ACCESS TO CARE AND MEDICATION USE AMONG THE AMBULATORY ELDERLY IN RIO DE JANEIRO, BRAZIL

By

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Naly G.
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This study examines physician and non-physician prescribed medication use of an increasingly important segment of Brazilian society—the elderly. The elderly are a rapidly growing segment in many developing countries, including Brazil. Although the hazards associated with medication use in the elderly have been well documented in several developed countries, little is known about geriatric drug use in the developing countries.

Medication use was modeled as a function of individual and community level factors in the Municipio of Rio de Janeiro, Brazil. The variables examined are based on a behavioral model for health services utilization adapted to medication use in the Brazilian context. Variables include predisposing sociodemographic characteristics, enabling variables reflecting aspects of access to care, and need for
care variables. Access to care was analyzed according to the dimensions of perceived availability, affordability, and acceptability of medical and pharmacy services. The importance of these variables and their interrelationships were examined for elderly residents in three socioeconomic areas of Rio de Janeiro (N=436).

The rate of prescribed medication use in the sample was found to approximate that of elderly populations in the developing world, but self-medication was not as prevalent as expected. Need variables were the most important predictors of use in all areas. Age, gender, and income were the most important predisposing variables in predicting prescribed drug use. Household size and attitudes towards lay advice about drugs were significant predictors of self-medication.

Access to pharmacy services was not a significant factor in predicting medication use. Although access to medical care was not significant in predicting self-medication, acceptability of medical services was the most important access variable explaining prescribed drug use. However, separate area analysis revealed that access to care was not relevant for either prescribed or nonprescribed medication use in the high SES area, and different dimensions were important for each area. The value of smaller area studies in understanding medication use is borne out. Directions for further research and the role of the pharmacy practice in Brazil are discussed.
CHAPTER 1
MEDICATION USE AND THE ELDERLY IN BRAZIL

Introduction

Medications play a significant, albeit somewhat insidious, role in both the preventative and curative spheres of health care: "properly" used, they may save lives and contribute to an improved quality of life; misuse or abuse, however, is associated with increased costs of care and decreased quality of life. It is because of these characteristics that the demand for modern medicines, their availability, and their proper use are of global concern (WHO, 1980).

The central issues of medication use in most developing countries revolve around two related concerns about access to medicines: the scarcity of "essential medicines" (restricted access), and the popular use of a broad spectrum of legend and non-legend medications outside the purview of medical supervision (unsupervised access). In particular, self-medication, the use of medicines without the recommendation or guidance of a qualified health care professional, often extends beyond the use of non-legend, over-the-counter medications (OTCs) to include many legend drugs that are designed to be taken under medical supervision.
The unsupervised access to medications is an indicator of a larger set of factors that includes access to medical and pharmacy services, as well as alternative sources of medications. The receipt of a physician's prescription implies access to medical services, whereas the relationship is not so straightforward with self-medication. The purchase of pharmaceuticals, with or without a prescription, is dependent upon access to a commercial source of medications, directly through pharmacies or drug peddlers, or indirectly through another party.

The relationship between access to medical services, commercial and alternative sources of medications, and medication use is a crucial issue in many developing countries (Van der Geest and Hardon, 1990). Where there are significant barriers to medical care, pharmacies may represent a significant alternative health care resource. However, for the same reasons, the ill-prepared or irresponsible pharmacy may pose a serious potential health threat through the promotion of inappropriate self-medication with potent pharmaceuticals.

The primary goal of this study was to examine physician and non-physician prescribed medication use of an increasingly important segment of Brazilian society--the elderly. The populations typically targeted as being at high risk for hazardous self-medication in developing countries are pregnant women and young children. However,
the elderly are a rapidly growing segment of many Third World populations, including Brazil (Kinsella, 1988; Ramos et al., 1987). The hazards associated with the use of medications (prescribed and non-prescribed) in the elderly have been well documented in several developed countries (Beadsley, 1988; Chapron, 1988; Johnson and Pope, 1983; Moore and Teal, 1985; Simonson, 1984). However, little is known about geriatric drug use in the "aging" developing countries.

In this investigation, medication use was modeled as a function of various individual and community level factors which were related to access to medical and pharmacy services in the Município (county) of Rio de Janeiro, Brazil. Self-medication was defined as the use of a pharmaceutical or other medicinal product (including home remedies) not prescribed or recommended by a physician for the patient. The variables examined in the model are based on the Andersen and Newman (1973) behavioral model for health services utilization (HSU) and adapted to medication use in the Brazilian context. Variables include predisposing sociodemographic characteristics, enabling variables reflecting aspects of access to care, and need for care variables.

In this study, access to medical and pharmacy services are analyzed according to their component dimensions of perceived availability, perceived affordability, and the
sociocultural acceptability of services. Typically, access to services is evaluated with secondary data and use indicators such as the distribution or number of hospital beds or physician offices as indices of the availability of services. Similarly, the affordability of services is often evaluated by measures such as regular source of care, income and insurance status. However, the assumptions implicit in these traditional measures fail to capture other dimensions of access that may be of particular relevance to some patient subgroups such as the elderly or patients with particular illnesses. Given the special socioeconomic, psychosocial, and health status considerations of the elderly patient, an understanding of the patient’s perceptions of access to needed services may be useful in understanding behavior. The relative importance of these variables and their interrelationships were examined for elderly residents in three socioeconomic areas of the Município of Rio de Janeiro.

A secondary goal of this project was to begin to describe medication use in the Brazilian elderly. Such a description not only provides the foundation for future evaluations of drug therapies, particularly of the extent of inappropriateness or potential danger in self-medication, but also allows for cross-cultural comparisons of geriatric drug use.
Background: Medication Use in the Third World

Both the restricted access to essential medications and the unsupervised access to legend medications in developing countries have provoked a great deal of controversy worldwide, at least since the 1970s (Silverman, 1976, 1977; Melrose, 1982; Silverman et al., 1982, 1986; Landmann, 1982). Over-medication, under-medication, use of the wrong drug, and unnecessary medication use are always important considerations in promoting effective drug therapy anywhere, anytime. However, these considerations acquire a greater prominence in many developing countries, especially for the case of self-medication.

Whereas in the more developed countries self-medication may be considered a luxury, in many developing countries, self-medication may be a necessity (Van de Geest and Hardon, 1990). The tendency to by-pass a physician’s prescription may be considered a necessary adaptation to a situation characterized by an ineffective or non-functioning official drug distribution system and the relative dearth of medical personnel. The lack of control over the distribution and use of medications gives multinational pharmaceutical corporations greater latitude, especially for the marketing of suspect medications, thereby exacerbating the already precarious conditions for self-medication. The types of medications made available to these populations, and the undue expense of inappropriate treatment for impoverished
patients assigns a particularly ardent bent to the issue of self-medication in the developing world.

A global perspective is imperative for an understanding of the local economic-infrastructural and cultural context of medication use. This necessarily includes an appreciation of the role of the international pharmaceutical industry in providing medications, and the role of retail pharmacy in promoting pharmaceuticals as an accepted form of therapy.

The Political and Economic-Infrastructural Context

The international pharmaceutical industry, unlike other industries, faces a particular scrutiny because the products involved are health products, many of which hold the balance between life and death. Since the 1970s, industry behavior has been severely criticized for failing to uphold the mandate to responsibly provide pharmaceuticals, particularly in the developing countries, with respect to questionable, if not unethical, production and marketing practices. These multinational corporations (MNCs) have been accused of compromising their mandate in order to pursue the incentives that drive any other industry "hungry for profits" (Ledogar, 1975).

The relationship between the international pharmaceutical industry and developing countries has been described as characterized by dependency (CEPAL, 1987; Evans, 1979; Gereffi, 1983; Jenkins, 1984). This dependency
refers to the control by a small number of large multinational corporations (MNCs) of the means of production, research and development of most pharmaceuticals throughout the world. The dependency perspective argues that this control translates into political and economic power which, in turn, may be used to manipulate domestic and foreign policies of countries without a strong domestic industry. Because they depend on MNCs to provide their populations with needed medications, other national economic and health interests may be compromised. On the other hand, however, there can be no doubt that MNCs do play a vital, positive role in meeting medication needs in situations where no one else can do so. Many developing countries may never be able to sustain a viable national pharmaceutical industry and must rely on imported products, or products produced by local MNC subsidiaries. From the industry's perspective, the problems of providing "the right medications at the right price" stem from public rather than private sector inconsistencies and inadequacies (Peretz, 1983).

During the late 1950s and early 1960s, the pharmaceutical industry world-wide experienced radical changes in the research and development of new drugs. With the introduction of expensive and time consuming clinical trials and new laboratory techniques in drug development, there was a decline in the rate of innovation, traditionally
the backbone to profits in the industry. This, together with new regulatory restraints regarding the marketing of pharmaceuticals (especially in the United States with the passing of the 1962 Kefauver-Harris Amendment), encouraged pharmaceutical firms to look to developing countries without such rigid controls, either de facto or de jure, as potential markets. This is particularly true for unapproved new and old products (CEPAL, 1987:17-29).

The pharmaceutical industry typically creates a demand for products through intensive drug promotion. Both the real medical need and popular demand for modern medicines in Third World countries can be easily exploited. Drug promotion has been documented to include deceptive and misleading practices which involve some form of misinformation and/or error (Silverman, 1977; Silverman et al., 1982, 1986). Errors of omission include neglecting to mention potential adverse reactions and other warnings, and errors of commission include listing inappropriate indications for use and providing fictitious clinical data on drug effectiveness and other forms of "statistical malpractice" (Victora, 1982). Physicians, influenced by the information presented to them, become "irrational" prescribers (Melrose, 1982).

The capability to monitor the quality of products and their marketing is generally beyond the means of many developing countries. As such, government agencies must
rely on the good faith of the producers and distributors, at least to maintain the standards of the countries of origin. The dangers of relying on the industry to uphold such standards is exemplified by the case of chloramphenicol, an antibiotic widely dispensed in many developing countries during the 1970s. In the United States, the indications for chloramphenicol included only a few life-threatening infections. Physicians were warned of the risk of inducing aplastic anemia and other blood disorders with the use of the drug. In Latin America, however, few warnings regarding adverse reactions were provided, and indications included many relatively trivial conditions, such as tonsillitis and whooping cough (Silverman, 1976:13-150). The combination of the dangers of the drug and the inappropriate conditions for which it was being used was a lethal one for the populations in Latin America.¹

The high social and economic costs to many developing countries of the production, distribution and promotional practices of MNCs, in both the public and private sector, prompted many countries to seek alternative means of providing needed pharmaceuticals to their populations. In

¹ In 1977, after the publication of these findings, the International Federation of Pharmaceutical Manufacturer’s Association (IFPMA) established standards for its members regarding the provision of correct product information. Despite concerns regarding the IFPMA’s ability to enforce itself, follow-up studies have indicated some improvement (c.f., Silverman et al., 1982, 1986).
the 1970s, the notion of "rational drug systems" was
developed (WHO, 1975). Developing countries have been
encouraged, with the assistance of the World Health
Organization, to design national formularies that would
guide the public sector procurement of so-called "essential"
low-priced products considered appropriate for the
particular health needs of individual countries. Emphasis is
also placed on developing or expanding the role of the state
and local private pharmaceutical industries to produce these
products so as to break the cycle of dependency on MNCs (Von
Wartensleben, 1983).

