	22.5
Householder under 65 [sic]	3,480	
Householder over 65 [sic]	46,813	93.1

Source: Industrial Research and Extension Center, "1980 Census Summary Tape File 1 Data, Arkansas; by County" (Little Rock, AR: University of Arkansas, January 1982), pp. 1-5. (Mimeographed.)

2-7). Health problems appear in elderly persons with more intensity, and besides the inconvenience to the individuals, they also demand medical efforts in terms of geriatric rehabilitation, which may be translated into economic and social costs. Obviously, aged people feel discomfort with any kind of disease and rehabilitation treatment. However, sickness may not be their only disagreeable consideration. The reduction of their social interaction is often an overriding thought, especially as they approach the retirement stage.[139] Engel and Charles also found that younger elders feel more isolated than older elders,[140] probably because they have not as yet adapted to their new environments.

Freshley, in an eight-year longitudinal study, found that over time, not only the elders' health measures decline, but also their contacts with family and friends decline;[141] in contrast, there is an increase in their participation in formal social activities, church groups, clubs, and voluntary associations.[142] All the above findings present significant research interest for further testing.

Education is another factor that potentially improves the socialization process. Tables 2-13 and 2-14 profile the educational

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(1980), 43.

[139]Glisan, op. cit., p. 33.

[140]J. B. Engel and D. C. Charles, "Aging and Alienation: A Fresh Look," abstract in Gerontological Society of America, 32nd Annual Scientific Meeting, Washington DC (November 25-29, 1979).

[141]H. B. Freshley, "Social Interaction Patterns and Health Status," abstract in Gerontological Society of America, 32nd Annual Scientific Meeting, Washington, DC (November 25-29, 1979).

[142]C. C. Riddick, "Causal Model of Life Satisfaction Among Elderly Men and Women," Gerontological Society of America, 34th Annual

Table 2-13

United States: Years of School Completed for Persons Over 55 Years Old: All Races (% of total)

	Elementary School			High School		College	
School years	0-4	5-7	8	1-3	4	1-3	4
Persons (%)	6.7	11.6	8.2	21.2	30.0	11.5	7.9

Source: U. S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States 1980, 101st ed., table 239, p. 149.

Table 2-14

United States: Illiterate Persons Over 65 Years of Age (% of total)

	1959 (March)			1969 (November)		
	Total	White	Black	Total	White	Black
Male	6.9	5.3	28.3	3.4	2.1	17.2
Female	6.2	5.0	23.0	3.5	2.4	16.2

Source: U. S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States 1980, 101st ed., table 240, p. 150.

levels of the elderly. It is, however, evident that "[in terms of education] the elderly as a group are below that of the remaining adult population."[143] It is also clear that elderly show a poorer learning capacity than the younger groups.[144]

Finally, another social consideration that statistics indicate is that white males over-65 have a significantly higher rate of suicides than any other group. There were also more suicides among men than among women; more suicides in recent years, than in the past; and more suicides among whites than among other races (Table 2-15).

As a summary of this subsection, we may say that the elderly segment, alienated from its previous social interactions, being more disease-prone, and less educated than the younger segments, may have stronger reasons for life dissatisfaction. However, after an initial transition period, and given some efforts to adapt to new environments, the elderly do achieve a satisfactory life that includes many recreational elements. We may also stress that the sex composition of the elderly shows that females comprise its largest part, and this trend increases as age progresses.

Migration Implications

Arkansas is a state where many elderly have decided to migrate. This migration portrays peculiarities that the present study will not

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Scientific Meeting Toronto, Ontario (November 8-12, 1981).

[143]Glisan, op. cit., p. 33.

[144]J. S. Freund and K. L. Witte, "Learning-to-Learn Paired Associates in Young and Elderly Adults," abstract in Gerontological Society of America, 32nd Annual Scientific Meeting, Washington, DC (November 25-29, 1979).

Table 2-15

United States: Suicide Rates per 100,000 Persons

	Male				Female			
	1970		1978		1970		1978	
	White	Other	White	Other	White	Other	White	Other
Over 65	41.1	10.8	40.8	12.1	8.5	3.6	7.9	3.1
All	18.0	8.5	20.2	11.1	7.1	2.9	6.9	3.1

Source: U. S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States 1980, 101st ed., table 313, p. 188.

reveal. This be because this dissertation is addressed to the general Arkansas household, and in the process it excluded the communities where elderly traditionally may move (e.g., retirement villages). To compensate, somehow, for this omission the following section is addressed to the specific implications because of elderly migration.

There is evidence that discretionary moves among the older cohorts are dictated by health factors. Persons in poor or declining health (or who perceive that their health is poor) are inclined to accept quasipermanent hospitalization in facilities that provide long-term care. Diametrically opposing attitudes are found in elders who believe themselves to be in good physical condition. They may decide to relocate in the Sunbelt or in areas where they feel more comfortable.[145] Therefore, we need to avoid generalizations based on studies that include retirement villages. Persons living in such a village may have been conditioned towards healthier attitudes through exposure, experience, education, life style; they may be more inclined to accept preventive and diagnostic treatment in order to avoid or postpone therapeutic needs; they may be more optimistic, more fun seeking, more sociable than other elderly people living in total institutions.

Additionally, there is an indication that environmental satisfaction, sociability, and well-being among the elderly improve the health perception of individuals.[146] Therefore, since a

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[145]C. H. Patrick "Health and Migration of the Elderly," Research on Aging, 2 (1980), 233-241.

[146]C. M. Barresi, K. F. Ferraro, and L. L. Hobey, "Environmental Satisfaction, Sociability and Well Being Among the Elderly," Gerontological Society of America, 34th Annual Scientific

retirement village provides a great deal of environmental satisfaction, it follows that persons living there may have more optimistic health behavior than otherwise.

At any rate, elderly migration seems to be constantly increasing,[147] for the total elderly population segment is increasing. This trend raises the significance of the retirement villages since they primarily cater to the elderly. However, and in spite of the lack of academic research in the area of aged migration,[148] a general conceptualization holds that:

> Those who are economically and otherwise robust tend to migrate to retirement communities in search of climatic and recreational amenities while those deficient in such resources remain residentially stable until forced to relocate locally in search of assistance.[149]

As a summary of the above comments, we may stress that the inclusion in this study of elderly living in retirement villages might result in research design bias about the whole aged segment. There is evidence that: (a) only relatively healthier persons migrate to similar communities (nationwide only fourteen percent of the aged populations' relocations involved interstate movement[150]); (b) life in a retirement village assures more satisfaction resulting in more optimism and a better perception of self health; and (c) only relatively wealthier people tend to relocate to these villages.

Meeting of the Toronto, Ontario (November 8-12, 1981).

[147] Everett S. Lee, "Migration of the Aged," Research on Aging, 2 (1980), 134.

[148] Ibid., p. 131; see also: Robert F. Wiseman, "Why Older People Move," Research on Aging, 2 (1980), 141.

[149] Ibid., p. 142. [150] Ibid.

Because of similar atypical elements, inferences of this study to the elderly living in total institutions,[151] retirement villages, and so on, may be drawn only with extreme caution.

The previous subsection provided information that shows aged people, in general, have important medical needs about which they are rather realistic; they possess respectable amounts of financial means; after retirement, they may suffer a period of dissatisfaction, which levels off at a later stage when they adapt to their new environments; and they may enjoy life more in retirement communities they are better targeted to their needs. Also, the elderly are predominantly females; and, in the future, elements such as education, income, health and life expectancy, are likely to improve.

Summary

Although there is evidence of vast differences in term usage and of unrelated guidance in health policies, there is also evidence of certain policy trends. Examples: The assignment of duties of medical planning and implementation to local governments; the move back to the consumer of the responsibility of his own health care; the stress on the importance of diagnostic and preventive services as opposed to therapeutic ones; and the promotion of health care through classic promotion media.

Institutional health care is a very competitive field and the introduction of more viable medical technologies will bring

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[151]Monika B. Reed and Francis D. Glamser, "Aging in a Total Institution: The Case of Older Prisoners," The Gerontologist, 19 (1979), 354-360.

competition in areas where physical locations dictate monopolistic advantages. Paramedical institutions, innovative supply systems, better administration, adoption of small, inefficient units by larger ones, and other means of getting more patients, will certainly increase the competitive nature of the industry. There are also indications that competition will change organizational structuring resulting in a competition among larger organizations, both of providers and of consumers. Better planning is the key to similar developments.

The starting point for better planning is marketing. Since this dissertation aims at the elderly, a study of their health behavior and choice criteria is necessary for a more effective market segmentation. The elderly must not be ignored as health consumers. They have significant financial power and many medical needs. But there is also an intensified social responsibility resulting from their needs, especially given their reduced life-span, their after-retirement adjustment problems, and their poorer health.

CHAPTER 3

METHODOLOGY

As previously discussed, the area of health care marketing has been only lightly explored, and, for all practical purposes, health care marketing to the elderly segment has been ignored. Therefore, it is obvious that the present study cannot rely on others for methodological guidance.

This chapter discusses the methodology employed in this research, and specifically elaborates on (a) the use of psychographics as the basis of this research, (b) the development of the instrument, (c) the sample selected as an information basis, and (d) the specific statistical tools that are employed in order to make usable and meaningful the information collected. This methodological approach enabled the researcher to isolate those factors which were important in discovering how elderly consumers in Arkansas attempt to satisfy their health care needs. As a result, an evaluation of the marketing mix to facilitate their actions was possible.

The Use of Psychographics

Marketing textbooks indicate that psychographics are "sociopsychological determinants of behavior and life style

patterns."[1] They also unanimously agree that psychographic characteristics, such as attitudes, beliefs, opinions, perceived benefits of product attributes, self-concept, and subjective probabilities, are valuable bases for market segmentation. Psychographics appear to have come into prominence in the late 1960s,[2] although historical antecedents of the concept may be traced back as far as 1935.[3] It is, therefore, possible that the newness of the field of psychographic research is the reason health care marketing has not been explored through psychographic variables. In this section the topic of psychographics will be discussed in terms of: (a) market segmentation and the nature of psychographics, (b) marketing applications, (c) problem specification and measurement scale, and (d) issues and limitations of life-style and psychographic research.

Market Segmentation and the Use of Psychographics

For a marketer, an active market place results in a

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[1] Jon G. Udell and Gene R. Laczniak, Marketing in an Age of Change: An Introduction (New York: John Wiley and Sons, Inc., 1981), p. 157; See also G. A. Russ and C. A. Kirkpatric, Marketing (Boston: Little, Brown and Company, 1982), p. 112; W. M. Pride and O. C. Gerrel, Marketing: Basic Concepts and Decisions, 2d ed. (Boston: Houghton Mifflin Company, 1980), p. 155; Philip Kotler, Marketing Management: Analysis Planning and Control, 4th ed. (Englewood Cliffs, NJ: Prentice-Hall, 1980), p. 801.

[2] G. David Hughes, Marketing Management: A Planning Approach (Reading, MA: Addision-Wesley Publishing Company, 1978), p. 148.

[3] Emanuel Demby, "Psychographics and From Whence It Came," Life Style and Psychographics, ed. William D. Wells (Chicago, IL: American Marketing Association, 1974), p. 12.

proliferation of opportunities[4] where he has to consider his service/product's "dynamics of competitive advantage."[5] Similar considerations will help him to capitalize on the "consumer verdict and to facilitate the continuous adaptation of products and production facilities to the market."[6] Market segmentation has been a most effective tool for helping marketers reach such objectives through better targeting.[7] One well-established basis for market segmentation has been on traditional demographic measures.[8] However, it has been said they ". . . lack color . . . texture . . . dimensionality" and that "a good way to supplement demographics is to ask questions about the consumers' activities, interests, and opinions."[9]

Evidently, Demby first used the word "psychographics" as a spinoff from the more conventional "demographics" to define the above-mentioned variables,[10] and he conceived of them as belonging to three classes:

A. Product Attribute Variables including price/value perception, taste, texture, quality, benefits, trust.[11]

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[4]Wroe Alderson, Marketing Behavior and Executive Action: A Functionalist Approach to Marketing Theory (Homewood, IL: Richard D. Irwin, Inc., 1957), p. 115.

[5]Ibid., p. 103. [6]Ibid., p. 126.

[7]Kotler, op. cit., pp. 82-83, 206-210.

[8]Gilbert A. Churchill, Jr. Marketing Research: Methodological Foundations, 2d ed., (Hinsdale, IL: The Dryden Press, 1979), p. 157.

[9]William D. Wells and Douglas Tipert, "Activities, Interests, and Opinions," Journal of Advertising Research, 11 (1971), 27-35.

[10]Demby, op. cit., p. 10. [11]Ibid., p. 19.

B. Life Style Variables examining the totality of behaviors which comprise the characteristic approach to life of an individual or a group.[12]

C. Psychological Variables whose meaning can be better expressed in contrast: "The life style variables describe how people go about their daily routines, (whereas) the psychological variables attempt to explain why they do so."[13]

From a practical point of view, psychographic research, a quantitative research procedure, seeks to explain why people behave as they do and why they hold their current attitudes.[14, 15] Further, psychographic studies place heavy emphasis on generalized personality traits, as opposed to studies on "life style" which tend to express broader cultural trends or needs and values thought to be closely associated with consumer behavior.[16] In essence, life style and psychographic statements are for the respondent relatively simple, familiar, sometimes personal, more "humanized," and in the language of everyday conversation and thought.[17]

In sum, therefore, it may be stated that the study of opinions,

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[12]Ibid., p. 21. [13]Ibid., p. 23.

[14]Ibid., p. 24.