The Social and Cultural Context

The relationship between the presence of a national
essential drugs formulary, physician prescribing, and self-
medication is not irrelevant. Because regulations regarding
the sale of legend medications are either very relaxed or
not well enforced in many situations, consumers can purchase
almost any medication without presenting a prescription from
a physician. Nonetheless, self-medication in many
developing countries appears to parallel the prescribing
habits of physicians, especially in the preference for brand
name products (cf., Hardon, 1987; Fergusen, 1981; Loyola,
1983; Logan, 1983). Drug merchants and consumers learn what
medications are prescribed for various conditions from
previous prescriptions (their own or others'), or drug
promotion literature and package inserts. In Brazil, for
example, lay individuals who make a hobby of collecting and studying package inserts (bula) are called "bulistas". Indeed, some researchers have suggested that, based on existing international mortality data, there is no evidence to date to support the claim that requiring a prescription renders medication use any safer than self-medication (Pelztman, 1987). Therefore, the concern regarding irrational physician prescribing and developing national formularies is necessarily extended to self-medication practices.

Fergusen (1981) suggests that the medicalization of illness, the definition and treatment of certain illnesses as medical problems, is different in developing countries than in the more developed countries and that this accounts for differences in self-medication behavior. The way in which modern pharmaceuticals are integrated into self-care practices in these societies reveals a reliance on a type of therapy which is based on the notion that the solution to illness resides in the consumption of medications rather than on the consult with a medical professional. The "commerciogenisis" of pharmaceuticals has been described for several developing countries (cf., Hardon, 1987; Greenhalgh, 1987; Igun, 1987; Logan, 1983), including Brazil (Temporão, 1986).

In this schema, pharmacists often play a crucial role. Pharmacies tend to have a less centralized distribution than
physician offices and hospitals and are, therefore, relatively accessible (Knox, 1981). In various developing country contexts, pharmacists and other pharmacy personnel, whether formally trained or not, are often called upon to play the role of a culture broker, interpreting and mediating modern medicine and alternative or popular care traditions (Woods, 1977; Press, 1969; Fergusen, 1983; Logan, 1983). Because of the relative accessibility of pharmacists, in those societies where resources for medical care compete with those for other pressing development needs, pharmacies may represent an untapped resource by health care planners in promoting informed self-medication.

Although the potential for pharmacists to serve as primary providers and health care advocates in countries like Brazil is apparently great, there are significant barriers to overcome. Primarily, often, the vendor of pharmaceuticals is not a pharmacist. Although the need for a trained pharmacist in the community setting is open to debate, some reorientation within the profession which re-emphasizes professional responsibilities in the community pharmacy is clearly required (Cunha, 1987). If a minimum standard for trained, informed pharmacy assistance for patients could be established and enforced, the abuses arising from the precedence of commercial interests over patient welfare may be curbed.
Theoretical Framework

Health Services Utilization and Medication Use

Medication use may be considered a subset of health services utilization. However, there is an important distinction between utilization of pharmaceuticals and utilization of other health care services. Pharmaceuticals are a market commodity, and many drugs are available to the general public in a relatively uncontrolled environment. Therefore, consumers are allowed greater leeway in terms of personal decision-making about drug use than patients seeking care in treatment facilities (Kloos et al., 1986:670). Individuals may choose to self-medicate, to use only prescribed medications, or to be "non-compliant" with a physician's prescription. The latitude for action is subject to certain constraints on access to care imposed by various individual and local factors. These constraints may include, for example, legal constraints, financial limitations and other barriers to care, beliefs and perceptions of health and illness, and access to alternative sources for care.

A number of national and cross-national studies of medication use have examined the bivariate relationships between patient sociodemographic variables and medication use in primarily Western societies in Europe and North America (see review by Blum and Kreitman, 1981). Cross-national medication use studies generally do not take into
account the various social, economic, and cultural dimensions of access to care that are likely to influence behavior differently in different places (Rabin, 1977).

In order to address some of these aspects of access to care, some researchers have found it useful to incorporate a multivariate approach to understanding medication behavior in smaller populations. One such approach is based on the health services utilization (HSU) model, originally developed by Andersen and Newman (1973) and expanded by colleagues (Aday and Shortell, 1988). The HSU model has been widely used to analyze use of different kinds of physician and hospital services by various populations, including the elderly (Evashwick et al., 1984; Eve and Friedsam, 1980; Wan and Soifer, 1974; Wolinsky, 1978; Wolinsky et al., 1983; Wolinsky et al., 1989). Variations of the health services utilization model have also been applied to studying factors related to prescribed and non-prescribed medication use for urban adult samples (Bush and Osterweis, 1978; Segal and Goldstein, 1989), including the urban elderly in particular (Stoller, 1988), and a rural sample (Sharpe et al., 1985).

The HSU model focuses on the unique characteristics of the population at risk, and the resources of the health care system. The characteristics of the population at risk include predisposing, enabling, and need variables. Predisposing variables include social and demographic
characteristics, health care beliefs and attitudes. Enabling variables typically encompass various measures of access to services and are selected to identify potential barriers to seeking care when care is needed. Need variables describe the extent to which the individual feels the need for a given service and is frequently measured by actual or perceived morbidity. Resources include the distribution, volume and organization of the health care system. Utilization may be measured in terms of the type, site and quantity of health services used, and the time interval separating use or the frequency of services used.

The HSU behavioral model has become a significant paradigm for studying the health and health care seeking behavior, even of the elderly patient population (Wolinsky et al., 1990). However, this is not to say that the model is not without its limitations. In a review of the utility of the application of the HSU model, Wolinsky and Arnold (1988) point out that need variables are consistently the most significant determinants of health services utilization, and that the contribution of predisposing and enabling characteristics are often insignificant. Furthermore, the total amount of variance explained by the model is usually minimal.

Often, studies employing the HSU paradigm are constrained by the type of data available. Traditional models that provide measures of existing services employ
measures of availability and cost of services as proxies for access to care. Service characteristics (enabling variables) typically include measures of hospital bed supply, physician supply, and so on, for a given area. While these are practical measures for many policy development concerns, it has been suggested that they may not be best suited for the elderly and that a more psychosocial approach to conceptualizing and measuring these constructs may be more appropriate for this population (Wolinsky and Arnold, 1988; Wolinsky, et al., 1990). Such an approach would acknowledge the role of other important aspects of care seeking among the elderly, such as social networks and other emotive aspects of illness behavior (Stoller, 1988). Furthermore, there is an implicit assumption of a close correspondence of "actual" availability and cost of services with perceived availability and cost. Such assumptions may not always be valid, particularly under abnormal situations, as in the case of illness and other physical and psychological impairments. They also do not take into considerations the availability of alternative sources of care.

**Conceptualizing Access to Care**

In its broadest sense, the health services utilization model addresses the relationship between the accessibility and use or non-use of health care services. As a general model, it serves as a guide for the development of more
specific models of utilization for specific populations and services. Indeed, access is a relative term which may be conceptualized to acknowledge socioeconomic, cultural, physical, psychological and organizational aspects of access. At the very least, it incorporates the aspects of the availability, affordability of health care, as well as the acceptability, in terms of patient satisfaction and trust, of care (Fosu, 1989).

Medical geographers are often concerned with access to care in terms of physical distance. Spatial analytic studies examine actual distance and the effects of distance decay on service utilization. Spatially discrete concentrations of health care services inevitably make physical access an important issue in more rural developing countries (Kroeger, 1983), as well as inner city areas everywhere (Shannon et al., 1973; Kloos, 1986; Igun, 1987). The underlying assumption in this approach is that physical accessibility to services implies minimal time and cost involved in travel, thereby releasing a greater proportion of household income for expenditure on consumption and making a greater amount of time available for other activities.

Health care economists often operationally define access to care to include the affordability of care in addition to the availability of health care facilities. Common indicators for affordability of care that have been
used in the United States include health insurance coverage and family income. The assumption is that having health insurance coverage or higher incomes enable a person to receive services. Results have suggested that insurance status, including public programs such as Medicaid, may have reduced the financial barriers to care for poor patients (Wan, 1982; Wolinsky et al., 1989).

Accessibility also implies the more qualitative aspects of opportunity and choice in use so that physical distance and price may not always be meaningful factors in and of itself. The combined effect of perceived distance, the perceived availability of transportation, costs, and facility characteristics, has been found to affect health care services utilization (Joseph and Reynolds, 1984; Knox, 1979). Indeed, distance may not be a relevant factor at all for some groups of patients (von Mering et al., 1976), or it may only be relative to all other available health care alternatives or options (Gesler and Meade, 1988). Cross-cultural studies confirm that greater utilization of health care services correlates with higher socioeconomic status, but only when such services operate on a fee-for-service basis (Kleinman, 1980). Some studies indicate that lower socioeconomic status patients are more likely than higher status patients to utilize a greater number of health care sectors (popular and professional), and a broader range of health care practitioners so that increased income and
higher education may actually restrict rather than broaden the patient's range of health care options (Low, 1981).

Perceived options in health care is also a reflection of patient preference for, and expectations of, particular services or treatment modalities. Attitudes towards medical and pharmaceutical services, as well as alternative healing strategies, are essentially historical in nature. They are not only historical with respect to an individual's personal experiences (so that elderly patients are likely to have different views about medical care than younger patients), but encompass a broader social and cultural experience.

The effect of the social distance between client and professional on patient satisfaction with different forms of health care has been researched by medical sociologists and anthropologists for many years, in many situations in various cultural and multicultural settings (c.f., Simmons, 1958; Koos, 1954, 1958; Clark, 1970; Low, 1983; Loyola, 1983). Patient dissatisfaction may arise from the conflict between the social equalitarian ideology behind public services (such as health care) and the realities of socioeconomic inequalities and cultural conflicts regarding the interpretation of appropriate therapies and outcomes. The more overt examples of this interaction include the reserved attitudes of ethnic enclaves toward "mainstream" medical care for certain conditions and complaints, but not others (Clark, 1970). Patients unsatisfied with a given
medical treatment may seek to supplement or substitute a physician's treatment with the advice of another, more "acceptable" health professional, or other alternative.