[15]An attitude may be defined as a predisposition to act in a certain way: Paul E. Green and Donald S. Tull, Research for Marketing Decisions, 4th ed., (Englewood Cliffs, NJ: Prentice-Hall, 1978), p. 109.

[16]William D. Wells, "Life Style and Psychographics: Definitions, Uses and Problems," Life Style and Psychographics, ed. William D. Wells (Chicago, IL: American Marketing Association, 1974), p. 319.

[17]Ibid., pp. 317-318.

attitudes, interests, and personality traits has the potential of a worthy segmentation basis, effectively supplementing demographic oriented research.

Marketing Applications

A reasonable segmentation basis is not the only benefit derived from life style and psychographic analysis. Similar analyses may result in more accurate "preference maps" through the application of multidimensional scaling as well as in an improved evaluation of consumer preferences. Essentially, the answer to those questions may provide insights into the development of advertising campaigns, product positioning and repositioning,[18] product design, location considerations, and pricing.[19]

In the context of the present research, the use of life style and psychographic statements is specifically oriented to investigate underlying structures of variables involved and use them to develop particular propositions with respect to the product-price-place-promotion framework as applied to the health care for the elderly.

Problem Specification and Measurement Scale

Following Green and Tull's methodology, an operational definition of research "establishes the meaning of a concept through specifying what is to be observed and how the observations are to be

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[18] Ibid., pp. 320-327.

[19] Keneth M. Travis, "Price Sensitivity Measurement Technique Plots Product Price Versus Quality Perception," Marketing News, Section 1, May 14, 1982, p. 6.

made."[20] Accordingly, the present thesis can be operationally defined from results obtained: (1) from the 55 and over consumers in the Summer of 1982 in the State of Arkansas, who are (2) contacted through a mail questionnaire "using a (3) specified attitudinal scale to indicate (4) the response information provided by the attitudinal scale," subject to the limitations of the section on sample selection.[21]

"Measurement and operational definition often go together"[22] and, conceptually, measurement can be defined as a way of obtaining symbols to represent the properties of persons, objects, events, or states, with those symbols having the same relevant relationship to each other as the things they represent."[23] The accepted measurement scale in psychographic research violates, to some extent, the exact definition above: information is recorded as a self-rated assessment of predispositions, and is, therefore, subjective; also technically, it is recorded on an "ordinal scale" where the concept of "unit distance" does not exist.[24]

In the present research the Likert method of summated ratings is adopted since it by-passes the criticisms of "equal appearing interval methods" and at the same time offers enough room to the

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[20]Green and Tull, op. cit., p. 163.

[21]Ibid.

[22]Ibid.

[23]Ibid., pp. 164-165.

[24]W. J. Conover, Practical Nonparametric Statistics, (New York: John Wiley and Sons, Inc., 1971), p. 66.

respondent to express his feeling intensity.[25] The scale rates on six intervals (strongly disagree, disagree, somewhat disagree, somewhat agree, agree, strongly agree), with no midpoint since it assumes that practically no one is exactly half way on any issue. The respondents were instructed to circle their preferred position on a numbered scale following each statement. The numbering is -3, -2, -1, 1, 2, 3, since the positive and negative numbers connote feelings of agreement/ disagreement with the absolute value of the numbers indicating feelings' intensity.

This section has specified the perimeter of this thesis in terms of psychographic research (further restrictions will be pronounced at the section of "Unit Association") and indicated the adopted measurement scale. The following section seeks to elaborate on specific issues and limitations arising from the use of psychographics in marketing research.

Issues and Limitations of Psychographic Research

This section deals with considerations that the researcher must observe in any kind of psychographic research and attempts to adapt these considerations to a health-care-for-the-elderly orientation. Specifically, it deals with (a) the problem of degree of generalization, (b) the problem of unit association, (c) the problem of similarity, (d) the problem of validity and reliability, and (e) the problems of "s.o.n.k.ing" and alchemy.

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[25] Churchill, op. cit., pp. 220-228.

A. The Problem of Degree of Generalization

In determining what "kind" of statements to include in a psychographic research project, two opposing schools of thought are present. (1) Tigert and Wells' approach proposes relatively general descriptive variables, while (2) Haley's approach seeks specific benefits by discovering causally related behaviors through narrowly targeted variables. It follows that health care related statements must be also general in nature, insofar as overall perspectives are explored, but much more specific when they refer to specialized issues.[26] For example: General statements may well satisfy the overall product design, but specific ones may result in a better understanding of attitudes toward health prevention, opinions about health regulation, beliefs with respect to health advertising, and so on. In conclusion, the orientation of this research may be satisfied only through a combination of statements, both general and specific.

B. The Problem of Unit Association

"Any serious study of life style must cope with the problem of defining an appropriate unit of association."[27] Obviously, different conclusions have to be drawn if any individual respondent is answering a questionnaire, versus a prespecified one. In order to better

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[26]Thomas P. Hustad and Edgar A. Pessemier, "The Development and Application of Psychographic Life Style and Associated Activity and Attitude Measures," Life Style and Psychographics, ed. William D. Wells, (Chicago, IL: American Marketing Association, 1974), p. 42. See also: Russell L. Haley, "Beyond Marketing Segmentation: A Decision-Oriented Research Tool," Journal of Marketing, 32 (1968), 30-35.

[27]Jerry Wind and Paul Green, "Some Conceptual Measurement and Analytical Problems in Life Style Research," Life Style and Psychographics, ed. William D. Wells (Chicago, IL: American Marketing Association, 1974), p. 111.

control the essence of unit association, the following steps were taken:

1. Introduced a "discomfort index"[28] aiming to define the degree that the respondent has experienced different types of discomfort (e.g., difficulty getting to sleep, trouble hearing, etc.).
2. Introduced a "chronic disease index"[28] aiming to define the degree that each individual has experienced different types of chronic diseases.
3. Introduced a "physical aid index,"[28] aiming to define the degree that each individual has used different types of physical aids.
4. Introduced a series of questions aiming to examine the recency of the respondent's health care experiences.[29]
5. Introduced a series of questions aiming to investigate the "health concern and respective health reporting" of the respondent.[30]
6. Finally, asked that the questionnaires be answered by the oldest person of each particular household, by introducing in the opening paragraph a specific request.[31]

Accordingly, through the above clarification (6.), the problem

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[28]See section "The Development of the Instrument;" with respect to unit association, several indices are used in the following chapters. They are presented in Table A2-1 (Appendix 2).

[29]See Appendix 1, questions 5-10.

[30]See Appendix 1, questions 29-38.

[31]See Appendix 1, opening statement.

of unit association is restricted to the oldest person living in the household. The objectives justifying this decision are (1) to increase the sample size and (2) to define the sample frame[32] as the "elderly living in a household," therefore excluding the institutionalized elderly. Steps 1 through 5 provide cross-classification grounds for the sample population.

C. The Problem of Similarity

Segmentation preassumes the existence of differences and similarities between individuals. Cronbach and Gleser state:

> If behavior is described in terms of independent dimensions, then persons who are similar in one dimension may be more similar in some second dimension than persons who are dissimilar in the first dimension. In other words, similarity is not a general quality. It is possible to discuss similarity only with respect to specified dimensions. . . . The investigator who finds that people are similar in some scores cannot assume that they are similar in general.[33]

With respect to the elderly's health care, a great many similarities exist, for example, great vulnerability to chronic diseases. In those cases by using one common index (like the chronic disease index) "we discard much of the information in the score set."[34] An additional problem arises because the absolute interpretation of the index does not necessarily signify similarities between the two individuals.[35] For example, if one has severe

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[32]William G. Cochran, Sampling Techniques, 3d ed. (New York: John Wiley and Sons, Inc., 1977), p. 6.

[33]Lee J. Cronbach and Goldine C. Gleser, "Assessing Similarities Between Profiles," The Psychological Bulletin, 50 (1953), 457.

[34]Ibid.

[35]Ibid., p. 458.

arthritis and the other severe hypertension, their "chronic disease index" may result in the same score but they may also be totally dissimilar if proper interpretation is not provided. Finally, the noncompatibility of scale units must be mentioned again, since the scale involves an undefined unit distance.[36]

The problem of similarity is faced here through the additional use of cluster analysis which is applied to intact matrices.[37] The objective is to separate objects into groups in a way that each object is more like each other object in its group than like other objects outside the group.

D. The Problem of Validity and Reliability

In research it is very important to assure that the use of both similar and different methods result in the same conclusions. Campbell and Fiske write:

> Reliability is the agreement between two efforts to measure the same trait through maximally similar methods. Validity is represented in the agreement between two attempts to measure the same trait through maximally different methods. A split-half reliability is a little more like a validity coefficient than is an immediate test-retest reliability for the items are not quite identical.[38]

In the present work, the only test undertaken as control for the above issues was the split-half reliability, by arbitrarily splitting the sample size into halves.

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[36] Ibid., pp. 458-459.

[37] Green and Tull, op. cit., p. 440.

[38] Donald T. Campbell and Donald W. Fiske, "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix," Psychological Bulletin, 56 (1959), 83.

E. The Problem of "S.O.N.K.ing" and Alchemy

Ehrenberg has pointed out the danger of not knowing enough about a system and still wishing to model it. He termed this tendency S.O.N.K. (i.e., Scientification Of Non-Knowledge) and said that it hides methodological and social dangers: "Sonking [is] entrenched in the O.R. approach (first, young man, construct a model of the whole system) . . . [and also provides] instant mathematics for decision-makers in government and industry.[39] Einhorn also, criticizing the use of sophisticated statistical techniques, writes:

> Such scepticism is based on the observation that as methods and techniques get more complicated, the role of theory in research is being dangerously ignored in favor of purely empirical work that proceeds without so much as a hypothesis.[40]

Both of the above problems may be present in this research. The health care system has not been sufficiently explored and ignorance leads the policy makers to request immediate answers. It is a fact that statistical tools may provide very "neat numbers" for answers, but they are of questionable use. The present analysis, therefore, adopts a relatively simple path, leaving the use of more complicated research tools for further research.

In summary, this subsection on the limitations of psychographic research concludes as follows: (1) this research ought to combine both general and specific statements, (2) it must address itself to the older people of each household in order to increase its sample

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[39] A. S. C. Ehrenberg, "Models of Fact: Examples from Marketing," Management Science, 16 (1970), 435.

[40] Hillel J. Einhorn, "Alchemy in Behavioral Sciences," Public Opinion Quarterly, 36 (1972), 367.

basis, (3) it must not use excessively sophisticated analytical tools, but (4) it must test validity of results at least through a test of split-half reliability, and (5) it must respect the implications of profile similarities by the additional use of cluster analysis.

Summary of the Section on Psychographics

The health care field has not been sufficiently explored through psychographic research and this leads to the following thoughts. (a) Life style and psychographic analysis may provide a useful basis for market segmentation, from a perspective of health care to the elderly. (b) It may also provide valid conclusions for specific marketing applications and insights into opinions about health care. (c) The use of similar analysis presents a series of methodological problems as described in the two last subsections. (d) Finally, the population to which this research is addressed is now specifically restricted to the segment 55 and over living in a household, in the State of Arkansas (Summer 1982).

The Development of the Instrument

This work capitalizes on data collected from primary research conducted *via* a "questionnaire" sent to a preselected group of respondents. Obviously, this questionnaire is of vital importance, for it had to be able to retrieve exactly the desired information. This section discusses the steps that were undertaken prior to the questionnaire's final form (see Appendix 1) and elaborates on the types of required information, the pretests undertaken, and specific

findings that were included in its final design.

The Information Required

In order to achieve market segmentation cross-classifications the following types of information were requested.

A. Demographic--In terms of sex, age, place of residence, marital status, children in household, older people in household, education, employment, occupation, race, Arkansas residency (years), and family income.

B. Health Status--In terms of discomforts (e.g., trouble hearing), use of physical aids (e.g., wheelchairs), and chronic diseases (e.g., hypertension).

C. Recency of Health Experiences--The respondent was asked several questions with respect to his/her health related experiences for a time span between two weeks and one year.

D. Health Concern--The respondent was asked questions aimed at identifying to whom (e.g., spouse, doctor) he/she communicates his/her health related worries, and how often (immediately, or within a week).

E. Engagement in Activities--In terms of sports (e.g., golf) and hobbies (e.g., reading).

F. Attitudes, Opinions, Interests--In the form of statements of general applicability and, also, specifically targeted on health related issues.

Pretests

The initial body of questions was developed from the following sources:

A. Already tested questions from well accepted researchers (such as Wells, Tigert, Myers, Herrmann, and Gutman).

B. Acito's health related statements.[41]

C. Specifically developed questions to cover issues in Chapter 2, and to provide additional segmentation bases.

Then, those questions were discussed in unstructured-undisguised interviews[42] with local hospital administrators and medical doctors and through their comments were further refined. The refined questionnaire was then split into three 120-question sections[43] and each of them was used as a basis for twenty-seven in-depth (structured) interviews, administered individually to persons 55 years of age or older.[44] Those interviews determined the fifty-eight "key" Likert type statements that were included in the parts C and D of the questionnaire's final form. The questions in parts A and B were administered to all twenty-seven subjects and were examined with respect to how well those test-respondents understood them and for the additional insights which are discussed in the following subsection.

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[41]Franklin Acito, "Consumer Preferences for Health Care Services: An Exploratory Investigation" (PhD dissertation, University of New York at Buffalo), pp. 301-304.

[42]Churchill, op. cit., pp. 167-169.

[43]Hustad and Pessemier, op. cit., p. 53.

[44]Churchill, op. cit., p. 170; see for the advantages: Roger E. Bengston, "A Powerful Qualitative Marketing Research Tool, One-on-One Depth Interviewing Has Seven Advantages," Marketing News, section 1, May 14, 1982, p. 21.

Specific Findings From Pretest

The one-on-one in-depth interviews, additionally, resulted in the following observations:

A. Older people do not keep themselves alert for extended periods of time. Accordingly, it is advisable to introduce the more difficult statements early in the questionnaire.

B. The elderly tend to simplify instructions. For example, they tend to adopt a 2- or 3-point scale, although they have been instructed to report their answers on a 6-point basis. Immediate implications of this finding include: (1) Avoid using too many questions (say 150). (2) Use respondents that have been accustomed to answering questions (see next section). (3) Use many "control" questions in order to check answer consistency, and (4) Give instructions plus an application example.

C. The issue of health care arouses negative feelings in some individuals. Especially, when the questions are specified within the sphere of their experiences. There is, therefore, an increased danger because of a nonresponse bias.[45] It was observed, however, that tactful and impersonal questioning and conceptually broader statements reduce the negation bias.

D. A scale system from -3 to +3 was adopted, instead of the traditional 1 to 6, because of the reasons presented in the subsection on "Problem Specification and Measurement Scale."

E. Finally, the questionnaire was printed in a professional way

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[45]Cochran, op. cit., pp. 359-361.

in order to increase its readability since many of the respondents might have had problems seeing, and therefore, might not have completed it. (The reproduction in Appendix 1 presents the questionnaire reduced by twenty-six percent.)

Information Source

The data of this research were collected through the Arkansas Household Research Panel (AHRP). AHRP operates at the Fayetteville Campus of the University of Arkansas under the advisory control of the Robert A. Young Distinguished Chair of Business Administration, and claims to be representative of the household structure of the state. It is made up of households selected (through the telephone directories) from all Arkansas cities of more than 5,000 population. Its representation is as indicated in Table 3-1.

The State's demographic profile, in contract to the AHRP, is presented in Table 3-2.

AHRP members have generally participated in similar surveys for many years, and their continuous rotation (at least partially) compensates for the danger of being overly accustomed to these studies. The Panel members were contacted by mail using the standard routine that AHRP utilizes in each mailing. The panelists presented a response rate of 80.8%. Two hundred and twenty-six of them (46.6%) were 55 years of age or older, and therefore usable for this research. From this last portion, some of the questionnaires were, in part, not meaningful either because of errors (of the respondents) that were discovered during the editing process, or because of conflicts at the control questions. Those parts were treated as "missing values."

Table 3-1

Percentage Representation per State Planning Region*

State Planning Region*	1980: Estimated Population (% of total)	% of Panelists from Each Region for the June 1982 Mailing
1	12.5	14.3
2	8.3	8.4
3	17.0	15.9
4	10.7	10.5
5	21.8	23.4
6	10.4	9.1
7	10.8	10.7
8	8.5	7.7
	100.0	100.0

*State Planning Regions correspond to the ones of Figure 3-1.

Source: Arkansas Household Research Panel, College of Business Administration, University of Arkansas, Fayetteville, Arkansas 72701, January 1982.

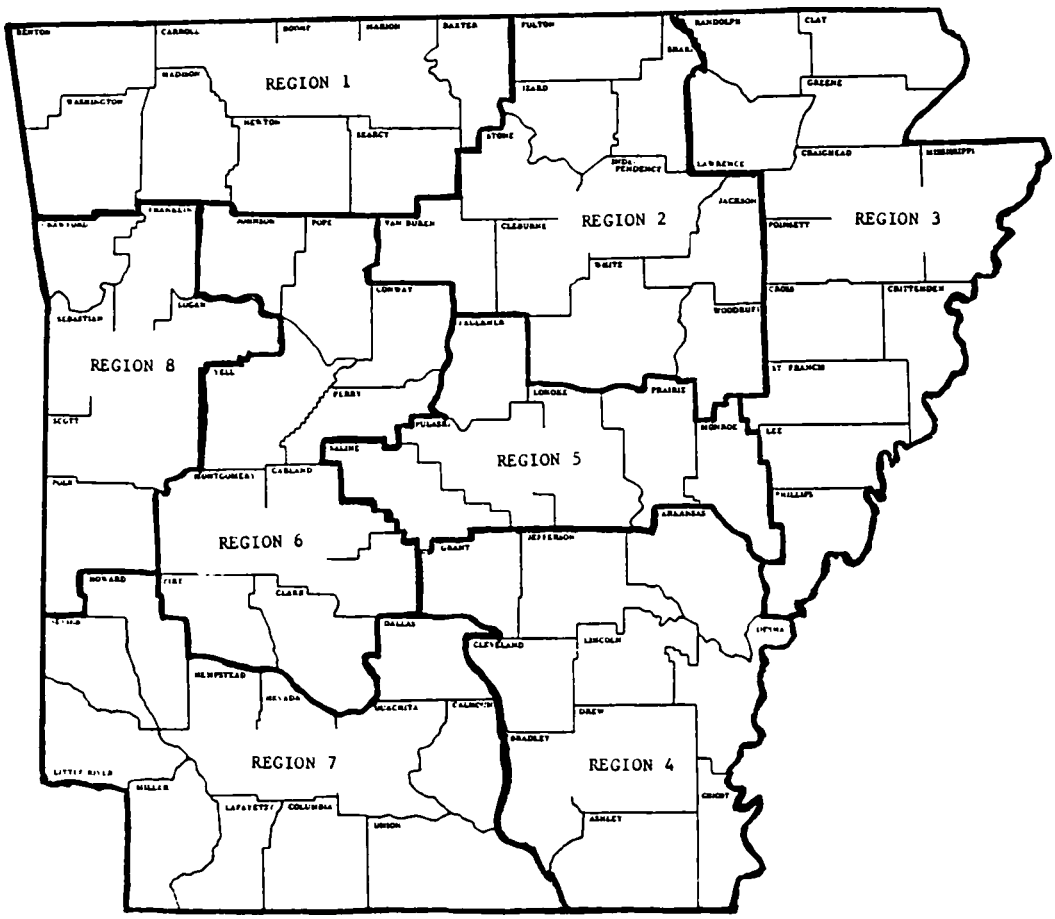

Figure 3-1

STATE OF ARKANSAS BY STATE PLANNING REGIONS

Source: Arkansas Household Research Panel, University of Arkansas at Fayetteville. January 1982

Table 3-2

Arkansas Statewide Demographic Profile[a] [sic]

	AHRP Average	External Source
Household Size	2.65 persons	2.85 persons[b]
Household Head:		
Education	13.8 years	12.2 years[c]
Age	50.5 years	46.2 years[d]
Household Income	$23,265	$21,361[e]

[a]Unless otherwise noted all figures shown are statewide averages.

[b]Survey of Buying Power - 1978, Sales & Marketing Management.

[c]Median years of education, State of Arkansas, 1972 Bureau of the Census, Department of Commerce.

[d]Average age of persons over 20 years of age, Census Update, Industrial Research & Extensin Center, University of Arkansas, Little Rock, AR.

[e]State personal income, Survey of Current Business - July, 1980, U.S. Department of Commerce, corrected for social insurance deductions and converted from per capita to per household basis.

Source: Arkansas Household Research Panel, College of Business Administration, University of Arkansas, Fayetteville, Arkansas 72701, January 1982.

Two final observations are in order:

A. The panelists are accustomed to completing questionnaires similar to the one sent to them (Appendix 1) and this familiarity enhances the reliability of their answers (see subsection on "Specific Findings From Pretest"-Part B). Further, the panelists have an incentive to answer reliably (trading stamps), and they have preagreed to answer.

B. There are many factors that can create a bias in any research. Reasons for bias in the present one include: The initial sampling through telephone directories, the fact that no Panel members are residents of communities with population 5000 or less, the fact that the panelists have agreed to be members of AHRP, and the fact that this study is restricted to the elderly in households, therefore excluding the elderly who are institutionalized. However, it is probable that AHRP provides a more representative sample of the State's households than most personally contacted mail surveys.

Statistical Tools Employed

This section presents a discussion of the analytical tools that are used in Chapter 4 and specifically elaborates on factor, cluster, and discriminant analysis. It discusses these procedures with respect to (a) justification for their use, and (b) application issues and algorithms involved.

Factor Analysis

A. Justification for Its Use. Factor analysis is a generic term given to a class of techniques whose purpose is data reduction

and summarization. Its major substantive purpose is the search and test of dimensions assumed to underlie manifest variables.[46]

From a marketing perspective, factor analysis may be used effectively in evaluating statements such as those in Parts C and D, where it may: (1) reduce the initial body of information (59 variables) to a small number of "factors," and (2) reveal a series of underlying "constructs" that exist among the initial variables. These constructs may determine a basis for additional market segmentation.

B. Application Issues and Algorithms.

1. Factor analysis is meaningful only when some correlation among subsets really exists. In effect it:

> Systematically explores which variables exhibit high intraset correlations and low interset correlations, how many such sets there are (each set defining a dimension), and whether the dimensions can be considered as uncorrelated themselves.[47]

To that extent "the distinguishing characteristic of the factor analytic approach is the assumption that observed covariation is due to some underlying common factors."[48] Obviously,in the present study this assumption

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[46]Green and Tull, op. cit., p. 419.

[47]Ibid., p. 421.

[48]Jae-on Kim and C. W. Mueller, Introduction to Factor Analysis: What It Is and How to Do It (Beverly Hills, CA: Sage University Papers, 1978), p. 22.

(postulate of factorial causation) is met,[49] for answers are internally related at the level of each individual respondent.

2. In all statistical research, simple, parsimonious structures are mostly welcomed and desirable. In the factor analysis the "postulate of parsimony is related to rotation (or data transformation) which is used more frequently in order to find a more 'meaningful' or 'interpretable' factorial structure."[50]

3. In general, exploratory factor analysis has four steps: (1) data collection and generation of the correlation-covariance matrix;[51] (2) extraction of initial factors (criterion here will be eigenvalue greater than or equal to 1); (3) rotation to a terminal solution and interpretation—it is specified, first, that different factor analytical methods do not improve the degree of fit between data and the factor structure, and second, that the first factor accounts for as much variance as possible, the second factor for as much of the residual variance as is left unexplained by the first factor, and so on; and (4)

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[49]Ibid., p. 43.

[50]Ibid., p. 45.

[51]"Covariance Between Standardized Variables has a Special Name: Correlation Coefficient or Product-Moment Pearson's Correlation Coefficient," ibid., p. 16.

construction of factor scales and their use in further analysis.[52]

4. For application purposes "SAS--Proc Factor" will be used.[53] No initial data normalization will be performed, since the procedure automatically normalizes them, except for the "SAS/option RAW."[54]

Cluster Analysis

A. Justification for Its Use. Cluster analysis is "ultimately concerned with classification and its techniques are part of numerical taxonomy".[55] It offers the advantage that by using some specific similarity measures,[56] it can cluster individuals on the basis of the scores that those individuals provide in a series of observations. It is, therefore, a very powerful tool for market segmentation.

B. Application Issues and Algorithms.

1. In the present research, the similarity measure used is the Euclidean distance between two points in a space of n dimensions. The basic formula is:

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[52]Ibid., p. 46-51; For a more extended discussion, see: Jae-on Kim and C. W. Mueller, Factor Analysis: Statistical Methods and Practical Issues (Beverly Hills, CA: Sage University Papers, 1978); Also: Donald F. Morrison, Multivariate Statistical Methods, 2d ed. (New York: McGraw-Hill Book Company, 1976), pp. 302-343.

[53]SAS Users Guide, (Cary, NC: SAS Institute, Inc., 1979), pp. 203-210.

[54]Ibid., p. 204.

[55]Green and Tull, op. cit., p. 440.

[56]Cronbach and Gleser, op. cit., pp. 456-472.

$$d_{ij} = [\Sigma(X_{ik} - X_{jk})^2]^{1/2}$$

where X_{ik}, X_{jk} are the projections of points i and j on dimension k (k = 1, 2, 3 . . . n).[57]

2. In cases where the original variables are highly correlated, sometimes analysts follow a procedure that provides score standardization. Since this is the situation the present research faces, score standardization is performed through the "SAS/Option STD." The formula is:

$$d = n^{-1} \Sigma[d(X_i, \bar{X})]$$

where n is the number of observations in the data set.[58]

3. "SAS--Proc Cluster" is used for clustering the observations. "The procedure requires no a priori or theoretical classification information about the data . . . (and also identifies) . . . the two closest clusters and combines them into one, then the two closest of the new set of clusters are combined into a single cluster, and so on."[59] For visual illustration, cluster maps (dendrograms) are also presented.

Discriminant Analysis

A. Justification for Its Use

Given the existence of clusters (market segments), discriminant

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[57]Green and Tull, op. cit., p. 442.

[58]SAS, op. cit., p. 157. [59]Ibid., pp. 157-161.

analysis may identify possible causality relationships between one dependent categorical variable and a number of independent continuous variables. For example, in one particular cluster (segment) it may be highly desirable to discriminate among the individuals who "try (6 levels) to get a physical examination regularly" (Appendix 1, statement #74) on the grounds of the cluster's demographic characteristics. Discriminant analysis is uniquely qualified to do this task and, therefore, to enhance the predictablility of behaviors. This analysis is demonstrated at the example of Appendix 3, where its classification potential is evident.

B. Application Issues and Algorithms

1. A series of assumptions must be met in order to perform discriminant analysis: (a) variables must be measured at the interval or ratio level of measurement "so that means and variances can be calculated and so that they can be legitimately employed in mathematical equations"[60]-- therefore, in the case of the present work, only variables such as income, age, and indices are included; (b) "no variable may be a linear combination of other discriminating variables"[61]--It may be assumed that this is met although some autocorrelation between income, age, and indices is reasonably expected to exist; and (c)

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[60]William R. Klecka, Discriminant Analysis (Beverly Hills, CA: Sage University Papers, 1980), p. 9.