Along these lines, Loyola (1983), in her ethnography of health care services utilization in the city of Nova Iguazú (Rio de Janeiro), suggests that an individual's attitudes towards health care alternatives are influenced not only by the physical environment, but also by the social environment in which the drama of health and illness takes place. Through what Loyolla calls the "efeito do bairro," or, neighborhood effect, attitudes toward services are shaped by a kind of dialectic interaction between the relative and absolute poverty (or wealth) of the community and the internal and external social cohesion of the community.

Access to Care and Medication Use

Several studies have incorporated some aspects of the HSU framework for examining different kinds of medication use (for a review see Sharpe et al., 1985). However, few of these have incorporated measures of perceived access to care. Bush and Osterweis (1978) included in their model of medication use behavior for American adults in Baltimore a measure for perceived availability of care. Although measured by only one item on a four point ordinal scale, the results indicate that the more people perceived care as available, the more likely they were to use a prescribed medication and less likely to use a non-prescribed
medication. People were more likely to self-medicate if care was perceived as less available. Furthermore, in this study, perceived availability of medical care was not related to the travel time to the site of care.

In another model developed by Sharpe et al. (1985) for medication use among the rural elderly in Mississippi, a measure for perceived availability of physician services and one for perceived availability of pharmacy services were included. These measures represented indices of the summated scores for various items. Results showed that perceived availability of pharmacy services exerted a significant negative effect on both prescription and non-prescription (OTC only) drug use, while perceived availability of physician services was not a significant factor in the analysis. The unexpected, counterintuitive finding of a negative effect of the perceived availability of pharmacy services on medication use may have been due to the operationalization of the construct, and/or the inclusion of the ordinal variable in a regression model.

The present study builds upon this previous research by focussing on the relationship between perceived access to medical and pharmacy services and medication use. It adapts the behavioral HSU model to include three dimensions of perceptions of access to care (acceptability, availability, and affordability) as the enabling variables of interest. These measures complement more traditional measures, and
offer a reasonable alternative in the absence of complete data on actual service availability.

The current investigation adopts the perspective that geographical area is more than a simple measure of location and spatial discreetness. In this sense, the approach taken in this study approximates the traditional approach of the sociology and anthropology of community study (Stein, 1972; Arensbery and Kimball, 1965). However, in recognition of the limitations of the usefulness of community studies as a source of information about broader regional or national experiences, this study examines a larger geographic unit of analysis (groups of communities sharing significant characteristics) in order to enhance the representativeness of the sample. The investigator concurs with other studies that recognize the limitations of the distance variable in assessing access to care (Gesler and Meade, 1988:460). In addition, the investigator agrees with and builds upon the work of other health services utilization studies that acknowledge the possibility of a significant influence of social structure on perceived access to care for various subpopulations in a society (Wolinsky, et al., 1989). Furthermore, she suggests that an independent examination of smaller geographical areas within the larger areas may reveal relationships of various predictor variables and access to care that might otherwise be obscured in studies of larger aggregate populations. Specifically, in this
research, predictors of medications use for the different SES areas were examined both collectively and for each area individually.

Research Questions

In order to address the stated goals of this study, the following specific research questions were investigated:

1) Which variables of the hypothesized medication use model (predisposing, enabling, and need) emphasizing perceived access to medical and pharmacy services are most important in explaining prescribed medication use, and which are most important in explaining self-medication in the sample of Brazilian urban elderly in the Município of Rio de Janeiro? Do residential areas with different socioeconomic characteristics affect these interrelationships, and if so, in what ways?

2) How well does the conceptual model fit the utilization of physician and non-physician prescribed medication in the low, medium, and high socioeconomic status areas in the município of Rio de Janeiro? What variables are the best predictors of self-prescribed and physician prescribed medication use in these areas?

3) What proportion of medications being taken are prescribed by a physician and what proportion are self-prescribed?
4) Which therapeutic classes of medications are most frequently used by the elderly in the sample? How frequently are different classes self-prescribed?

**Significance**

In 1985, the World Health Organization published *Drugs for the Elderly*, a concise report on issues in geriatric drug therapy. These include high rates of medication use relative to other age groups, and the increased risks for clinical and non-clinical drug-related problems. Nonetheless, as a treatment modality, the cost-benefit ratio of pharmaceuticals is often favorable relative to other modalities for many of the conditions that typically afflict the elderly. The timeliness of the WHO publication for developing countries derives from the fact that large elderly populations are no longer confined to the developed Western world (Kalache et al., 1987; Kinsella, 1988) and there is relatively little known about geriatric drug use in less developed countries.

The health care needs of the elderly have demanded the attention of policy makers in the more developed countries for many years. Of increasing importance is the widespread use of both prescribed and non-prescribed medications. Indeed, in many Western, developed nations, medication use has been found to be more the rule than the exception among the elderly (cf. Rabin, 1977; Simonson, 1984; Lipton and Lee, 1987; Cartwright and Smith, 1988), and consequently,
the elderly may be identified as a high risk group for experiencing serious drug-related problems (Strand, et al., 1990). In the United States, for example, the elderly made up approximately 12% of the population in 1986, but received 32% of all prescription medications (Baum et al., 1987). In addition, it has been estimated that roughly one-third of all medications taken by the aged are over-the-counter (OTC) products, and as many as 75% or more of the elderly in the United States use at least one OTC at any time (Simonson, 1984:14-15).

One of the most consistent findings in geriatric drug use research is the increase in the number of medicines used with increasing age. Between 1977 and 1985, prescribing for the elderly in Great Britain increased 27% compared to a decrease of 6% among the non-elderly population (Cartwright and Smith, 1988:1-2). In a longitudinal study of ambulatory elderly in Florida, the average number of medications used increased significantly from 3.22 in 1978-9 to 3.94 in 1987-9 (Stewart et al., 1991). The absolute number of medications used not only increases with age, but the nature of the medications most commonly used also changes. These changes would appear to follow the nosological alterations accompanying the aging process (Knoben and Wertheimer, 1976).

The elderly are more likely to suffer from chronic, degenerative, and disabling conditions than younger adults,
and these conditions often entail long-term medication use (Verbrugge, 1984). Many treatments involve complex drug therapies, such that the elderly who use medications are also likely to use more than one medication. Polypharmacy (the use of multiple drugs) has been associated with multiple prescribers, particularly for patients suffering from several ailments and who are under the care of more than one physician. Lack of coordination in drug therapy, confusion about drug use, and non-compliance are often associated with more complex drug regimens (German and Burton, 1989).

With polypharmacy, the likelihood of the occurrence of an adverse drug reaction (ADR) and drug-drug interaction, as well as drug duplication, increases. However, many ADRs are considered to be predictable and, therefore, preventable. Yet, because many ADRs manifest differently in the elderly than in younger patients, a vicious cycle may result as medications are prescribed for treating the symptoms of the side effects of a previous medication. Some side effects manifest as behavioral disorders which may be misdiagnosed as senile dementia by an untrained physician (Beardsley, 1988; Miller and Elliot, 1976). The costs of ADRs associated with hospitalizations, prolonged hospitalizations, and heroic life-saving measures may be high, the preventable loss of life unmeasurable (Manasse, 1989; Grymonpre et al., 1988; Gurwitz and Avorn, 1991;
There are several nonmedical drug-related problems that elderly people may be likely to experience. The elderly are often unemployed and typically rely on restricted incomes, factors associated with decreased access to medical services (Fredman and Haynes, 1985). Patients on chronic medications, needing several different medications, or expensive medications, may compromise their drug regimen in order to economize.

The developing countries may anticipate similar but more acute difficulties than the developed countries in meeting the health needs of their elderly (Tout, 1989). It is widely recognized that many developing countries have overburdened, inadequate health infrastructures unable to meet the persistent primary care needs of a younger and poorer population. Competition for scarce resources may result in difficult prioritization in resource allocation (Bicknell and Parks, 1989).

Brazil has been described as a young country growing old (Veras, 1988). In 1980, eight percent of the population was 60 years old or more, and nearly 70% of these lived in urban areas (IBGE, 1987). The elderly have been the fastest growing age group in Brazil since the 1940s and it is estimated that by 2025, Brazil will have the sixth largest elderly population in the world. Between 1980 to 2000, the
proportion of the population over 60 years old is expected to increase 107% in contrast to that proportion of the population 15 years old and less, which is expected to increase only 14%. Brazilian gerontologists are concerned that Brazilian authorities are already facing the problem of an aging population comparable to that experienced by the developed countries with all its implications for the health and social care system (Ramos et al., 1987).

**Summary**

Brazil shares with other developing countries the problems regarding access to needed essential medications and the inappropriate use of medications (Allen, 1989; Soares, 1989). Medications, whether in the form of vaccines, antibiotics, or analgesics, are an integral element of public health and primary care as well as in the management of chronic and degenerative diseases. An understanding of the factors that influence access to and the appropriate use of medications is of extreme relevance for all patient/client groups, including the elderly.

The purpose of evaluating perceived access to care in the study of health care services utilization is to identify barriers to care, or, conversely, facilitating factors. Access to care necessarily incorporates dimensions of acceptability, availability, and affordability of care. In the study of medication use, both with physician prescribed and non-physician prescribed drugs, it is meaningful to
investigate the relative importance of perceived access to medical and pharmacy services. In the context of uncontrolled commercialization of medications characteristic of many developing countries, including Brazil, where the risks associated with self-medication are increased, this relationship assumes particular interest. The specific case of Brazil, including the health care system, pharmaceutical industry, and retail pharmacy in this nation, is discussed in Chapter 2.

The determination of the extent to which the dimensions of perceived access influence medication use behavior in different areas within an urban setting is also a focus of this study. Areas may be distinguished by locational, socioeconomic and cultural factors. Areas are not only composed of groups of individuals, but they may also be understood as in themselves influencing individual attitudes, and exerting some influence on perceived access to care.

The specific population of interest in this study is the urban, noninstitutionalized elderly. The elderly represent a segment of the population in developing countries which will be commanding increased attention. The economic, social, and political impact of the health and illness of a growing elderly population will need to be considered in assessing the relative value of competing health policies. Changing demographics will force countries
like Brazil, accustomed to being concerned about the expanding bottom of their population pyramids, to look up and refocus.

The methodology employed for the development of a model to describe medication use for the urban Brazilian elderly is presented in Chapter 3, including the operational definitions of variables and their measurement, selection of the sample and data collection techniques. Descriptive results are presented in Chapter 4, along with the results of analysis modeling medication use. Conclusions and recommendations for future research are presented in Chapter 5.
CHAPTER 2
MEDICAL AND PHARMACY SERVICES IN BRAZIL

Introduction

This chapter presents the health care context in which medication use takes place in Brazil. The discussion begins with an overview of the formal health care system, the principal public and private institutions that provide services, and how they are utilized. National formularies, regulations that define legend and non-legend drug categories, who may prescribe legend medications, and the mode of distribution and commercialization of medications are all aspects of a formal health care system.

The discussion of the informal health care system, for the purpose of this study, is limited to the role of the pharmacy and pharmacy personnel. Commercial pharmacies are at once marginal to the formal health care system and an essential element. They also represent an avenue for recourse in self-help in general, and self-medication in particular.