[61]Ibid.

"population must have a multivariate normal distribution,"[62] which, in essence requires normalization if variables are not normally distributed.

2. In order to study each cluster, canonical discriminant functions are used "to study the nature of group differences. . . . A canonical discriminant function is a linear combination of the discriminating variables which is formed to satisfy certain conditions."[63] Its formula is:

$$f_{KM} = U_o + U_1 X_{1KM} + U_2 X_{2KM} + \ldots + U_p X_{pKM}$$

where f_{KM} = the value (score) on the canonical discriminant function for case M in the group K;

X_{iKM} = the value on discriminating variable X_i for case M in group K, and,

U_i = coefficient which produce the desired characteristics in the function.

It is convenient to visualize the discriminating variables as axes that define a p-dimensional space. Then, groups of observations may be summarized through their centroids (averages), and the proximity of a point to the centroids determines its spatial associations.

3. The procedure employed in the analysis of the information of this research is "SAS—Proc Discrim."[64]

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[62] Ibid., p. 10. [63] Klecka, op. cit., p. 15.

[64] SAS, op. cit., pp. 183-192.

Summary of the "Statistical Tools" Section

This section elaborated on the three basic analytical tools that this study utilizes: factor analysis, cluster analysis, and discriminant analysis. They were discussed in several dimensions: use justification, procedural complications, necessary assumptions, application perspectives. Obviously, an all encompassing treatment of these analyses exceed the objectives of this research. Chapter 4 also uses more conventional tools, such as cross-classifications, means, standard deviations, chi-squares, and several non parametric tests, which, because of their common usage, were not examined in detail.[65]

In retrospect, and since during this discussion several methodological procedures, limitations, and assumptions were analyzed and adopted (or rejected), it is important to remember Conover's statement:

> The purpose of that field of science known as "statistics" is to provide the means for measuring the amount of subjectivity that goes into the scientists' conclusions, and thus to separate "science" from "opinion."[66]

It seems that this statement carries an overwhelming weight on the whole methodology chapter, which, admittedly, lightly, bypasses the area of human mistakes in recording and processing the information collected.

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[65]The following books were used for guidance in the analysis of Chapter 4: V. E. Cangelosi, P. H. Taylor, and P. F. Rice, Basic Statistics: A Real World Approach, 2d ed. (St. Paul, MN: West Publishing Company, 1979) and R. C. Pfaffenberger and J. H. Patterson, Statistical Methods for Business and Economics (Homewood, IL: Richard D. Irwin, Inc., 1977). Also, Conover, op. cit.

[66]Ibid., p. 2.

CHAPTER 4

ANALYSIS

This chapter presents the information collected and the analysis that has been conducted. The instrument used to gather these data is presented in Appendix 1 while the justification for its content and sample frame was set forth in Chapter 3. Further, Appendix 2 details the indices that are used in this chapter, as well as the additional demographic information the Arkansas Household Research Panel (A.H.R.P.) provides to all users of its services.

The four parts of this chapter are: (a) Analysis of Demographic Information, (b) Analysis of Health Related Information, (c) Analysis of Psychographic Information, and (d) Discussion of Segmentation Bases.

Analysis of Demographic Information

This section presents a discussion of the demographic information obtained through the survey. Tables 4-1 and 4-2 contain summaries of the demographic data with respect to age, sex, race, income, education, and place of residency of the respondents. From Table 4-2 it is evident[1] that the sample used is not totally typical

[1]Through the differences between two proportions; V. E. Cangelosi, P. H. Taylor, P. E. Rice, Business Statistics: A Real World Approach (2d ed.; St. Paul, MN: West Publishing Company, 1979), p. 203. In summary, the test results are (5% level of significance):

Table 4-1

Demographic Information on the Respondents

	Number of Respondents	Percent of Respondents
A. Household Income ($)		
Under 10,001	49	21.7
10,001-15,000	37	16.4
15,001-20,000	35	15.5
20,001-25,000	23	10.2
25,001-30,000	27	11.9
30,001-40,000	24	10.6
40,001-50,000	10	4.4
Over 50,000	12	5.3
No answer	9	4.0
	226	100.0
B. Place of Residency		
Own Home	211	93.4
Rent Apartment	7	3.1
Rent Home	5	2.2
Own Condominium	1	.4
Other	2	.9
	226	100.0
C. Race		
Whites	219	96.8
Blacks	7	3.2
	226	100.0
D. Education of Male Household Head (144 of the respondents)		
Less than 12 years	22	9.7
12 or 13 years	65	28.8
Associate or Bachelors	59	26.1
Masters, Ph.D., MD, Law	23	10.2
No answer	57	25.2
	226	100.0

Table 4-2

Sex Structure: Sample Versus Arkansas

	Sample		State
	Total	Percent	Percent*
Preretirement (55-64)			
Size	86		
Males	47	54.7	46.0
Females	39	45.3	54.0
Young-Old (65-74)			
Size	103		
Males	60	58.3	44.8
Females	43	41.7	55.2
Old-Old (75 and over)			
Size	27		
Males	13	48.2	38.8
Females	14	51.8	61.2

*Source: Industrial Research and Extension Center, "Census Summary Tape File 1 Data, Arkansas; by County" (Little Rock, AR: University of Arkansas, January 1982), pp. 1-3. (Mimeographed.)

Sample size 226; 10 respondents did not provide conclusive indication of their sex.

of the state's demographic characteristics. Inferences, therefore, for the state as a whole may be drawn only with extreme caution. However, two alternative routes may increase the reliability of those inferences: (1) if the sample is stratified according to the actual proportions of the state's demographic characteristics, or (2) if it is accepted that the inferences from this survey will be most pertinent to the type of populations described by the sample's characteristics. Since the first alternative reduces dramatically the size of the sample base, the second option has been followed. Therefore, this study is addressed to an elderly target population, composed (almost) entirely of whites, owners of their homes, and is additionally subdivided as follows: (1) Sex distribution: 54.0% males, 46.0% females. (2) Household income distribution: 21.7% under $10,001, 31.9% $10,001-$20,000, 22.1% $20,001-$30,000, 10.6% $30,001-$40,000, 9.7% over $40,000. (3) Education distribution: 9.7% less than 12 years of formal education, 28.8% 12 or 13 years of formal education, 36.2% at least Bachelors Degree (25.2%: no response).

(Footnote 1 continues from page 109.)

Age Group	Z Values (Critical: 1.96)	H_o: Equal Proportions (Sample vs Arkansas)
Preretirement		
Males-Females	-1.83, 1.83	Accepted
Young-Old		
Males-Females	-2.75, 2.75	Rejected
Old-Old		
Males-Females	-1.00, 1.00	Accepted

Analysis of Health Related Information

The examination of health related information presents the problem of reliance on indices, which, although they have the capability to summarize information, at the same time, reduce the depth of the manipulated data. Tables 4-3 and 4-4 summarize (in index form) the survey's responses that refer to chronic diseases, discomforts, dependance on physical aids, and respondents' health related complaints.

The Cox and Stuart test for trend[2] is used here to investigate if there is an underlying trend in each of the indices shown. Table 4-5 presents the respective findings for average values of each of the age groups.[3] Evidently, given the methodological assumptions of the Cox and Stuart test, no trend appears to exist among the three age groups insofar as discomforts, chronic disease, and overall health related complaints are concerned. Only the use of physical aids presents an increasing trend.[4] However, since "sign tests" tend to hide important details of variation and of absolute magnitudes, Figure

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[2]W. J. Conover, Practical Nonparametric Statistics (New York: John Wiley and Sons, 1971), pp. 130-136. Accordingly . . . "this test may be used to detect any specified type of nonrandom pattern" (p. 130).

[3]The issue of age groupings must be addressed in connection with this analysis. The groupings violate the exact representation of the chronological age. However, they are used in this section as they improve the meaning of averages since they depend on several observations and not on just a few.

[4]All respondents reported the use of glasses, with the second most frequently used aid being false teeth and third, hearing devices.

Table 4-3

Summary of Results: Health Related Indices*

	Preretirement (55-64)	Young-Old (65-74)	Old-Old (75-)
A. Discomforts (max possible value=33)			
Mean	9.8	10.0	8.7
Standard deviation	6.0	5.3	5.2
Survey's max value	30.0	27.0	18.0
Survey's min value	0.0	0.0	0.0
B. Chronic Diseases** (max possible value=12)			
Mean	1.7	1.9	1.9
Standard deviation	1.5	1.7	1.6
Survey's max value	6.0	7.0	6.0
Survey's min value	0.0	0.0	0.0
C. Complaints (Max possible value=90)			
Mean	17.3	16.7	16.0
Standard deviation	9.3	5.3	10.1
Survey's max value	40.0	40.0	40.0
Survey's min value	0.0	0.0	0.0
D. Dependence on Physical Aids (max possible value=12)			
Mean	1.4	1.7	1.8
Standard Deviation	0.6	0.9	0.7
Survey's max value	4.0	5.0	4.0
Survey's min value	1.0	1.0	1.0
Sample size	85	100	27

*Table A2-1 presents the respective formulae.

**Table 4-4 presents an analysis of the sample's chronic diseases.

Table 4-4

Summary of Results: Analysis per Chronic Disease

	Response (number of respondents)	
Disease	Some Problem	Severe Problem
Arthritis	112 (49.6%)	16 (7.1%)
Hypertension	73 (32.3%)	5 (2.2%)
Rheumatism	39 (17.3%)	5 (2.2%)
Arteriosclerosis	29 (12.8%)	8 (3.5%)
Diabetes	26 (11.5%)	4 (1.8%)

Sample size 226; 6.2% of respondents did not answer the section on chronic diseases.

Table 4-5

Summary of Results: Health Related Indices*
(by age) and Test Results

Age	Discomforts	Chronic Disease	Complaining Patient	Dependence on Physical Aids	Number of Observations
55	5.9	1.7	17.4	1.9	7
56	7.9	1.6	19.4	1.1	8-9
57	12.9	2.1	20.4	1.4	8
58	10.3	1.8	17.0	1.2	10
59	12.7	2.1	14.0	1.5	10
60	7.4	0.9	12.5	1.4	10
61	7.0	1.4	15.0	1.7	7-8
62	12.9	1.9	15.6	1.6	8
63	9.3	0.7	19.8	1.3	9
64	11.5	3.1	19.3	1.5	8
65	10.2	1.6	20.9	1.6	10
66	9.4	2.2	15.5	1.7	13
67	10.3	1.7	12.9	1.5	15-16
68	8.6	2.1	17.9	1.6	11
69	10.2	1.6	16.4	1.1	9
70-71	10.0	1.7	19.6	1.7	10
72	10.1	1.7	14.4	1.7	10-11
73	10.9	2.1	14.4	1.8	10-11
74	11.7	2.7	20.3	2.4	12
75	9.7	2.3	17.8	1.8	9
76-77	9.5	1.9	13.7	2.0	10
78-87	9.3	1.3	16.8	1.8	8-10
Tests					Explanations
n	11	10	11	11	Pairs
T	6	6	3	1	Value of Statistic
CR	.0654	.0214	.0654	.0654	Critical Region
Range	2-9	1-9	2-9	2-9	
Ho	accepted	accepted	accepted	rejected	
Trend	no	no	no	yes	

*Average values of the indices.

4-1 is presented for visual inspection of those trends.

The results from statements 5 through 10 (Appendix 1) are presented in Table 4-6, as a ratio of total days, times, or occasions of the respective issue per respondent. If the values of the cells of Table 4-6 are multiplied by 100 and the result is tested for homogeneity, the resulting chi-square value is 47.260 with 10 degrees of freedom. In conclusion, therefore, there appears to be a pattern of staying in bed for health reasons by increasing amounts as age progresses, as well as of entering into a hospital for overnight stays, or of being in a hospital's emergency room. However, the young-old group presents an erratic behavior with respect to questions 6 and 7. They do not consult their doctors as much as the other groups, moreover, they do not vary their daily plans in order to help someone to overcome health related problems as much as the other groups.

During this study additional information was obtained with respect to hobbies and activities of the respondents. This information was collected as an alternative differentiation base for explaining the psychographic data and their classification. Since the more reliable health related information sufficiently justifies the psychographic clusters, the information on activities and hobbies was abandoned.