Health Care in Brazil

The character of the Brazilian health care system is fragmented, offering disparate levels of care. The level of technological sophistication and "completeness" of services
rivals that of the more developing countries. Indeed, the costs of care also approximate those of some of the more developed countries: in 1987, total public plus private expenditures on health care in Brazil exceeded US$10 billion per annum, more than 5% of the Gross Domestic Product, which is approximately the same percent as the United Kingdom (World Bank, 1988a:19). However, health care in Brazil is marked by sharp disparities on the regional and local levels such that the "marginal", poorer populations have limited access to even the most basic of public health services, including medications.

The health care system is also constantly evolving. Health care is provided by public institutions (federal, state, and municipal) and private institutions. These are not totally independent, but they are not well coordinated either. Decades of bureaucratic reforms gave rise to a large centralized public sector which became notorious for its inefficiencies in service delivery at all levels. More recent reforms, however, call for the decentralization of the system.

The Public Sector

The Brazilian public health care sector consists of two major agencies: the Ministry of Health and INAMPS (Instituto Nacional de Assistência Médica), the social security institution. The Ministry of Health, which is financed through general government revenues, is responsible for the
national public health programs, such as maternal and child health and nutrition programs as well as vaccinations. Financed through federal payroll tax revenues, INAMPS, until recently, has been primarily responsible for providing curative, hospital-based services to its beneficiaries.

Since the 1940s, and until 1975, the public health and social security curative care subsystems had little to do with each other. The Ministry of Health held low political priority and struggled with limited budget resources to deal with the major public health problems, whereas social security programs were politically far more important to a rapidly industrializing country. As social security benefits were extended to more individuals, revenues increased. The curative hospital-based system of the social security medical benefits program grew at a cumulative average annual rate of almost 20 percent for more than a quarter of a century, while public health programs floundered (Braga and Paula, 1980: 101).

The growth in social security medical care was directed primarily to very costly medical treatments that were so concentrated that they benefitted only a relatively few patients. This style of health care delivery, which began as a deliberate strategy of the populist political figures to woo the emerging urban working and middle classes, ultimately evolved to reflect the tastes of the military technocrats for modern science and large, centralized
bureaucracies (Horn, 1985; Luz, 1986). By 1974, however, pressure was put on political leaders to address the dearth of public health services and the rising costs of health care to specific needy populations not covered by social security, such as nonsalaried urban workers and rural workers (Malloy, 1977; Mesa-Lago, 1978).

In 1975, the Sistema Nacional de Saúde (SNS) was created as the first attempt at a unified, coordinated national health care system. The new system administratively linked the three ministries already involved in some aspect of health care: the Ministry of Labor was to oversee occupational health and safety programs; the Ministry of Health was to be responsible for health planning and for environmental and collective preventative health care; the Ministry of Social Security and Social Assistance (MPAS) was to be responsible for the provision of personal health services. The newly created INAMPS was to be directly responsible for the reorganization and expansion to the poor of certain services previously reserved for beneficiaries.

The role of the social security program in providing medical services increased with the growing pool of social security beneficiaries. Between 1970 and 1980, the proportion of all workers covered by Social Security in Brazil increased from 27 percent to 47 percent (Isuani, 1984:195). In the urban areas, 86.3 percent of all
employees and 50.4 of all self-employed individuals were covered to some extent by 1980, with the highest proportion residing in the more industrialized southern regions (IBGE, 1980).

There has been a direct cost associated with this trend which has become the nemesis of the system. As mentioned previously, the curative, hospital-based care INAMPS provides is expensive. However, INAMPS also pays for services rendered in non-INAMPS facilities on a fee-for-service basis. Patients with a choice of facilities tended to select the higher cost private care, invoking a version of the "moral hazard" associated with certain health insurance schemes. Since insurance lowers the price of care to individuals, they will consume more care than if they had to pay the entire price themselves, and "too much" medical care is consumed (Feldstein, 1988:128-129).

The physicians also had a direct role in promoting this behavior by means of what Brazilians call "dupla militancia", referring to a conflict of interest that arises when physicians work as part-time employees at several jobs, as many do, in both public and private facilities. Under dupla militancia, physicians recruit patients from the public facility, where they are salaried and work with patient quotas, into the private facility where (it is assumed) the physician believes s/he can offer better quality services. This is also a lucrative business move
for the physician because s/he can then charge on a fee-for-service basis, even when INAMPS reimburses (Cordeiro, 1984; World Bank, 1988:44-45).

This unanticipated abuse of the system was not the only problem with the SNS. There were serious problems with meeting some of the other reform mandates to provide care to the needy. Although the SNS promised to give a boost to traditional public health programs, there was no administrative mechanism that permitted coordination to take place between the various agencies, especially the Ministry of Health and INAMPS. The Ministry of Health actually did experience a 35.7% budget increase between 1974 and 1975, but the positive impact of the new reform on the Ministry of Health was short-lived. New programs were forced to operate under severe limitations as promised resources never fully materialized (Braga and Paula, 1980: 97-98). Since the ministries could not resolve their ideological differences about health care priorities and coordinate activities, an informal geographical division grew up between them, with the Ministry of Health focusing on the Northern regions and rural hinterlands, and INAMPS on the Southern regions and industrialized centers. In 1977, a reform within SNS aimed to resolve the administrative barriers between the ministries. However, despite these reforms and the expansion of free-to-patient INAMPS emergency medical
services, private health care expenditure did not decrease (Musgrove, 1983).

The mid-1980s marked the beginning of the return of democracy to Brazil. With it came a flood of proposals for a more democratic health care system which resulted in the creation of the new Unified System for Services (Sistema Unificado de Saúde, or SUS). In sharp contrast to previous efforts, SUS aims to improve the efficiency of the public sector by decentralizing its administration and allowing states and local municipalities to take on a larger role in administrating and coordinating local health care services.

It is too soon to evaluate the impact of SUS on health care, but the heritage of the system that developed in the decades prior to SUS is not likely to be easily shaken. The inefficiencies of the bureaucracy which proliferated with each successive administrative reform have been harshly revealed in the face of the recent national economic crisis. In August, 1990, INAMPS announced that it would be "trimming" some of its more redundant, dispensable personnel (50% of which worked in Rio de Janeiro), including some physicians ("INAMPS afasta...", 1990). While apparently a sensible motion, it was disconcerting to the public for two reasons: firstly, public servants (traditionally a very secure type of position in Brazil) do not typically lose their jobs, and, secondly, despite assurances to the contrary by officials, the public feared the further
discontinuation of badly needed services. Indeed, two thousand health posts and several public hospitals throughout the nation were not providing services due to lack of funds to pay personnel and purchase supplies ("Atraso na verba....", 1990).

The Private Sector

The private health care sector in Brazil includes services provided by health care corporations for large companies and institutions (such as banks, and labor unions), religious and other charitable institutions, as well as large and small private practices. The delivery style in the private sector mirrors that of the public sector and is heavily hospital-oriented. Indeed, the character of the medical-industrial complex in Brazil is the result of a symbiotic relationship between private medical businesses and public funds.

Prior to 1965, there were several health-related programs, each designed for a separate workers group (i.e., railroad workers, steel workers, etc.). When these various programs were unified, Social Security began to contract with health care organizations to provide medical services to some of these groups. Health care corporations and group practices, generally affiliated with private hospitals, could be certified by Social Security and negotiate with businesses and workers groups, and then be reimbursed by social security. Private, subsidized services were made
available to salaried industry workers and various tertiary sector (mostly commercial and services) workers. The extension of services by the private sector to non-Social Security beneficiaries occurred in 1974. At this time, the right to emergency care was extended to all citizens.

Most of the empresas médicas (medical corporations) are non-profit organizations. Many offer pre-paid health plans to members in a kind of HMO structure. Parallel to the development of these group practices, physician cooperatives also began to compete for patients. The cooperatives are ideologically opposed to the closed-group, pre-payment structure of group practices, and may be likened to the preferred patient programs in the United States.

As Social Security grew in Brazil, extending coverage to include more benefits to a broader population base, the subsidized business for the private medical sector also grew. Cordeiro (1984) argues that the increase in contracts between Social Security and private health care organizations indicated dissatisfaction on the part of beneficiaries with the services provided directly by Social Security physicians and hospitals, and that demand for these services exceeded supply. The preference by certain industries and businesses to contract with the health care organizations was also a politically safe and economical means of satisfying worker's demands (Cordiero, 1984:64-86).
As with many other businesses, these corporations are having difficulties in dealing with the vagaries of the contemporary Brazilian economy. Within the last few years, the tension between the actual health care providers and the contractors for their services has run high. Conflicts revolve around the inadequacies of the payment structure, (primarily reimbursement schedules), in the wake of the prevailing inflation rates. With run-away inflation, the more time that elapses between charging for a service and receiving payment, the greater the devaluation of the remuneration.

Similarly, salaries had to be constantly reajusted for inflation. In June, 1990, the national organization for health care corporations presented a new payment scheme for their physicians in response to the new rates previously set by the Brazilian Medical Association (BMA). The medical corporations argued that they could not afford to pay their physicians according to the BMA rates because the corporations were not permitted to adjust the fees they charged their clients. Unsatisfied physicians went on strike (crippling both public and private health care services) and began to charge for private services using the BMA rates. It was not until nearly three months later, in September, that a judge ruled against using the BMA's rates as mandatory rates, and sent all parties to the negotiating table.
The health care organizations were also recently faced with other changes that directly affected their clientele. In January, 1991, new federal regulations gave health care organizations the option of either formally becoming health insurance corporations, or of maintaining their health programs as they were, but managing them as if they were insurance policies. Previously, health plans offered services similar to health insurance policies, but were not subject to the price and other quality controls imposed on insurance policies. Golden Cross, with over 700 thousand clients in its health plan nation-wide, was one of the first to switch to a formal insurance entity, Golden Cross Insurance. Although there were no changes in service, the monthly fees to clients did increase enough to make many clients very concerned: in Rio de Janeiro, for example, where more than half of Golden Cross' clients reside, rates increased by over 150% (Susep elabora..., 1991).

Health Services Utilization in Rio de Janeiro

In 1986, a national household survey examined health services utilization in Brazil. The study revealed that 67% of all Brazilians who had a health problem sought medical attention. Ninety-seven percent of all urban residents, and 53% of all rural residents with a health problem sought

1 In addition, if the corporations changed their non-profit status to become a private insurance company, the government could reap an estimated US$80 million per annum in new tax revenue (Dantas, 1991).
medical attention. Of the urban residents who sought care, 10.5% were persons 60 years old or more. Of the rural areas, 8.5% of health services users were elderly (IBGE, 1989:4).