Analysis of Psychographic Information

In this section the objective is (1) to use a combination of cluster and factor analysis in order to indicate predominant characteristics of each cluster, and (2) to provide an analysis of the

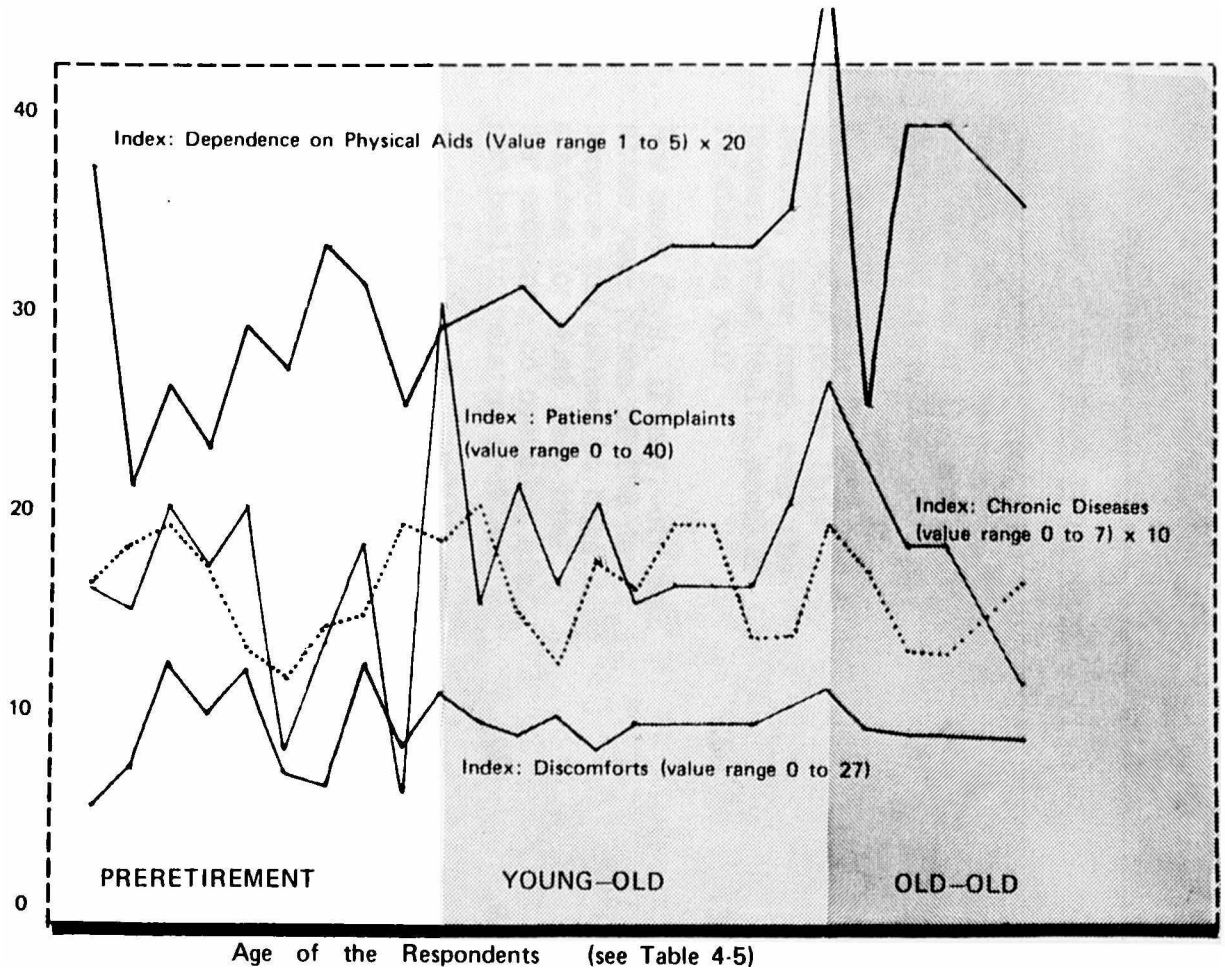

Figure 4-1

HEALTH RELATED INDICES, BY AGE

Table 4-6

Summary of Results: Questions 5 through 10
(Total Days Divided by the Number of Respondents)

	Age Groups		
	55-64	65-74	75 and over
Thinking of the past two weeks			
5. How many days, if any, did you stay in bed all or most of the day, because of illness or other health related problem?	.21	.32	.59
6. How many times, if any, did you consult your doctor (his office, your home, over the phone) for a health problem related to you?	.50	.32	.74
7. How many days, if any, did you alter your plans of the day because you wanted to help someone (or just keep him/her company) to overcome his/her health related problem?	.98	.81	1.37
During the past twelve months			
8. How many days, if any, did you stay in a hospital overnight? (reason must relate to your health)	1.24	1.54	4.04
9. In how many different occasions, if any, did you enter in a hospital for an overnight stay? (reason must relate to your health)	.31	.39	.42
10. How many times did you enter in a hospital emergency room as a patient?	.16	.21	.43

psychographic statements of this study through a discussion of the factor loadings. The statements analyzed here are 45 through 103 in the questionnaire (Appendix 1).

Findings from the Combination of Factor and Cluster Analysis

The analysis in this subsection is based on cluster and factor analysis of the psychographic statements of this survey. From the outset it is mentioned that two clusters predominate: A, with seventy percent of the observations, and B, with twenty-five percent of them. Also, that only two factors are analyzed: one, that describes the "health concerned" individual, and two, that describes the "anti-established health practices" health consumer.

More specifically, by arbitrarily restricting the cluster analysis to five clusters, the procedure resulted in:

A. One cluster having 158 observations

B. One cluster having 56 observations

C. One cluster having 7 observations

D. One cluster having 4 observations

E. One cluster having 1 observation

Evidently, on psychographic grounds the two most important clusters contain 70.0% and 24.8% of the observations respectively. Since the observations belonging to each cluster may be identified by their case number, the next step of the analysis is to factor analyze the same information, retain factor one, score out each observation for factor one, and sort by the score weights for each case number. After relating the case numbers of each cluster to the case numbers of

the scoring by factor one, the following observations are in order:

1. Cluster D scores show the highest negative scoring coefficients for factor one. Its four values are between -5.1535 and -4.4386.

2. Cluster E, containing only one observation, has the next most negative ranking with a factor score of -3.36614 for factor one.

3. Cluster C, containing seven observations, classifies four of them immediately after cluster C with values between -1.8936 and -1.7686. The other three with values between -1.2632 and -0.37245 fall in a mix order with observations from clusters B with a maximum score of 2.0966. Obviously, a large part of the negative side also contains A-cluster observations, expecially near zero.

4. Cluster B, with 56 observations, presents a smooth pattern. Fifty of its observations have negative score values with respect to factor one, and none of its observations have scores larger than 0.19874.

5. Cluster A, containing the rest of the observatons, dominates the whole positive scoring side with respect to factor one, with a maximum score of 2.0966. Obviously, a large part of the negative side also contains A-cluster observations, expecially near zero.

Clusters D and E are eliminated from the analysis, since the only respondent in the E cluster did not answer most of the questions, and respondents in D have bypassed the questions 83 through 103.[5] Therefore, only three clusters remain, A with 158 observations, B with 56 observations, and C with 7 observations.

Examining the second factor, it is evident cluster B shows heavily negative scorings. Actually, 53 of its 56 observations score

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[5]Actually, if the cluster procedure is performed after the elimination of the observation corresponding to cluster E and for four clusters, it produces the previously described A, B, C, and D clusters; also, if the cluster procedure is restricted to three clusters and the corresponding to cluster D observations are eliminated, the procedure produces clusters whose elements exactly correspond to the three first ones.

negatively and 25 of them are among the 40 highest (negatively) ranking observations of the sample with respect to this factor. In contrast, cluster C does not exhibit any particular behavior with respect to factor two, its observations ranking, 9, 63, 74, 101, 152, 162, and 215. However, the previously abandoned cluster D presents a very firm positive behavior with respect to the second factor. Its observations rank 216, 223, 225, and 226.

In summary, cluster C presents strongly negative scores with respect to factor one, but does not present any particular pattern with respect to factor two. Cluster B basically presents a negative pattern with respect to each factor. Finally, cluster A exhibits uniquely identifiable positive behavior for both factors, although it usually extends to negative scores but to a lesser degree than the other clusters.[6]

Analysis Considerations

Table 4-7 presents the means and the standard deviation of the psychographic statements of this study. Additionally, Table 4-8 contains the means of the responses by cluster (1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=somewhat agree, 5=agree, 6=strongly agree).

Table 4-9 presents the factor pattern for the first four factors using the principal axis method for factor analysis. Ten variables are included in factor one (loadings ranging from 0.59816 to

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[6]Potentially, the analysis may be extended to all twenty-nine factors that account for eighty percent of the variation. However, this exercise is deemed unnecessary due to its repetitious nature.

Table 4-7

Summary of Results: Means and Standard Deviations of the Psychographic Statements

Question	Means	Standard Deviations
45	3.9	1.6
46	4.1	1.5
47	3.7	1.5
48	3.6	1.6
49	3.2	1.4
50	3.8	1.5
51	2.6	1.3
53	4.4	1.4
54	2.6	1.4
55	3.9	1.3
56	2.8	1.4
57	3.1	1.6
58	3.7	1.4
59	3.5	1.4
60	3.8	1.5
61	3.5	1.4
62	5.0	1.1
63	3.9	1.4
64	3.8	1.4
65	3.4	1.6
66	4.4	1.2
67	2.9	1.4
68	3.6	1.5
69	3.4	1.3
70	4.8	1.1
71	4.0	1.4
72	4.3	1.4
73	3.1	1.4
74	3.9	1.5
75	3.0	1.5
76	5.2	1.1
77	4.5	1.2
78	4.6	1.3
79	3.8	1.5
80	3.6	1.5

Table 4-7

Summary of Results: Means and Standard Deviations of the Psychographic Statements (Continued)

Question	Means	Standard Deviations
81	3.7	1.6
82	3.7	1.6
83	3.8	1.3
84	3.9	3.6
85	3.2	1.5
86	3.3	1.4
87	3.7	1.4
88	3.7	1.4
89	3.4	1.5
90	4.0	1.6
91	4.8	1.3
92	3.9	1.5
93	2.8	1.5
94	3.0	1.5
95	4.2	1.4
96	3.4	1.7
97	3.0	1.6
98	3.4	1.5
99	4.3	1.5
100	3.7	1.5
101	4.4	1.4
102	3.3	1.5
103	3.8	1.4

Table 4-8

Summary of Results: Cluster Means, by Question of the Psychographic Statements

Question	Cluster A	Cluster B	Cluster C	Cluster D	Cluster E
45	4.0	4.3	0.9	0	0
46	4.2	4.6	1.3	0	0
47	4.0	3.5	0.4	0	0
48	4.0	3.2	0.4	0	0
49	3.5	3.3	1.1	0	0
50	4.1	3.5	2.1	0	5
51	4.3	4.4	2.4	0	0
52	2.9	2.4	0.7	0	0
53	4.7	4.2	0.9	0	5
54	2.7	2.2	1.9	2.3	0
55	3.9	3.8	4.3	3.8	0
56	2.9	2.4	1.7	2.8	0
57	3.2	2.8	4.0	2.5	0
58	3.9	3.1	3.7	5.0	0
59	3.6	3.3	3.4	3.8	0
60	4.0	3.3	4.3	3.5	0
61	3.6	3.3	3.7	3.3	0
62	5.0	5.1	4.1	5.0	0
63	4.1	3.3	3.1	4.5	0
64	4.1	3.0	4.3	4.3	0
65	3.5	2.9	3.7	4.3	0
66	4.4	4.7	4.6	4.8	0
67	3.2	2.3	1.6	3.8	0
68	3.8	3.2	2.3	4.5	0
69	3.6	2.8	2.7	3.3	0
70	4.9	4.7	4.7	5.5	0
71	4.3	3.4	3.1	4.8	0
72	4.4	3.8	4.4	5.0	0
73	3.3	2.3	2.7	4.0	0
74	4.1	3.3	4.1	5.3	0
75	3.0	2.8	3.6	4.0	0

Table 4-8

Summary of Results: Cluster Means, by Question of the Psychographic Statements (Continued)

Question	Cluster A	Cluster B	Cluster C	Cluster D	Cluster E
76	5.3	5.1	5.7	5.5	0
77	4.7	4.1	3.6	5.3	0
78	4.7	4.4	4.9	3.3	0
79	4.0	3.3	4.3	2.0	0
80	3.7	3.2	3.7	3.5	0
81	3.8	3.5	4.1	3.5	0
82	3.4	3.1	4.6	3.8	0
83	3.9	3.9	4.0	0	5.0
84	4.3	3.0	4.6	0	5.0
85	3.4	2.9	2.3	0	2.0
86	3.7	2.7	2.3	0	3.0
87	4.0	3.2	3.4	0	5.0
88	3.9	3.5	2.6	0	0
89	3.5	3.0	4.4	0	2.0
90	4.1	4.1	5.0	0	6.0
91	4.9	4.7	5.0	0	5.0
92	4.2	3.4	4.1	0	2.0
93	2.9	2.9	2.3	0	0
94	3.1	3.0	2.6	0	2.0
95	4.4	4.3	3.3	0	0
96	3.7	2.9	4.0	0	0
97	3.3	2.4	2.3	0	5.0
98	3.7	3.1	2.9	0	5.0
99	4.5	4.1	3.9	0	3.0
100	3.8	3.6	4.4	0	5.0
101	4.7	3.7	4.4	0	5.0
102	3.4	3.3	3.4	0	0
103	4.0	3.4	3.3	0	5.0
Number of Observations	158	56	7	4	1

Table 4-9

Factor Pattern of the First Four Factors
of the Psychographic Statements
(Factor Method: Principal Axis)

Question	Factor 1	Factor 2	Factor 3	Factor 4
45	0.423	-0.343	0.120	-0.520
46	0.428	-0.366	0.028	-0.553
47	0.543	0.073	-0.212	-0.295
48	0.598	-0.016	0.034	-0.240
49	0.462	0.038	-0.095	-0.293
50	0.514	-0.100	-0.053	-0.133
51	0.377	-0.100	-0.198	-0.423
52	0.429	0.038	-0.180	-0.197
53	0.537	-0.163	-0.203	-0.126
54	0.130	0.275	-0.314	0.090
55	0.047	-0.061	0.315	0.004
56	0.152	0.336	-0.057	0.083
57	0.180	0.065	0.102	0.037
58	0.112	0.543	-0.083	-0.022
59	0.088	0.114	0.037	0.294
60	0.263	0.295	0.095	0.121
61	0.113	0.252	0.058	0.298
62	0.225	0.064	0.315	-0.082
63	0.221	0.297	0.189	-0.164
64	0.188	0.322	0.266	-0.035
65	0.098	0.110	0.611	0.195
66	0.157	-0.144	0.311	-0.393
67	0.197	0.504	-0.233	0.051
68	0.161	0.575	0.055	-0.125
69	0.177	0.589	-0.088	-0.096
70	0.125	0.139	0.289	-0.011
71	0.143	0.622	-0.194	-0.235
72	0.154	0.602	-0.093	-0.120
73	0.200	0.272	0.453	0.058
74	0.136	0.131	0.687	0.205
75	0.066	0.303	0.369	0.034