The State of Rio de Janeiro is one of the wealthiest states in Brazil, and boasts one of the largest metropolitan area in the country. With 68 municipios (counties), and an estimated population of 14 million, Rio de Janeiro has both extensive urban and rural areas. In the urban areas of Rio de Janeiro, 79.5% of the persons who reported having had a health problem sought medical attention, and 14.4% of all urban patients were elderly. In the rural areas, 77.5% of those who reported having had a health problem sought care, and 11% of these were elderly (IBGE, 1989:322). These figures suggest roughly equivalent access to care on the basis of perceived need (ie., having a health problem). The higher percentage of elderly patients in the urban areas reflects the relatively greater proportion of elderly in the urban population than in the rural areas.

Reasons for not seeking care are presented in Table 2.1. Transportation and financial barriers to care were reported less frequently in urban areas of Rio de Janeiro than rural areas. On the other hand, scheduling and other time barriers, probably related to the busy urban working class lifestyle, were more likely to keep people from seeking medical attention in urban areas.
Table 2.1 Reasons why people did not seek medical attention but had a health problem in Brazil and the State of Rio de Janeiro, 1986.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Brazil %</th>
<th>Rio de Janeiro Urban %</th>
<th>Rural %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation problem/distance</td>
<td>10.1</td>
<td>4.4</td>
<td>13.7</td>
</tr>
<tr>
<td>Scheduling problem</td>
<td>3.4</td>
<td>6.7</td>
<td>6.4</td>
</tr>
<tr>
<td>Long wait time</td>
<td>4.3</td>
<td>5.5</td>
<td>1.5</td>
</tr>
<tr>
<td>No need</td>
<td>63.8</td>
<td>62.4</td>
<td>60.0</td>
</tr>
<tr>
<td>Financial problem</td>
<td>10.9</td>
<td>5.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Other</td>
<td>7.4</td>
<td>15.8</td>
<td>11.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In the municipio (with approximately 6 million inhabitants), there are 16 municipal hospitals, two major university hospitals, other state and federal hospitals, and several private and philanthropic hospitals offering distinct, specialized services. In addition, there are 70 public health posts and health centers and over 40 INAMPS facilities. The more urban, metropolitan area also has a relatively high concentration of private clinics and physicians. The hospital utilization rates in both the urban and rural areas do not differ greatly from the national rate (see Table 2.2). This reflects the high reliance on the curative, hospital-based health care system, even though the public system has been struggling to keep hospitals functioning ("Cremerj vai a Justiça...", 1990). The decreased reliance on public health posts and centers and the greater utilization of clinics and physicians' offices in the urban areas demonstrates the relative abundance of health care plans/policies available in the urban areas that are not widely available in the more rural areas, and, indeed, throughout the rest of the country.

Where one seeks medical attention is related to income (Table 2.3). Unfortunately, the data do not distinguish between public and private facilities. Nonetheless, given our understanding of the health care system, it is not surprising to find that, in both urban and rural areas,
Table 2.2 Types of health services used in Brazil and Rio de Janeiro, 1986.

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>Brazil</th>
<th>Rio de Janeiro</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>Urban</td>
</tr>
<tr>
<td>Public health post or health center</td>
<td>20.8</td>
<td>12.2</td>
</tr>
<tr>
<td>Hospital</td>
<td>36.9</td>
<td>34.5</td>
</tr>
<tr>
<td>Clinic, Polyclinic, or physician's office</td>
<td>36.2</td>
<td>49.2</td>
</tr>
<tr>
<td>Union or employer's infirmary</td>
<td>4.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Other</td>
<td>2.0</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>


Table 2.3 Utilization of health care services in Rio de Janeiro by household income per capita, 1986.

<table>
<thead>
<tr>
<th>Income Group (Minimum salary)</th>
<th>Type of Service</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public health post/center</td>
<td>Hospital</td>
<td>Clinic, MD office</td>
<td>Other</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Urban</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No income</td>
<td>100.0</td>
<td>17.7</td>
<td>50.6</td>
<td>28.0</td>
</tr>
<tr>
<td>&lt;= 1/4</td>
<td>100.0</td>
<td>14.9</td>
<td>41.0</td>
<td>42.6</td>
</tr>
<tr>
<td>1/4 to 1/2</td>
<td>100.0</td>
<td>21.2</td>
<td>38.4</td>
<td>34.4</td>
</tr>
<tr>
<td>1/2 to 1</td>
<td>100.0</td>
<td>17.7</td>
<td>41.5</td>
<td>37.1</td>
</tr>
<tr>
<td>1 to 2</td>
<td>100.0</td>
<td>10.8</td>
<td>36.0</td>
<td>49.7</td>
</tr>
<tr>
<td>+ 2</td>
<td>100.0</td>
<td>5.3</td>
<td>26.7</td>
<td>64.2</td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No income</td>
<td>100.0</td>
<td>100.0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
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<td>--</td>
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</table>

higher income groups rely more on clinics and physician offices than do the lower income groups.

The Pharmaceutical Industry In Brazil

The role of medications in the Brazilian health care system is not insignificant. In 1989, Brazil was the eighth largest market in the world for pharmaceuticals. It was estimated that there were approximately 20,000 products on the market, utilizing some 2,100 different active ingredients (Soares, 1989:43). In 1990, this was a US$2.9 billion dollar market, with room to expand. Currently, multinational corporations control 73% of the market ("Remédios congelados", ...1990). Eighty percent of all physician visits result in a prescription (IBGE, 1989:29), although complaints of shortages of essential medications, even in the urban areas, are a constant (Allen, 1989). This section explores the Brazilian pharmaceutical industry, both private and public, and industry’s recent impact on the economic and social aspects of medication use.

The Private Sector

By the 1940s, Brazil had an established, if modest, domestic pharmaceutical industry, including infrastructure and trained personnel. This was due in part to the contributions of chemists and pharamacists who immigrated from a war-torn Europe. Brazil also had by this time an established medical care system heavily biased in favor of
an individual-curative model of medicine. All these factors contributed to make Brazil particularly attractive for investment by foreign pharmaceutical firms in the 1950s.

A major transformation in the make-up of the pharmaceutical industry occurred in the early 1960s. An extended period of political crisis triggered economic stagnation that lasted until 1967 (Baer, 1983:93-97). The impact was hardest on national firms: between 1960 and 1962, 75 national pharmaceutical firms disappeared from the industry. After the military coup of 1964, strict stabilization reforms were introduced which favored foreign investment, and between 1966 and 1969, five of the largest remaining Brazilian pharmaceutical firms were bought out by international companies (Evans, 1979:125).

The local Brazilian firms that survived the waves of denationalization seemed to have done so on the basis of their successful commercial and marketing capacities rather than competitiveness in research and development (CEPAL, 1987). The top firms concentrated on specific therapeutic classes and market power was gained from brand preferences. However, each firm’s power was limited by the presence of a large number of close substitutes, indicating a market characterized by an undifferentiated oligopoly. Furthermore, although there was a large diversity of different products, the required technology was relatively simple and unconcentrated so that the market for the
Introduction of new products was fragile. The basis of competition for control of the pharmaceutical market in Brazil, therefore, was in the area of production of pharmaceutical specialties, including new combination drugs, and new dosage formulations, not the development of new drugs per se. Indeed, since Brazil has not recognized patent protections since 1969, any laboratory could submit registrations for any product. The small national firms took advantage of this by registering copies of all the most commercially important products, the vast majority of which were MNC products. For example, in 1982, apart from Beecham's brand of amoxycillin, under patent protection in the United States, and that of their licensed subsidiary, there were 17 other brands available on the market, with many more registered (Adler, 1982:627).

The Public Sector

In 1971, CEME (Central de Medicamentos) was established as a crucial element of the Brazilian government's answer to the ever increasing costs of medical care in general, and medications in particular. The stated purpose for the creation of CEME was to provide essential medications, as listed on the national formulary (Relatório Nacional de Medicamentos), free of charge or at a reduced rate to that segment of the population determined unable to afford them on the open market, which at the time of CEME's inception was estimated at 90 million people (Cordeiro, 1985). CEME
was to develop and produce medications as well as contract out to private firms to make up for production deficiencies.

Ideally, the merits of adopting essential drug policies may be phrased in terms of health benefits and potential savings, not only on the national level (Lilja, 1983; Wang’ombe and Mwabu, 1987), but on the individual consumer level as well (Patel, 1983). However, the promises of the essential drugs program in Brazil were never to be fulfilled. In 1974, over half (57%) of household health budgets in Brazil was spent on medications (Musgrove, 1983:252), compared to 34% in the more prosperous urban Rio de Janeiro (Cordeiro, 1985:181). Similarly, a comparison of four communities in São Paulo demonstrated that the proportion of health care expenditures related to medication use was greatest for the poorest socio-economic strata (Giovanni, 1980:129). In 1990 CEME revealed that as much as 55% of the targeted population was not being served.

CEME never became the national industrial contender some would have had it become. In 1975, CEME was dismembered: distribution services were allocated to the Ministry of Welfare, while research, development, and production were incorporated into the Ministry of Trade and Commerce. As of 1985, CEME administratively resides under the auspices of the Ministry of Health, but remains
operating suboptimally, especially in the production of medications.

The failure of the program has been a great disappointment politically, economically and socially (Evans, 1979, Landmann, 1982; Cordeiro, 1985; Cunha, 1987; Soares, 1989). The negative implications of its failures have been ballooning during the last few years. A recent study by the Health Commission of the Legislative Assembly in Rio de Janeiro reported that CEME spent 95% of its budget on the acquisition and distribution of medications and that contracts with private firms accounted for nearly 55% of this amount, approximately CR$10 billion, in 1990 ("Deputado diz...", 1991; "CEME nega...", 1991). The dependence on private firms became a problem when government price-fixing of medications was terminated, beginning in August, 1990, and prices began to rise at unprecedented rates. The cost of doing business with private firms became untenable and, in the face of dire shortages for many drugs, CEME was forced to look elsewhere for the medications it required. In January, 1991, the president of CEME, Antonio Carlos Alves dos Santos, asked that 16 state laboratories expand production as a means to alleviate the shortages ("Verba para os laboratorios...", 1991). Whether or not this was a "reasonable" request, whether production capacity could be expanded, and so on, is questionable.

Economic and Social Aspects of Drug Use
Although the price of medications in general has been a matter of public concern, at least since the early 1970s, the current economic crisis, marked by both hyper-inflation and recession, has brought the issue back in full force. In a 17 month interval, from January 1987 to May of 1988, the price of medications increased on the average 5,297%, although the rate of inflation during this period was 943.7%. Among the medications experiencing the greatest increase were those commonly used for chronic diseases like Higroton and Atenol, both antihypertensives (medications frequently used by elderly patients), which increased 1,952% and 2,969% respectively during this period (Caldas, 1988).

After the steps were taken to deregulate the economy in 1990, further price increases were the result of hikes in the commercial dollar exchange rates for imports and exports. Since 42% of the value of the primary materials used in production is imported, this increase (approximately 30% between October and November, 1990) was transferred to the price of medications. Although the industry argued that price increases reflected the increases in cost of production, as well as mark-ups to cover the cost of producing products whose prices were still controlled, new prices generally outstripped these increased costs and general inflation ("A indústria farmaceutica...", 1990; "Remédios terão...", 1990).
Those hardest hit by the impact of these events were the consumers, particularly chronic medication users. The following testimonies from letters to the editor of the major newspaper in Rio de Janeiro, Jornal do Brasil, are examples of the experiences consumers encountered:

(...) I went to the Drogaria Popular on Rosario Street, downtown, to buy a box of Antak, which I take regularly for ulcer problems. Upon arriving home I compared the price with the last one I bought and almost flipped. On December 5, I paid Cr$689, and on December 14, only nine days later. they charged me Cr$1,886, a 173.68% increase (...). -- Paulo Sergio Pereira (RJ) (Dec. 28, 1990).

(...) On January 8, 1991, I had to buy a box of Frontal, that was purchased by a third party, at the Drogaria Mexico, Ltda., on Mexico Street, downtown. Upon receiving the medication I was surprised by the price of Cr$1,375, because not long before I bought the same medication at the same pharmacy for a much lower price. Upon examining the package, I noticed that the price sticker was placed on top of others. I took it upon myself to lift off, one by one, the old stickers and verified that the original price, according to the first sticker, was Cr$612, on the second it was Cr$642, on the third Cr$919, and, finally, on the last one, it had been changed to Cr$1,375 -- a 124% increase in a month and half! (...). -- Theo de Castro Drummond (RJ) (Jan. 1, 1991).

(...) I am a heart patient, having survived a triple by-pass surgery. I am required to take the prescription drug Ancoron. There are 20 pills per package. For me, a package lasts 40 days, and 40 days ago I paid Cr$505 for one box. On January 5, I went to buy the medication at the same pharmacy and I paid Cr$960, or, an increase of 90% in 40 days. This is scandalous (...) -- Leno Cunha (Petrópolis, RJ) (Jan. 19, 1991).

(...) I am nearly 80 years old and have had two by-pass surgeries (...). Early December, 1990, among the many medications that I am obliged to purchase, I bought at the Drogaria Popular, on
Sen. Dantas Street, a package of Venalot for Cr$471.50. One week later, at the same pharmacy, the drug cost me Cr$1,374, which took into account the 15% discount [for seniors] (...). Within a week there was an increase of 342.9%. (...) -- Fritz Berg (RJ) (Jan. 19, 1991).

The beginning of 1991 was marked by a series of hearings by the National Secretary of Economic Rights (SNDE) in which 17 major pharmaceutical firms were summoned to formally justify their price increases. Only one firm, Fontoura Wyeth, refused to lower its prices and was found guilty of violating the antitrust law ("Governo encerra....", 1991). These actions provoked a heated exchange between the producers, wholesalers, and retailers, each accusing the other of illegally increasing prices (Lapa, 1991). By February, the Secretary of the Economy was forced to announce the return of price-fixing for pharmaceuticals ("Governo tabela...", 1991).

The price scandals in early 1991 resulted in some remarkable, if not positive, changes in industry behavior. Industry, rather ironically, responded by terminating the production of certain product lines, or certain dosage forms, that, in reality, may be considered irrational from a therapeutic perspective to begin with. For example, when the price for the 30 dose package of Vibramicina, a wide spectrum antibiotic was fixed with a ceiling very close to that for the 15 dose package, Pfizer stopped marketing the unnecessary 30 dose package (Rangel, 1991).
Brazil has not had a tradition of consumer interest groups. Therefore, it is worth noting that the health care professionals and consumers also responded, in organized fashion, to the situation that appeared to be getting out of (the government's) hand. In February, 1991, SOBRAVIME (Sociedade Brasileira de Vigilância de Medicamentos), was created as the first civilian organization to be concerned with pharmaceutical quality control. Its self-purported role is to denounce irregularities in the production, licensing, propaganda, and sale or use of pharmaceuticals. SOBRAVIME, while comprised principally of physicians and pharmacists, is guided by the principals of the recently published Consumer Defense Code (Código de Defesa do Consumidor) which represented the efforts of an incipient, broad-based consumer movement.

These organizations are interested in monitoring not only the price of medications, but also the medications that are marketed. Some experts estimate that more than 50% of the medications sold in Brazil have no proven therapeutic value, and the number of products on the Brazilian market that are known to be dangerous or inappropriate is large. In 1990, Health Action International, the Berne Declaration Group, and BUKO-Pharmakampagne denounced the sale of products in the Third World, including combination drugs which have no pharmacologic justification, products with an inappropriate dosage or with "inadequate" (subtherapeutic)
amounts of the active ingredient (Autran, 1990). The study revealed that 32% (142) of the German products sold in Brazil in 1984/1985, and 37% (127) of those distributed in 1988, were considered to be inadequate. Of the Swiss products put on the Brazilian market, 44% were inadequate. Dipirone, a very controversial analgesic that is prohibited in Germany, the United States, and other nations, was among the products listed as inadequate yet currently available in at least 99 different products in Brazil (Autran, 1991).

Pharmacies and Drugstores

Up to this point, the discussion has focussed on the production and consumption of medications. In between these two polar ends of the path to medication use, there remains the point of interface between the medication and the consumer, namely, the pharmacy. According to Brazilian law (Lei No. 5.991, 17/12/73; Decreto No. 74.170, 10/6/74), medications may only be dispensed from four different places: a pharmacy (farmácia), a drug store (drogaria), a health/medication post (including mobile posts), and hospital dispensaries. Medicinal plants are also restricted to sale in pharmacies and herbal stores. Although

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2 Technically, pharmacies are distinct from drug stores in that pharmacies are allowed to formulate medications, and drug store are strictly retail outlets for prepackaged medications. This distinction is of little practical significance in contemporary Brazil because the vast majority of pharmacies no longer formulate medications. Hence, the term pharmacy will be used interchangeably for both.
supermarket chains are trying to gain the right to sell pharmaceuticals, only establishments such as hotels or non-profit, philanthropic organizations are currently permitted to sell or otherwise dispense non-legend (OTC) medications, and these only to their clients (CRF-8, 1983:120-121;136-141), although the illegal sale of medications outside of pharmacies has been documented (Costa et al., 1988).

Pharmacists are responsible for the direct sale to consumers of medications and other pharmaceutical specialties, but Brazilian law also stipulates that others may also have this responsibility (Decreto No. 20.377, 8/9/31). This includes individuals who may have some limited formal training or apprenticeship, but are not registered pharmacists, known as "praticos" and "oficiales". In 1960, these practitioners were permitted to register with the regional boards of pharmacy to qualify as a technician, capacitated with all the rights of a pharmacist except in the formulation of medications. This includes the right to own and register a pharmacy and to give injections. Law No. 5,991 (17/12/73) and Decree No. 74,170 (10/6/74) stipulate that the presence of the responsible technician (either pharmacist or other technician) is obligatory during all commercial hours, but a pharmacist is not required to be present at all times.

The concern for ensuring access to medications to all communities is also cited as the rationale for legislation
regarding the number and distribution of pharmacies permitted in any area. New pharmacies must demonstrate a need for services, based on a population-to-service ratio, in order to be licensed. If no pharmacists are available in a given area, other qualified technicians can be designated as the responsible party. Furthermore, pharmacies are required to participate in a rotation system with other pharmacies to ensure the uninterrupted provision of pharmacy services in a given area. In the event that there is a demonstrated need but neither qualified technicians nor pharmacies are available, there are provisions for the licensing of postos de medicamentos, which are simply medication outlets of limited capacity that carry only the most basic supplies (CRS-8, 1983:117-159).

In 1991, there were 2,851 pharmacies and drugstores (excluding hospital pharmacies and dispensaries) registered in the state of Rio de Janeiro. Forty-four percent of these (1,241) were in the metropolitan area so that the population-to-pharmacy ratio was approximately 4,100:1. There were 3,870 pharmacists (including 300 oficiales and praticos) registered with the state, and 63% (2,439) were registered in the municipal area. Although the data are not broken down into smaller geographical units, the distribution of pharmacies in the city is not uniform. Regulation regarding distribution did not affect established pharmacies, so older sections of the city have a relatively
high concentration of pharmacies, as much as two or three per city block, and sometimes even more, as in the commercial district of Copacabana. The vast majority of registered pharmacists are employed in industry (personal communication, CRF), although there is a small and lucrative business in specialty pharmaceuticals, primarily dermatological products, as well as several homeopathic pharmacies that compound their own products.

Pharmacy Practice and Self-Medication

A significant proportion of private health care spending in Brazil represents drug purchases occurring outside the direct control of the formal medical care system (McGreevey, 1988:158). The frequency of self-medication in Brazil has been estimated to be approximately 50% to 60% of all medication use (Giovanni, 1980:132; Haak, 1988:1420; Cordeiro, 1985:190). However, because commercial pharmacies do not typically keep records of prescriptions, and due to the lack of other systematic record keeping, there is relatively little known about both self-medication and prescription medication use.

Today, pharmacists, or otherwise qualified technicians, are hard to come by in the community setting. A consumer is more likely to interact only with salespersons (balconistas) with no formal training in pharmacy at all. According to Giovanni (1980), the disappearance of the community pharmacist was inevitable. Giovanni argues that there is no
data to justify the claim of a pharmacist shortage and that the laws mentioned above were based on questionable, if not false, premises (1980:104-105). These laws served to conspire with the pharmaceutical industry to promote drugstores as efficient commercial outlets for their products. The traditional pharmacy that formulated its own drugs could not compete with the industries that operated with large economies of scale. As pharmacists no longer held exclusive rights to operate establishments for the sale of pharmaceuticals, this represented a virtually untapped market for the entrepreneur. By the end of World War II, the drugstore boom had begun and pharmacists left the community setting and headed for industry.

The impact of these changes on pharmacies and practice has not been uniform. In some areas, especially where medical care is scarce, the pharmacy still represents an important health care resource. In an ethnography of two neighborhoods in the Rio de Janeiro suburb of Nova Iguazu, Loyola (1983) describes two general types of practicing community "pharmacists": practitioners who provide therapeutic assistance ("farmacêuticos-praticantes" or "farmacêuticos-terapeutas") and commercial or business "pharmacists" ("farmacêuticos-comerciantes"). These two
types of pharmacists\(^3\) differ in social origin, location of practice, and practice style and philosophy.

In this typology, therapist-pharmacists are community-oriented, are familiar with their clients and their families and lifestyle. These represent the fading "farmacia do bairro", the neighborhood pharmacy, run by an involved, active member of the community. This kind of pharmacist assumes the role of a health care professional, and may even provide a diagnosis and recommend drug treatment in "banal" cases. As a professional, he is expected to refer the client to a trusted physician if deemed necessary.