Table 4-9

Factor Pattern of the First Four Factors
of the Psychographic Statements
(Factor Method: Principal Axis)
(Continued)

Question	Factor 1	Factor 2	Factor 3	Factor 4
76	0.140	0.383	0.260	0.016
77	0.267	0.406	0.248	-0.116
78	0.282	-0.071	0.110	0.074
79	0.344	-0.001	0.196	0.214
80	0.225	0.248	0.060	-0.195
81	0.091	0.015	0.252	-0.187
82	0.249	0.088	0.320	-0.150
83	0.333	-0.416	0.289	0.148
84	0.403	-0.048	0.300	0.388
85	0.495	-0.104	0.135	-0.076
86	0.485	-0.014	-0.190	0.255
87	0.496	-0.008	-0.144	0.164
88	0.474	-0.078	-0.024	-0.150
89	0.309	0.029	-0.296	0.104
90	0.278	-0.418	0.201	0.186
91	0.531	-0.319	0.082	0.202
92	0.450	-0.101	-0.110	0.402
93	0.272	-0.122	0.065	-0.125
94	0.273	-0.158	0.033	-0.154
95	0.472	-0.213	0.102	0.069
96	0.342	0.044	-0.111	0.361
97	0.408	0.137	-0.321	0.213
98	0.350	0.080	-0.397	0.237
99	0.414	-0.041	-0.151	0.253
100	0.305	-0.104	-0.062	0.127
101	0.546	-0.012	-0.105	0.266
102	0.409	0.037	-0.123	-0.008
103	0.460	-0.218	-0.082	0.266

0.47414--all positive), six variables in factor two (loadings ranging from 0.62230 to 0.50369--all positive), two variables in factor three (loadings 0.68735 and 0.45315), and two variables in factor four (loadings 0.55325 and 0.51986). Table 4-10 presents those factors and the respective statements and loadings.

Since the analysis in the previous subsection was confined to the first two factors, the following considerations aim to elaborate on their meaning.

The composite statements of factor one describe respondents that are sensitive to issues regarding health and are careful in preventing illnesses. These respondents think more must be spent on health prevention, there is a crisis in health care, and that underlying sickness may exist even without evident symptoms. They are willing to spend more time and money to find physicians they trust and they are always careful to have a valid health insurance. They tend to take vitamins, are alert for better purchasing alternatives, are positive towards new ideas and technologies, and they seek advice before any major purchasing commitment. Finally, these respondents are positive toward the statement: "Much of what is important in life cannot be expressed in words," a statement which, during the instrument's pretests, indicated that agreeing respondents were using abstract notions and that they were "a bit of dreamers," more so than those that were negative towards the statement.

The composite statements of factor two describe respondents that have reasons to complain about existing health practices: lack of respect for the patients' time, use of confusing terminology, hospitals that are unresponsive to the consumers' wishes, and

Table 4-10

Summary of Results: Factors, Respective Statements, Loadings

	Statement	Loading
	FACTOR 1	
* 1.	Americans do not spend enough on health prevention	.59816
2.	Much of what is most important in life cannot be expressed words	.54590
* 3.	I believe there is a crisis in health care	.54287
4.	Even if you are not feeling sick, there can be things wrong with you	.53690
5.	I would not allow my health insurance to lapse even for a day	.53055
* 6.	I am willing to travel a long distance in order to find a doctor that I trust	.51435
* 7.	Irrespective of satisfaction from services received, I always look for better alternatives	.49546
8.	Everybody should take vitamins	.49512
9.	I seek a lot of advice before any major purchase	.48534
10.	I like to try new and different things	.47414
	FACTOR 2	
1.	Doctors are inconsiderate of your time	.62230
* 2.	The medical jargon is very confusing	.60201
* 3.	Hospitals do not observe the patient's welfare, wishes and desires	.58945
* 4.	The existing health care system is inadequate	.57453
5.	With all the specialists today it is hard to know where to go when you have a medical need	.54334
6.	I worry a great deal who will take care of me, if I become ill	.50369
	FACTOR 3	
1.	I try to get a physical examination regularly	.68735
* 2.	With respect to medical care the appearance of any symptom suggests that we must visit a physician	.45315
	FACTOR 4	
1.	My health almost never keeps me from doing things I like to do	.55325
2.	In general, my health is excellent	.51986

*These statements were developed during the present study.

inability to identify appropriate medical specialists. Probably, because of the above, the same respondents believe the existing health care system is inadequate. (It is impossible for the average patient to judge the system's adequacy while in the operating room, intensive care, or under treatment.) Also, at first sight, the last included statement, "I worry a great deal who will take care of me, if I become ill," stands by itself. However, indirectly, it expresses worries about the inadequacy of the health system. Evidently, the adopted analytical tool included it, since it transmits essentially the same idea from the same respondents.

Obviously, cluster-B respondents do not feel factors one and two are much of their concern. This, however, does not mean that if the existing system is improved for those factors, the cluster-B respondents will not be more positive toward the modified health system. It only means they have other considerations they value as more important.

If the previous information is related to the demographics of the sample it is observed that cluster A is spread proportionately among all three age groups, but cluster B is concentrated in the 55-74 groups (out of its 56 observations, 22 are at the 55-64 group, and another 22 at the 65-74), and cluster C is concentrated at the 65 and over group (2 observations are at the 65-74 group and 3 at the 75 and over group). However, of most importance, cluster-B respondents may be characterized as being in better health than other respondents in the same age groups. Table 4-11 illustrates this point, comparing health related indices of subjects belonging to cluster B versus the same as a whole.

Table 4-11

Summary of Results: Comparison of Health Related Indices: Survey's Averages Versus Cluster's B

	Survey's (n=226)		Cluster's B (n=56)	
	Means	Standard Deviation	Means	Standard Deviation
Preretirement				
Discomforts	9.79	6.02	7.86	5.52
Chronic Diseases	1.72	1.52	1.09	1.19
Complaining Patient	17.31	9.25	15.50	8.98
Physical Aids	1.45	0.61	1.41	0.50
Young-Old				
Discomforts	9.96	5.28	6.96	4.21
Chronic Diseases	1.89	1.72	1.27	1.16
Complaining Patient	16.66	10.17	12.64	8.07
Physical Aids	1.72	0.92	1.41	0.50

As a result of the above discussion, an Arkansas map is presented in Figure 4-2 where the residence of the respondents is identified by the cluster to which they belong. Obviously, the applicable marketing strategy must be indicated by the respective factor loadings. Since the most significant cluster (70.0% of the respondents) is cluster A, it is advisable to follow a strategy (for areas where cluster A predominates) that positively enhances the elements of the two first factors.

Summary of the Analysis

In this chapter the 226 observations of the study were analyzed. From a demographic point of view, comparisons through standard statistical techniques indicated that the sample chosen may not be typical of the State's population distribution, and, therefore, inferences are applicable only to carefully selected cases.

From the point of view of how respondents perceived their own health and other health related information, the analysis was based on an evaluation of simple health related indices. Those indices grouped information with respect to respondents' discomforts, chronic diseases, health related complaints, and use of physical aids and were then studied through nonparametric testing. No existing trend was indicated when the magnitude of the above indices was examined as a function of age (except for physical aids). Evidently, only the dependence on physical aids is increasing as age progresses. It is worth mentioning that the perceived health in terms of discomforts and chronic diseases was not reported as significantly different in comparing younger and older age groups.

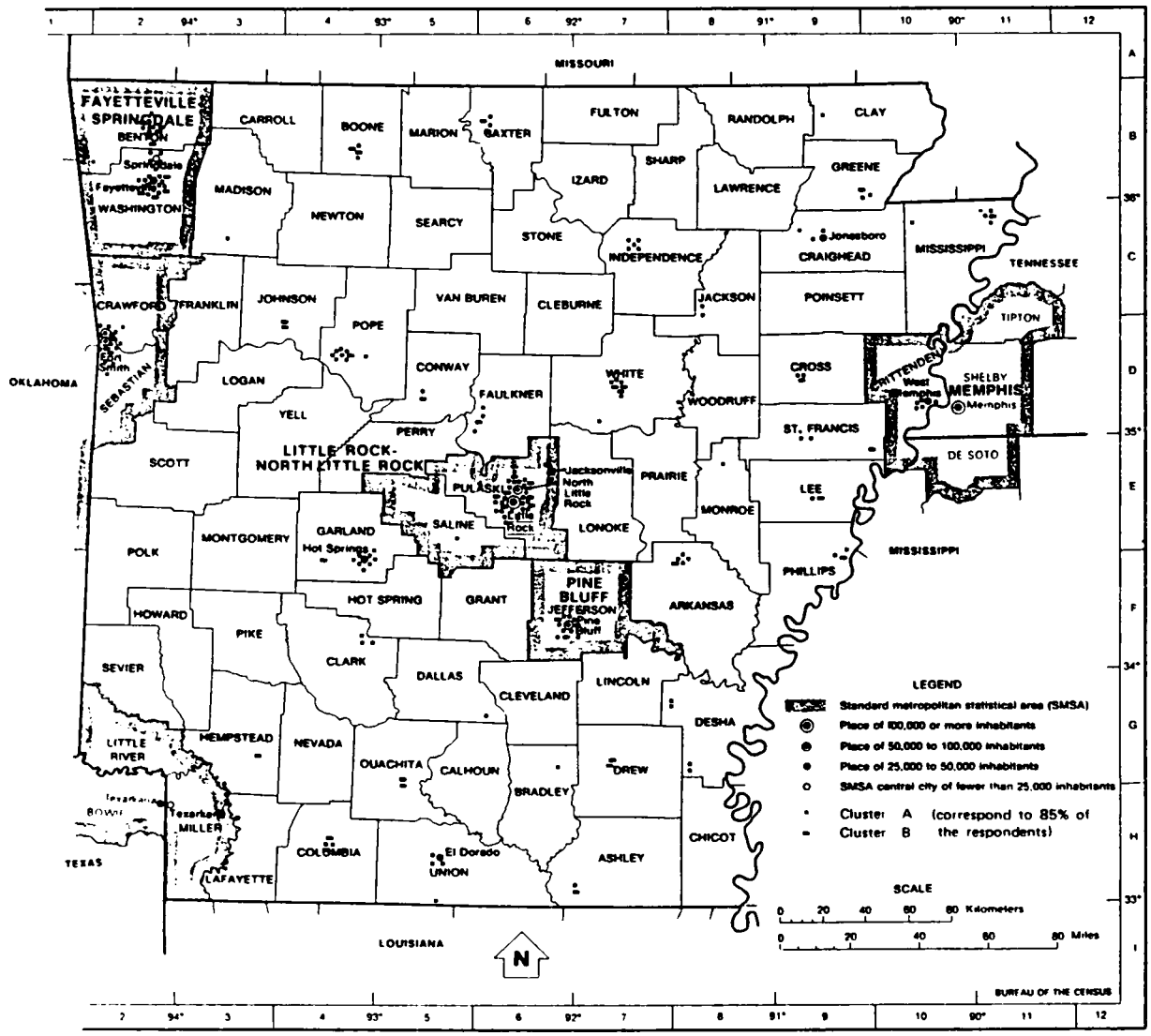

Figure 4-2

CLASSIFICATION OF RESPONDENTS BY CLUSTER

Finally, from the point of view of psychographics, the analysis of the survey's information identified five different clusters, among them one with 70% of the observations, and another with 25% of the observations. Also, the two first factors analyzed present a specific positive pattern for the respondents of the first cluster, and a negative one for the respondents that are classified to the second one. Useful overtones of the analysis indicate cluster A is evenly spread from a demographic point of view, whereas cluster B is concentrated in the 55-74 age group, and the respondents of cluster B are in better health, complain less, use fewer physical aids, and have less chronic disease than the comparative respondents of the other cluster.

Chapter 5

CONCLUSIONS

Summary of the Study

In an evolving sense, it appears that in today's United States, the burden of disease prevention is assigned to the consumer. This represents a major shift from the "first health care revolution", 135 years ago, where the state had assumed the responsibility to safeguard the general health of the population. Furthermore, this shift epitomizes the need to stress preventive rather than curative health care and the need to change behavioral patterns. Since the present study is addressed to the over-55 group, altering life styles is a much more demanding task. The study aims to examine perceptions, health related information, and demographic data of a sample of Arkansas consumers, with respect to preventive health care and health care's physical facilities.

After reviewing studies on the product health care, its promotion, its pricing, the places offered, competition, regulatory, and planning issues, the thrust of this research is toward the health care patient, generally, and the aged consumer, specifically.

Almost half of the psychographic statements were taken from previous works. After testing all questions through structured in-depth interviews, and subsequently modifying the instrument, the questionnaire was sent to members of the Arkansas Household Research Panel, from where 485 responses were collected, a response rate of

eighty-one percent. The analysis, then, was applied to the respondents of the over-55 group. The data were subjected to standard parametric and nonparametric statistical tests, factor analysis, cluster analysis, and discriminant analysis.

Two clusters were identified. One, with seventy percent of the total, consisted of respondents having a predominantly positive attitude towards factors one and two (in favor of health prevention and against the existing health care practices) and a second one, with twenty-five percent of the total, consisted of respondents having negative scores on those factors. An important element here is that, although there are no significant differences in the demographic profile of the respondents in the two clusters, there is a significant health difference. Respondents belonging to the second cluster are in a better health than the rest. In the process, three other clusters were identified and abandoned, because, in total, they represented only five percent of the respondents.

The following discussion will be centered on: (a) implications from this research, (b) limitations of the present analysis, and (c) suggestions for further research.

Implications from This Research

This section presents specific suggestions, arising from the analysis of respondent data, with respect to marketing to the elderly (a) preventive health services, and (b) physical health care facilities. Comments apply to the cluster A, as defined in the previous chapter.

Preventive Health Services

Seventy percent of the respondents (cluster A) are in favor of the existence of preventive services. Evidently, there is a need, possibly unsatisfied, that must be fulfilled by offering diagnostic/ preventive means, instead of only curative ones.

In terms of pricing, the respondents indicated that they do not have objections to increasing their expenses in order to accommodate disease preventive services. They believe that "Americans do not spend enough on health prevention" and additionally, the statement "I would not allow my health insurance to lapse even for a day" shows how highly inelastic is their behavior toward receiving health care (it is noted that the statement is one of the very few consumer choices in the health care field).

In terms of place, the respondents indicated they are willing to travel in order to find a doctor they trust more than a nearby one. This consideration may be assumed pertinent to all health care organizations, and bypasses the myth that the patients will visit a health care organization just because it happens to be in the neighborhood. Probably, the health care market is very mobile, except in the case of emergencies.

In terms of promotion, there are at least two important dimensions. First of all, the concept of customer loyalty seems to be endangered since the respondents are positive to the statement "irrespective of satisfaction from services received, I always look for better alternatives", and second, image and word-of-mouth publicity may be decisive factors in the selection process ("I seek a lot of advice before any major purchase").

Finally, in terms of product design it was indicated that the respondents are positive towards trying new and different things. It may be assumed, therefore, that modest innovations and new ideas may be welcomed, at least in the target market of this research.

However, there are issues applicable to existing or modified services that must be observed in designing any new health care service. The respondents indicated that there is no obvious respect accorded to their time, wishes, desires, and welfare. Therefore, new preventive services must be strongly geared toward offering more respect to the clients on the above issues (especially, since the latter will enhance a promotion source--word-of-mouth publicity--in the future.) Also, an important element may be to simplify the medical jargon and to make an effort to communicate with the customers in terms they understand. Finally, the respondents indicated that they do not know where to find specialists. A complete service that will offer them security and relieve them from trying to identify by themselves their needs and the whereabouts of sources of medical care is, therefore, needed.

In summary, conclusions from the above indicate that the target market is: (a) ready for and needful of complete disease diagnostic-prevention services, (b) ready to pay a reasonable price for it, (c) willing to travel in order to find suitable services, (d) affected by word-of-mouth publicity and may not be assumed as always loyal, and (e) demanding more respect and clearer and more substantiated explanations related to the treating the symptoms by health organizations.

Additionally, by linking the above conclusions to the overall health care trends presented in Chapter 1, the following observations are in order:

* Stressing diagnostic/preventive health services and not only curative ones is in accordance with the recent spirit of official health care policies.

* Outpatient care may prove to be a humane, convenient, and economically and technically feasible alternative to the previously discussed diagnostic/preventive services.

* Provision of disease diagnosis and prevention may be a way to operationalize unutilized capacity, although it may cannibalize the present overall usage levels, since it may reduce the more extensive curative needs.

* Existence of diagnostic/preventive services may also result in a better communication of health care routines to the patient, and to his/her familiarization with the health system. In a parallel sense, the hospital administrators may modify existing practices toward a more personalized health delivery and more insightful planning.

Health Care's Physical Facilities

With respect to health care facilities and respective hospitalization environment, no conclusions were possible. Evidently, the target market is satisfied with what it presently receives, and notions like brighter rooms, exercise-type activities, and so on, leave the respondents indifferent. However, it must be pointed out that the sample's population was not presently under hospitalization, and therefore, probably, it was not exactly qualified to express opinions on this particular issue.

Limitations of the Present Analysis

A major problem of any research is that its boundaries are not easily expandable. Findings applicable in 1982, in Arkansas, may not

be applicable in other states or in other years. There is also a danger in drawing inferences. As was pinpointed in Chapter 4, the atypical structure of the sample may be a major shortcoming of this research. Generalizations, therefore, must be pronounced only with extreme care so that they will assume the same population distribution.

A second important limitation of this research is that it is among the very first in the area of psychographics in health care. Therefore, it had to be general. Exact suggestions may be developed only through exact instruments, with very narrowly targeted objectives. This observation applied also to the adopted methodology. It is felt that more precise questionnaires will facilitate the use of more elaborate methodologies.

Also, one of this study's objectives, to study perceptions about health care's physical facilities, was, for most practical purposes, abandoned. During the pretests, most of the relevant statements were eliminated, and the findings did not focus on any of the remainder.

Finally, there are specific recommendations for those researchers who will attempt similar studies in the future:

* Study of the elderly presents a problem: Their concentration is weak. Especially in in-depth interviews the researcher must include many breaks in order to give them time to recollect and continue.

* Answers referring to the past twelve months are not always sound. Aged people may not remember very well.

* Questions on health issues often are very personal. Care must be taken not to insult respondents.

* Also, study of the elderly requires the existence of many control questions so that the researcher will be able to understand the consistency of the answers.

Suggestions for Further Research

The area of health care marketing to the elderly is almost terra incognita. In comparison to other marketing fields, it contains very limited studies and it certainly lacks any in-depth analysis. Much of its literature is based on industry originated case studies.

The following list, a series of topics deemed necessary for future research, aims to describe the most important ones, in terms of:

1. Methodology--Causality Relationships:

* Study the relationships between actual and perceived health in connection with the subjects' positions on health care marketing issues. A similar study may necessitate means exactly monitoring the respondents' health.

* Study, basically the same topical area as the present dissertation, but through an examination of causality relationships. This may be only a methodological change and it is suggested to proceed using MANOVA models backed by a stepwise discriminant analysis (Appendix 3 illustrates the classification potential of this analysis).

2. Methodology--Sample Base:

* Use different sample frames, for example, retirement villages, prisons, and nursing homes, and study those situations for varying health related marketing aspects.

* Investigate the elderly's perceptions on health care when the target population is hospitalized. During the present study there were indications that the recency of health related situations modifies the respondents' outlook toward certain marketing issues (especially with respect to health care's physical facilities).

* Study the positions of the channels of distribution, such as medical doctors and paramedical professionals, toward health care marketing issues.

* Study the positions of insurance companies or governmental/ regulatory agencies with respect to health care marketing. How do they view marketing practices several years after the official 'permission' to advertise health care?

* Study the same dimensions of the present study but in other states, in other times, and under different economic, social, demographic, or environmental conditions.

3. Topical Content:

* The present study's overtones were geared toward disease prevention and health care's physical facilities. Study perceptions of the target market leading to conclusions with respect to entertainment while in hospital (also, food, education, service requirements, visitation, and others).

* Relate health care needs for preventive causes and physical facilities across all age groups, keeping one of them as a control group. Then, study the overlappings of those age groups in terms of market segments with essentially similar characteristics.

* During the pretest phase of this dissertation reactions were recorded against the "faceless" delivery of health care. It is suggested, therefore, to study the perceptions of the target markets with respect to their opinions and beliefs of personalization/humanization of health delivery. There is a possibility that adaptation to similar findings may improve the acceptability of marketing efforts in the health care field, in general, and diagnostic preventive, in particular.

It is hoped that this work will stimulate interest for further studies in the above direction. This nation is aging and similar contributions will enhance the understanding of this growing segment.

Appendix 1

THE QUESTIONNAIRE

(this questionnaire has been reduced at 74 %)

HEALTH CARE QUESTIONNAIRE

THE FOLLOWING QUESTIONNAIRE IS TO BE COMPLETED BY THE OLDEST PERSON IN THE HOUSEHOLD.

A PART (Please put appropriate *number* in the *brackets* following each question)

1. Age of person completing the questionnaire . . . . . .[ ]
2. Sex of person completing the questionnaire (1: Male; 2: Female). . . . . .[ ]
3. Relationship to the household head (1: Self; 2: Father; 3: Father-in-law; 4: Mother; 5: Mother-in-law; 6: Grandparent; 7: Friend; 8: Other, please specify _____). . . . . .[ ]
4. Number of persons over 55 (except the respondent) living at the same household . . . . . .[ ]

Thinking of the *past two weeks* . . .

5. . . . how many *days*, if any, did you stay in bed all or most of the day, because of illness or other health related problem? . . . . . .[ ]
6. . . . how many *times*, if any, did you consult your doctor (his office, your home, over the phone) for a health problem *related to you*? . . . . . .[ ]
7. . . . how many *days*, if any, did you *alter you plans* of the day because you wanted to help someone (or just keep him/her company) to overcome his/her health related problems? . . . . . .[ ]

During the *past twelve months* . . .

8. . . . how many *days*, if any, did you stay in a hospital overnight? (reason must relate to *your* health) . . . . . .[ ]
9. . . . in how many different *occasions*, if any, did you enter in a hospital for an overnight stay? (reason must relate to *your* health) . . . . . .[ ]
10. . . . how many times did you enter a hospital emergency room as a patient? . . . . . .[ ]

B PART (Please *circle* appropriate *number*)

	Do you have . . .	NEVER	RARELY	OFTEN	ALWAYS
	Example: *Trouble staying asleep?* . . .	0	(1)	2	3
11.	Trouble hearing?	0	1	2	3
12.	Trouble seeing, even with glasses? . . .	0	1	2	3
13.	Trouble with your teeth?	0	1	2	3
14.	Trouble with digestion?	0	1	2	3
15.	Trouble getting to sleep?	0	1	2	3
16.	Trouble staying asleep?	0	1	2	3
17.	Trouble doing the things you like? . . .	0	1	2	3
18.	Trouble getting around your home? . .	0	1	2	3
19.	Trouble getting around outside?	0	1	2	3
20.	Trouble dealing with your personal care?.	0	1	2	3
21.	Feeling of dizziness?	0	1	2	3
22.	Shortness of breath?	0	1	2	3

PLEASE, GO TO NEXT PAGE

Do you have problems with . . .

		NO PROBLEM	SOME PROBLEM	SEVERE PROBLEM
23.	Diabetes	0	1	2
24.	Hypertension	0	1	2
25.	Arteriosclerosis	0	1	2
26.	Arthritis	0	1	2
27.	Rheumatism	0	1	2
28.	Other	0	1	2

Please specify _____

Do you communicate your *own* health related worries *immediately*, or during the first day they occur, to your:

		NEVER	RARELY	OFTEN	ALWAYS
29.	Spouse	0	1	2	3
30.	Children	0	1	2	3
31.	Friend(s)	0	1	2	3
32.	Druggist	0	1	2	3
33.	Doctor	0	1	2	3

If health related worries persist; do you communicate them during the first week of their occurrence, to your:

		NEVER	RARELY	OFTEN	ALWAYS
34.	Spouse	0	1	2	3
35.	Children	0	1	2	3
36.	Friend(s)	0	1	2	3
37.	Druggist	0	1	2	3
38.	Doctor	0	1	2	3

Which, if any, of the following physical aids do you use? (Please put a check (√) in the appropriate places.)

39. ( ) Eyeglasses
40. ( ) Hearing aids
41. ( ) False teeth
42. ( ) Cane or crutch
43. ( ) Artificial limbs
44. ( ) Other, please specify: _____

C PART The following statements deal with health care. Please, *circle* the *number* that best represents your opinion

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
	Example: I am accustomed to chronic discomforts	-3	-2	(-1)	1	2	3
45.	In general, my health is excellent	-3	-2	-1	1	2	3
46.	My health almost never keeps me from doing things I like to do	-3	-2	-1	1	2	3
47.	I believe there is a crisis in health care	-3	-2	-1	1	2	3
48.	Americans do not spend enough on health prevention	-3	-2	-1	1	2	3
49.	Too many people live too far away from medical attention	-3	-2	-1	1	2	3
50.	I am willing to travel a long distance in order to find a doctor that I trust	-3	-2	-1	1	2	3
51.	I go to a doctor only when I feel really sick	-3	-2	-1	1	2	3
52.	Hospitals could be more agreeable if they provide opportunities for socializing	-3	-2	-1	1	2	3
53.	Even if you are not feeling sick, there can be things wrong with you	-3	-2	-1	1	2	3