The second type of pharmacist may be considered the antithesis of the first. The practice location is generally in the central business areas, near medical laboratories, physician offices and clinics. Their identification is with the medical profession yet their focus is on the commercial aspects of pharmacy practice. The clientele reflect this: they too are more closely articulated with the formal health care system, and tend to be of the more privileged socio-economic groups that utilize the medical services in the area. As the pharmacist's primary job is generally in industry, s/he visits the pharmacy for only a few hours a week, and then only to check the books for the sale of

\(^3\) In this discussion, references to pharmacists, unless otherwise stated, describe the person who works in the pharmacy/drugstore, regardless of training.
controlled substances, such as potent narcotics. The volume of drugs dispensed is large in these establishments and there is little opportunity and no expectation for any professional-client relationships to develop. A similar characterization of pharmacy practice has been described for urban pharmacy practice in Costa Rica (Low, 1981).

Given their "strictly business" orientation, commercial pharmacies are more likely to engage in illegal "empurroterapia" (push therapy). This practice, which involves pushing products onto gullible clients with little regard for therapeutic usefulness, evolved from the custom of paying pharmacy salepersons (balconistas) on a commission basis. Enforcement of regulations regarding the sale of medications was and continues to be beyond the capacity of enforcement agencies. Therefore, if the intent of the law that encouraged the evolution of drugstores was to make medications more accessible to the public, the secondary effect was the loss of control over their appropriate commercialization and use.

Some of the concerns regarding the recommendations lay salespeople might offer to clients for the purposes of self-medicating is exemplified by the following recent example that involved an ulcer medication, Cytotec (a prostaglandin) that was being pushed as an abortifacient. A study conducted by the Federal University of Ceará (UFC) in 1990 used a "shopper" technique to determine the extent to which
medications were recommended by the pharmacy for the purpose of provoking an abortion. The study found that 83% of the pharmacies studied (N=102) recommended a medication for this purpose. Cytotec was recommended in 67% of the pharmacies. The study suggested that salespersons who recommended Cytotec were "informed" by the product package insert, which listed pregnancy as a contra-indication for use ("Remédio para úlcera...", 1991).

There is an increasing awareness on the part of the pharmacy profession in Brazil of the need to return to the community pharmacy. In January, 1990, the National Board of Pharmacy (Conselho Federal de Farmácia--CFF) announced that it was presenting to Congress a plan, the "Project for Assistance to the Pharmacy", that called for the mandatory presence of a professional pharmacist in all pharmacies. The principal objective of this plan is to curb self-medication. On February 21, 1991, the National Assembly of the CFF met in Brasilia to address this issue, to identify barriers, and to set goals and objectives for the future of the profession which would include a return to community practice. There are decades of resignation to shake off, and little economic incentive to leave the harbor of industry employment, but it appears that the public continues to value the pharmacist and is likely to welcome a return to the pharmacy, if it doesn't cost too much!
Summary

This chapter outlined the context of health services utilization in Brazil. Brazil's health care system includes an expansive, yet chronically troubled, public sector. The difficulties it faces have risen from conflicts between promises to provide first-rate medical attention to certain segments of the population while neglecting basic primary care needs of other segments, and the constraints placed on a Third World nation suffering an economic crisis. A private sector dominated by large health care corporations was able to flourish on the promises of the public sector (through subsidies) and the expectations of their clients. In addition, the private sector promised less bureaucracy, no endless lines and waiting, and a diminished threat of shortages in manpower and supplies; in short, it promised that "private is better than public". Public facilities became the principal source for medical care for the poor and otherwise marginal or disenfranchised, and for a few beneficiaries, a source for otherwise expensive, high technology procedures free of charge.

The availability of medications has been a concern in health care politics in Brazil since the 1930s and 1940s, especially following the development of new antibiotics and vaccines, and the advent of the industrialization of pharmaceuticals. Prepackaged medications could be sold in drugstores, where the presence of a professional was no
longer mandatory. As pharmaceuticals became more accessible, the professional pharmacist abandoned community practice to commercial interests, and a new dimension was added to the potential hazards of self-medication, relative to other countries with more controlled environments.

The relationship between the health care system and care-seeking behaviors in Brazil reflects an historical process that is deeply rooted in the culture and politics of the country. Health care services have not been universal nor uniform for all: some groups have had quite different experiences and individuals' expectations regarding services are bound to be related to their experiences and needs. With this understanding of the context in which health services are utilized in Brazil, the question of the relationship between perceived access to medical care, perceived access to pharmacy services, and medication use may be addressed. The following chapter discusses the methodology that will be employed to examine this question for elderly residents in three different socio-economic areas in Municipio of Rio de Janeiro.
CHAPTER 3
METHODOLOGY

Introduction

This project required the development of a survey instrument that would measure the access dimensions of interest since there was no instrument available for the Brazilian context. This entailed a process that began with a general model of medication use that included variables believed to be relevant based on previous studies in Brazil and elsewhere. Item selection for the access variables involved the adaptation of items used in the United States, the participation of experts in the field in the translation and formulation of new items, revision as a part of the interviewer training, and field testing of the instrument, which resulted in further revisions of the instrument. This chapter discusses each step of the instrument development, the selection of the sample, the research procedures and the analysis strategy.

Building a Medication Use Model for Brazil

The theoretical framework that was used to analyze medication use behavior among the noninstitutionalized elderly in Brazil was based on the health care utilization model developed by Andersen and Newman (1973), discussed in Chapter 1, and builds upon previous studies of medication
use. The unique aspect of the model presented is the emphasis on subjective measures of access to both medical and pharmacy services in relation to prescribed and nonprescribed medication use. Each variable to be examined and its measurement is listed in Table 3.1, and will be discussed in this section.

**Predisposing Variables**

The predisposing variables examined in this model include the patient's age, gender, education, household size, income, as well as attitudes toward formal medical care, and attitudes toward accepting lay advice about pharmaceuticals.

**Age:** The elderly are defined as 60 years old or more, which is the definition currently accepted for many developing countries. Age, in this study, is measured as a continuous variable.

An increase in prescription drug use has been found to correspond with an increase in the age of the patient in studies in Western countries (see review in Stewart, 1988; Dunnell and Cartwright, 1972). This trend probably reflects normal physiological changes in health status over time. However, the rate of nonprescription drug use appears to stabilize and in some reports it has been found to drop with increasing age (cf. Simonson, 1984; Johnson and Pope, 1983). The reasons for this phenomenon are not well understood, although similar patterns have been noted for other forms of
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<td>Symptom experience</td>
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<td>No. of medications used prescribed (or recommended) by a physician</td>
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<tr>
<td>Non-physician prescribed (NPP) medication use</td>
<td>No. of medications (incl. home remedies) used recommended by a lay friend or family member, pharmacist, nurse, self, or other lay individual.</td>
</tr>
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self-care as well (Segall and Goldstein, 1989). Indirect relationships with both prescription and non prescription drug use in old age have been found through enabling such as the availability of transportation (Sharpe et al., 1985) and need variables, such as perceived morbidity, in studies using path analytic techniques (Bush and Osterweis, 1978).

**Gender:** Gender has been found to have consistent relationships with drug use. Women are more likely to use medicines than men, both prescribed and nonprescribed. In addition there are differences based on gender in use of drugs of different therapeutic classes, although the reasons for this are not always clear (Johnson and Pope, 1983; Verbrugge, 1982; Verbrugge and Steiner, 1985; Svarstaad et al., 1987). Furthermore, the effect of gender in old age appears to be even more dramatic. This is especially true for the use of prescribed psychotropic drugs, although their use is less chronic in females than in males. It has been suggested that the role of gender and age in provoking "agism" in physician prescribing behavior may be a contributing factor (Arluke and Peterson, 1981). There is no apparent reason to suspect major departures from this pattern for the Brazilian urban elderly.

**Household size:** In Western countries, studies indicate that individual medicine use rates, as measured by the number of medications obtained per individual, for both
prescribed and nonprescribed medicine use, has been found to decrease as household size increases. This is generally considered a function of income (Rabin, 1977). However, a larger household increases the opportunity for and may thus increase the likelihood of the sharing and lay prescribing of medications among household members. Therefore, a positive association may be expected between increase in household size and number of nonprescribed medicines actually used.

**Education**: The influence of formal education on medication use in Western societies is not clear. One difficulty in assessing it is that, together with income and occupation, education is one of the indicators of social class, a variable frequently used in many medication use studies in lieu of education. Education is associated with a greater ability to manipulate the socio-political system, to exert control over one's environment and to mobilize resources needed for health-related needs (Wood and Carvalho, 1988:90). Generally, educational achievement and, hence, social class, is thought to imply greater health knowledge. According to Blum and Kreitman,

"health knowledge, including information about medicines, is but one instance of that general sophistication which is predictable on the basis of economic, social, political and personal factors which affect the availability of, access to, interest in, and capacity to utilize knowledge sources" (1981:134-135).
The relationship between education and health services utilization and other care seeking behavior is a relevant issue in Brazil (Singer et al., 1981) and other countries with high levels of illiteracy. In particular, there is a well known inverse association of female (and to a lesser extent, male) education with infant and child mortality and fertility, through a variety of intervening factors, including greater use of health care services (Wood and Carvalho, 1988:170-2).

In 1990, a significant proportion of the urban Brazilian elderly (41%) were considered illiterate (IBGE, 1987). There is no reason to suspect that the relationship between education with health services utilization among the elderly would differ from that for the general population. With respect to medication use in particular, the relationship between education and prescribed medication use may be considered a proxy for use of medical services. Conversely, lower levels of educational achievement may be associated with increased self-care behaviors, including self-medication.

**Income:** For the purposes of this study, education and income will be included as separate variables, while recognizing their close relationship. Generally, household income is considered a more reliable indicator in health services utilization, however, it is a more difficult measure to obtain because it requires that the respondent be
informed about the income contributions of other household members. In this study, because the number of individuals who were not able to report an estimated household income was relatively large, severely affecting the sample size, personal income was used. Personal income was adjusted for inflation on a monthly basis using FIPE/IPC (Fundação de Investigação e Pesquisa Econômica/Indice de Preços ao Consumo) estimates, and standardized to March, 1991 values.

Attitudes toward Medical Care (Att_Med_Care): The indicators for measuring attitudes towards medical care are adapted from Stoller (1988). Items included in a summated ratings include skepticism regarding the efficacy of medical care, reluctance to accept professional recommendations, and belief that a person understands his or her own health better than a physician. High scores indicate positive attitudes toward modern medicine.

Attitudes toward Lay Advice about Drugs (Att_Lay_Advice): The items for this measure tap the willingness to accept non-professional advice about medications. The measures are derived from the summated scores of responses to each item. High scores indicate a greater willingness to accept non-professional (lay) advice about medications.