PLEASE, GO TO NEXT PAGE

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
54.	I often want to go for a check up, but thinking of the inconvenience and discomfort, I postpone the decision	-3	-2	-1	1	2	3
55.	If I had to go to a hospital, I wouldn't mind paying slightly more and have a nice, bright, comfortable room	-3	-2	-1	1	2	3
56.	I often ask for health advice a druggist, a nurse, or even a friend	-3	-2	-1	1	2	3
57.	Only *specific* health services must be promoted	-3	-2	-1	1	2	3
58.	With all the specialists today it is hard to know where to go when you have a medical need	-3	-2	-1	1	2	3
59.	I believe that larger hospitals provide better care than small ones	-3	-2	-1	1	2	3
60.	Health delivery is a social concern and must exclude profit objectives	-3	-2	-1	1	2	3
61.	Government regulation of hospitals can assure that the minimum acceptable health standards will be maintained	-3	-2	-1	1	2	3
62.	Everyone should take walks, bicycle, garden, or other exercise several times a week	-3	-2	-1	1	2	3
63.	I prefer going to a doctor that can treat just about anything than going to a specialist	-3	-2	-1	1	2	3
64.	Everybody should use mouthwash	-3	-2	-1	1	2	3
65.	I visit my physician on a routine basis even if I do not feel ill	-3	-2	-1	1	2	3
66.	Thinking of other people my age, in general, my health is better	-3	-2	-1	1	2	3
67.	I worry a great deal about who will take care of me, if I become ill	-3	-2	-1	1	2	3
68.	The existing health care system is inadequate	-3	-2	-1	1	2	3
69.	Hospitals do not observe the patient's welfare, wishes and desires	-3	-2	-1	1	2	3
70.	I strongly prefer to live in areas where health services are easily accessible	-3	-2	-1	1	2	3
71.	Doctors are inconsiderate of your time	-3	-2	-1	1	2	3
72.	The medical jargon is very confusing	-3	-2	-1	1	2	3
73.	With respect to medical care the appearance of *any* symptom suggests that we must visit a physician	-3	-2	-1	1	2	3
74.	I try to get a physical examination regularly	-3	-2	-1	1	2	3
75.	I would like to see local hospitals offering services like exercise rooms, saunas, etc.	-3	-2	-1	1	2	3
76.	Health care costs are far too high	-3	-2	-1	1	2	3
77.	Hospitals must inform us on their services and achievements	-3	-2	-1	1	2	3
78.	Good hospitals do not need advertising	-3	-2	-1	1	2	3
79.	I will go to the hospital that my doctor suggests irrespective of my own preferences	-3	-2	-1	1	2	3
80.	You get more personal attention in small health care institutions, than in large ones	-3	-2	-1	1	2	3
81.	The government must not subsidize hospitals	-3	-2	-1	1	2	3
82.	Health care must be a state-level concern; the federal government is too far away to understand the local problems	-3	-2	-1	1	2	3

PLEASE, GO TO NEXT PAGE

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
83.	I usually know exactly what to do when I need medical care	-3	-2	-1	1	2	3
84.	I visit my physician more regularly now than when I was younger	-3	-2	-1	1	2	3
85.	Everybody should take vitamins	-3	-2	-1	1	2	3

D PART The following statements deal with activities, interests, and opinions. Please *circle* the *number* that best represents your opinion

		Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
86.	I seek a lot of advice before any major purchase	-3	-2	-1	1	2	3
87.	Irrespective of satisfaction from services received, I always look for better alternatives	-3	-2	-1	1	2	3
88.	I like to try new and different things	-3	-2	-1	1	2	3
89.	I have less contact with family and friends than years ago	-3	-2	-1	1	2	3
90.	I have a very comprehensive health insurance	-3	-2	-1	1	2	3
91.	I would not allow my health insurance to lapse even for a day	-3	-2	-1	1	2	3
92.	I am a homebody	-3	-2	-1	1	2	3
93.	I do volunteer work on a fairly regular basis	-3	-2	-1	1	2	3
94.	I enjoy organizing and directing others, persuading them to do things	-3	-2	-1	1	2	3
95.	I do not want to change my lifestyle now	-3	-2	-1	1	2	3
96.	Theater, opera, and ballet leave me indifferent	-3	-2	-1	1	2	3
97.	I wish I knew how to relax	-3	-2	-1	1	2	3
98.	If I had my life to do things over again, I would sure do things differently	-3	-2	-1	1	2	3
99.	I dislike things being uncertain and unpredictable	-3	-2	-1	1	2	3
100.	I would enjoy spending an entire day "alone with myself"	-3	-2	-1	1	2	3
101.	Much of what is most important in life cannot be expressed in words	-3	-2	-1	1	2	3
102.	I sometimes get a kick out of breaking the rules and doing things I am not supposed to do	-3	-2	-1	1	2	3
103.	I like people who are most sure of their conclusions	-3	-2	-1	1	2	3

E PART Sports and Hobbies

Are you actively engaged in any of the following? (please, put in the *brackets* the *numbers* that best correspond to the degree of your involvement: 0: No involvement; 1: Very little involvement; 2: Some involvement; 3: A great deal of involvement)

Example: (2) Swimming

104.	( )	Boating	105.	( )	Camping/hiking
106.	( )	Fishing	107.	( )	Gardening
108.	( )	Going on excursions	109.	( )	Going to a health club
110.	( )	Golf	111.	( )	Jogging
112.	( )	Mountain climbing	113.	( )	Racquetball
114.	( )	Skiing	115.	( )	Swimming
116.	( )	Tennis	117.	( )	Travelling for pleasure
118.	( )	Walking	Other	( )	Please specify:_____
119.	( )	Arts/crafts	120.	( )	Cards
121.	( )	Collecting	122.	( )	Cooking
123.	( )	Creative writing	124.	( )	Home Improvements
125.	( )	Music/listening	126.	( )	Music/playing
127.	( )	Reading	Other	( )	Please specify:_____

THANK YOU VERY MUCH!

Appendix 2

INDICES USED AND OTHER INFORMATION PROVIDED FROM THE ARKANSAS HOUSEHOLD RESEARCH PANEL

Appendix 2

INDICES USED AND OTHER INFORMATION PROVIDED FROM THE ARKANSAS HOUSEHOLD RESEARCH PANEL

The questions 5 through 44 of the instrument (presented in Appendix 1) are used in this study as a basis of indices measuring each respondent's health related dimensions. Table A2-1 summarizes those indices and gives their calculation formulae. Those calculations were separately performed and are not presented in this study. The major disadvantage that the use of indices has, is that it reduces the quantity and the quality of the data. However, it increases the ability to manipulate the available information by providing continuous measurements and allowing comparisons among subjects.

Table A2-2 presents the additional information that the Arkansas Household Research Panel (AHRP) makes available to all its users. This information was used in this study for further segmentations and classifications.

Table A2-1

Indices Used and Respective Formulae

Name of Index	max value[a]	Formula[b]
Discomfort	33	SUM of [(11) through (22)]
Chronic Disease	12	SUM of [(23) through (27)][c]
Complaining Patient	90	SUM of [(29) through (33)] x 3 Plus SUM of [(34) through (38)]
Dependance on Physical Aids	12	SUM of [(39), (40), (41)] Plus SUM of [(42), (43)] x 2d

(a): minimum value is always 0 (zero).

(b): the number in parenthesis corresponds to the item of Appendix 1.

(c): if checked and chronic disease, then item (28) must be also added.

(d): if checked and appropriate, then item (44) must be also weighted, and added.

Table A2-2

Additional Information Provided Through
Arkansas Household Research Panel

The following information is not asked in the questionnaire (Appendix 1) of this research but is provided through the Arkansas Household Research Panel (AHRP). Certain parts of these data are analyzed in Chapter 4 and discussed in Chapter 5.

1. Location of the household by Zip Code.
2. Age of Male Household Head*.
3. Age of Female Household Head.*
4. Marital Status of the Household Head.
   (Married, Single, Divorced, Widowed)
5. Children in Household.
6. Age of Youngest Child.
7. Education of Male Household Head.
   (Years of formal education, Type of University degree)
8. Education of Female Household Head.
   (Years of formal education, Type of University degree)
9. Employment Status of Male Household Head.
   (Employed, Unemployed, Retired, "House Spouse")
10. Employment Status of Female Household Head.
    (Employed, Unemployed, Retired, "House Spouse")
11. Occupation of Male Household Head.
    (Unskilled worker, Skilled worker, Office-Clerical-Sales, Managerial, Professional, Self-employed)
12. Occupation of Female Household Head.
    (Unskilled worker, Skilled worker, Office-Clerical-Sales, Managerial, Professional, Self-employed)
13. Years of Arkansas Residency. [sic]
14. Race. [sic]
    (White, Black, American Indian, Oriental American, Mexican American, Other)
15. Place of Residence.
    (Rent Apartment, Rent Home, Own Home, Own Condominium, Other)
16. Yearly Household Income.

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*Item 3 of the questionnaire aims to identify the relationship of the respondent to the household head, and thereof to capitalize on the above mentioned information. Of the responses, 63.7 percent qualify as household heads.

Appendix 3

APPLICATION OF DISCRIMINANT ANALYSIS

Appendix 3

APPLICATION OF DISCRIMINANT ANALYSIS

Discriminant analysis is suggested in this study as an alternative basis for research methodology. The following illustrative example aims to demonstrate this contention (Table A3-1, Classification Functions).

It is hypothesized that the three basic groups, preretirement (55-65), young-old (65-75), old-old (over 75), take different stands with respect to the item 74 of the questionnaire: I try to get a physical examination regularly (Y).

Further, it is hypothesized that the decisive factors of this discrimination are:

1. The income of the respondent (X1) (in thousands)
2. The sex of the respondent (X2)
3. The respondent's index of discomforts (X3)
4. The respondent's index of chronic diseases (X4)
5. The respondent's index of complaints (X5)
6. The respondent's index of dependence of physical aids (X6)

The discriminant levels are (-3) for strong disagree, (-2) for disagree, (-1) for somewhat disagree, (1) for somewhat agree, (2) for agree, (3) for strongly agree, and obviously they refer to statement #74. The classification functions for those levels are presented in Table A3-1, one set for each of the three basic age groups.

The analysis is performed here through "SAS--Proc Discrim"[1] utilizing the options LISTERR and PRIORS PROP-. A more elaborate analytical tool may be BMDP-79.[2]

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[1] SAS User's Guide, (Cary, NC: SAS Institute, Inc., 1979), pp. 183-190.

[2] W. J. Dixon M. B. Brown, eds., BMDP-79: Biomedical Computer Programs, P-Series (Berkeley, CA: University of California Press, 1979), pp. 711-733.

Table A3-1

CLASSIFICATION FUNCTIONS

Preretirement

(-3): -18.426=.119(X1)+5.87(X2)+.663(X3)-1.09(X4)+.183(X5)+2.36(X6)
(-2): -11.104=.058(X1)+5.92(X2)+.483(X3)-1.05(X4)+.121(X5)+2.79(X6)
(-1): -12.497=.055(X1)+5.02(X2)+.411(X3)-1.06(X4)+.249(X5)+3.39(X6)
(1): -11.011=.038(X1)+6.17(X2)+.369(X3)-.825(X4)+.182(X5)+2.77(X6)
(2): -10.908=.058(X1)+5.65(X2)+.411(X3)-.964(X4)+.229(X5)+2.54(X6)
(3): -14.845=.022(X1)+4.99(X2)+.250(X3)-.663(X4)+.344(X5)+4.08(X6)

Young-Old

(-3): -10.510=.091(X1)+4.28(X2)+.358(X3)-.057(X4)+.096(X5)+1.16(X6)
(-2): -10.342=.093(X1)+6.56(X2)+.302(X3)-.230(X4)+.081(X5)+1.48(X6)
(-1): -10.431=.104(X1)+5.42(X2)+.317(X3)-.152(X4)+.103(X5)+1.60(X6)
(1): -10.655=.104(X1)+5.88(X2)+.281(X3)-.605(X4)+.144(X5)+1.65(X6)
(2): -10.632=.102(X1)+6.37(X2)+.199(X3)-.126(X4)+.162(X5)+1.69(X6)
(3): -14.213=.080(X1)+6.18(X2)+.219(X3)-.494(X4)+.200(X5)+2.62(X6)

Old-Old

(-3): n/a
(-2): -17.126=.257(X1)+7.68(X2)+.665(X3)-1.88(X4)+.040(X5)+2.93(X6)
(-1): -15.913=.279(X1)+4.46(X2)-.605(X3)-.316(X4)+.309(X5)+8.33(X6)
(1): -16.701=.274(X1)+4.90(X2)-.494(X3)-.637(X4)+.263(X5)+7.52(X6)
(2): -15.999=.283(X1)+4.96(X2)+.322(X3)-.288(X4)+.288(X5)+8.28(X6)
(3): -15.296=.126(X1)+5.35(X2)+.413(X3)-2.00(X4)+.287(X5)+5.65(X6)

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LIFE STYLES AND PSYCHOGRAPHIC CHARACTERISTICS OF ELDERLY CONSUMERS AS DETERMINANTS OF PERCEPTIONS ON HEALTH CARE

Abstract of dissertation submitted in partial fulfillment
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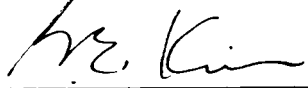

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LIFE STYLES AND PSYCHOGRAPHIC CHARACTERISTICS OF ELDERLY CONSUMERS AS DETERMINANTS OF PERCEPTIONS ON HEALTH CARE

ABSTRACT

It appears that in today's United States, the burden of disease prevention is assigned to the consumer. This study examines perceptions, health related information, and demographic data of a sample of elderly Arkansas consumers, with respect to preventive health care. The 226 respondents of the survey are members of the Arkansas Household Research Panel and over fifty-five years of age.

The data gathered were subjected to standard parametric and nonparametric statistical tests, factor analysis, cluster analysis, and discriminant analysis. The analysis identified two major segments. One, with seventy percent of the total, consists of respondents having a predominantly positive attitude in favor of health prevention and against the existing health care practices. The second one with twenty-five percent of the total, consists of respondents having negative positions on these issues. Additionally, it was found, that although there is no significant demographic difference between the two segments, there is a significant health difference. Respondents belonging to the second cluster are in a better health than the other respondents.

The findings, with respect to the predominant segment, indicate that its respondents: (a) are ready for and needful of

complete disease diagnostic/prevention services, (b) are ready to pay a reasonable price for them, (c) will travel in order to find suitable health care services, (d) are affected by word-of-mouth publicity, (e) demand more respect as customers, (f) ask for more substantiated explanations related to the treatment of symptoms by health organizations, and (g) are not necessarily loyal to their present health care institutions.