Enabling Variables

Enabling variables address various aspects of access to care. Ware and Snyder (1975) have identified several
indicators related to patient satisfaction with medical care in the United States which address issues of perceived access to medical care. Similarly, McKeigian and Larson (1989) developed a list of items for pharmacy services. These indicators served as a guide to identify or formulate revised items that were relevant to the Brazilian context or could be appropriately adapted. Responses to items were scaled in Likert fashion and indicators for all enabling variables are derived from the summated scores of responses to each item so that high scores reflect greater perceived access to care. The items selected for the final analysis are presented in Chapter Four.

**Perceived Acceptability of Medical Services**

(Accept_Med_Serv) and **Perceived Acceptability of Pharmacy Services** (Accept_Pharm_Serv): The first dimension of access considered is acceptability. Acceptability of services refers to the extent to which a patient or client is satisfied with the quality of care received. Traditionally, in the developed countries, quality of care has been associated with increased sophistication in medical technology. More recently, however, the development of a socially amenable and operational definition for quality of care that includes aspects of patient-provider dynamics has become a central concern for health policy analysts: patients who are unsatisfied with the care they receive are less likely to continue treatment, and are more likely to
seek alternative care than satisfied patients (Donabedian, 1982).

**Perceived Availability of Medical Services**
(Avail_Med_Serv) and **Perceived Availability of Pharmacy Services** (Avail_Pharm_Serv): Availability suggests not only locational dimensions, but also convenience in terms of operating hours, and assurance of regularity of services. In rural areas, for example, where distances are greater than in urban areas, transportation appears to be a significant factor affecting medication use patterns among the elderly (Sharpe et al., 1985). Bush and Osterweis (1978), interested in perceived access to services, found that although there was a positive association with prescription medicine use, there was an inverse association with OTC use. The authors suggest that OTC use may be a substitute for physician visits when access to medical care is perceived as inconvenient. Sharpe et al. (1985) also suggest a substitution effect when perceived access to pharmacy services was found to be inversely related to prescription medication use in their rural sample. Some elderly may be particularly handicapped by disability or disease such that the perceived availability of services is of particular importance.

**Perceived Affordability of Medical Services**
(Afford_Med_Serv) and **Perceived Affordability of Drugs**
(Afford_Drugs): Affordability, the third dimension of
access considered, is often assumed given certain conditions. These conditions may be measured in terms of direct and indirect costs. Typically, direct costs are related to insurance status, income, out-of-pocket expenditures and other financial barriers. Indirect costs include time needed to get to the services, time waiting for services to be rendered, and related expenses. In many countries like Brazil, however, organizational mechanisms may exist for the provision of medical care as well as needed medications to targeted groups, such as CEME for generic drugs in Brazil, but these mechanisms often do not, in fact, function as indicated. Therefore, although the potential barriers are seemingly minimized, the reality is another case and enrollment in a public program may not correspond to availability nor increased perceived affordability of care. Therefore, the extent to which the cost of receiving care is perceived as a burden remains a relevant political and social issue. Items included the frequency of skipped or reduced doses of a medication for the purpose of economizing, delaying the purchase of a medication and delaying medical care due to lack of funds.

Need Variables

The need variables that will be used in the analysis include perceived health status and number of symptoms. Ideally, these measures would include clinical diagnosis of disease states, but usually this information is not
available for HSU studies, and, hence, perceived health status and symptom experience are the most commonly used indicators. Measures of health status typically are the strongest predictors of health services utilization (Wolinsky and Arnold, 1988), and, by extension, of prescription drug use (Bush and Osterweis, 1978; Sharpe et al., 1985, Stoller, 1988). The relationship between perceived health status and self-medication, or use of OTC medications, has not been found to be as significant. These findings suggest that prescription medications are used for more serious health problems among the elderly, whereas OTC medicines are used for less serious conditions.

The measure of health status used in this study results from the summated scores for two items: perceived current health status, and perceived health status relative to others of the same age. By including an item of relative health status, one may control for possible confounding of perceived morbidity and what might be perceived as the effects of normal aging.

Number of symptoms experienced by an individual is also used in this study as a need variable. Although a very crude measure which does not take into account severity of symptoms experienced, when analysed together with perceived health status, it may provide some insight to use of medications in the presence of a few or many symptoms, given
perceived health status, as in the case of self-medication for relatively banal health problems.

These measures are not without shortcomings in health services research, and they bear mentioning. Often, in research using the HSU model, the researcher presumes an implicit causal relationship between the patient population characteristics. For example, the relationship between symptoms (and health status in general) is assumed to be a precursor to health services utilization. However, it is conceivable that the relationship is actually in the opposite direction and is not discovered given the cross-sectional nature of the study design. That is to say that a patient may experience poor health as a result of a treatment being received. This may be the case with number of symptoms and side effects in medication use. In the absence of longitudinal data, inferences should be made cautiously about relationships that emerge from cross-sectional data.

Use Variables

The dependent variables examined are number of physician prescribed (PP) and non-physician prescribed (NPP) medications used by the participant. The reference period selected for this study is two weeks prior to the interview. Participants were asked to recall all medications used during this period, and to identify who recommended the medication for them, and for what purpose. Prior to the
inquiry, participants were asked to retrieve their medicine containers, if available. Included in this analysis are home remedies. This served to enhance the respondent’s recall and to assist the interviewer to correctly identify the medicines.

Area

The sample was drawn from three socio-economic areas in the Municipio (county) of Rio de Janeiro. The basis for the selection of these areas and a description of their salient characteristics are discussed in a following section on sampling.

Instrument Development

Instrument development and interviewer training in this cross-sectional survey were very much intertwined and are best characterized as a single process. A participatory approach afforded unique instrument development opportunities and, in addition, allowed the interviewer to apply an instrument with which s/he was intimately familiar. This section will discuss the research procedures, the survey instrument development, and interviewer training employed in this study.

Item Selection

Studies of patient satisfaction with medical care services (Ware and Snyder, 1975) and pharmacy services (McKeigan and Larson, 1989) provided the basis for item selection for the instrument in this study. Aspects of
these services relevant to the issues of accessibility, availability, and affordability were identified and modified for the Brazilian context. These items (see Appendix A), together with new items developed for the purpose of model building and medication use, were reviewed by Brazilian health care professionals and social scientists, including two sociologists, two physicians, a dentist, a pharmacist, a social worker, a psychologist, and a nurse.

Preliminary "test runs" on a small independent sample of individuals, elderly and not, indicated that response sets which required responses to items on a five point "strongly disagree" to "strongly agree" scale, used in the above mentioned studies, were not successful. It was noted that these tended to result in monotonic response sets with little to no variation, and increasingly so as the interview progressed. This may have been due to the fact that, unlike the previous studies, items were stated verbally by the interviewer and subjects were not permitted to read their alternatives. The use of an interview format rather than the written questionnaire used in previous studies was thought necessary to increase response rates and to control for the effects of high rates of illiteracy. Because of the problems with five point response scales, the statement format of the items was changed to a question format requiring responses which were more concrete, making reference to actual experiences, and had a more limited
number of alternatives. For example, rather than requiring a respondent to "agree" or "disagree" with the statement, "The pharmacy is always open when I need", the question was posed as, "Is the pharmacy always open when you need?" and possible responses included "Always", "Sometimes", and "Never". The format also encouraged the respondent to clarify or expound on their responses and recount specific relevant experiences. Interviewers were instructed to make note of these experiences in the questionnaire. The instrument is included as Appendix B.

**Interviewer Training and Instrument Pilot**

Interviews were conducted by a team of twelve individuals in addition to the principal investigator, selected on the basis of personal or professional interest in the subject matter. Interviewers were identified by the field coordinator of the BOAS project. The interview team included a social worker, a pharmacist, a medical student, a physical therapist, a sociologist, a journalist, and five senior university students from the School of Social Sciences at the State University of Rio de Janeiro (UERJ). Three training sessions were held. The first session briefed 15 potential interviewers on the nature of the project. Printed background material on aging in Brazil and related health care concerns distributed prior to the first meeting were reviewed in conjunction with the specific objectives of the project. Basic survey logistics and the
chronogram were presented at the first session. This allowed potential interviewers to decide whether or not they could commit their time for the project, and three did drop out at this point.

The interviewers reviewed the questionnaire for content, readability, and clarity in a second meeting. Each interviewer was asked to complete three questionnaires for elders not included in the study sample. Results were discussed in a third training session after which the questionnaire was again modified to accommodate the observations and comments offered by the team. Approximately four weeks after the pilot, interviewers were asked to re-interview one of the three subjects previously interviewed. This allowed for the evaluation of the changes made in the instrument as well as to establish a test-retest reliability (stability) coefficient for unchanged items. For unchanged items, those which had coefficients of .70 or higher were maintained, and others were eliminated or revised.

The survey was conducted between October 1990 and March 1991. Each interviewer was assigned a quota of interviews for selected clusters and areas.\(^1\) Interviewers were provided with the names, addresses, and if available,\(^1\) Three of the original interviewers resigned from the team during the course of the survey, and replacements were trained. Two other interviewers were dismissed during the survey due to research fraud.
telephone numbers of subjects. The interviewers were provided with letters of introduction (Appendix C) which could either be presented personally to the subject or sent in the mail. These letters advised the subject that they would be contacted by someone from the research team in order to make an appointment for an interview.

Each interviewer was accompanied by the principal investigator for the evaluation of at least one interview prior to the completion of the interviewer’s fifth interview. The principal investigator observed the interview and filled in a questionnaire as the interviewer proceeded with the interview in order to determine the inter-rater reliability of the instrument. In all cases, there were no discrepancies between scores. This was probably due to the closed nature of the response sets which left little room for interpretation. However, interviewers had been instructed to note in the questionnaire any pertinent observations or comments on the survey form, including responses that did not correspond to any of the options provided. The principal investigator was then able to return to the subject at a future date for further clarification of responses or to re-address a question if needed.

Quality control mechanisms were in place throughout the survey, and several cases of fraud in the data collection
were discovered.² Although interviewers were forewarned of a reinterview schedule for the purpose of quality control, they were not informed of the actual schedule. Every third questionnaire completed and returned by each interviewer was selected for review. A follow-up call or visit with the subjects who had been interviewed included an explanation to the subject of the purpose of the reinterview. A selected subset of questions with high stability coefficients was repeated to the subject to verify the answers obtained in the interview. This also afforded the principal investigator an opportunity to ask other questions of the subject that would help to clarify responses, as well as to collect any missing data.

The Sample

The sample for this study consisted of a randomly selected subsample of all surviving and consenting participants of the 1989/90 Brazilian Old Age Survey (BOAS). The BOAS survey was developed and conducted by the Institute of Social Medicine of the State University of Rio de Janeiro (IMS/UERJ). The sample consisted of 738 respondents aged 60 years or more, selected to be representative of município of Rio de Janeiro.

² Two interviewers turned in completed questionnaires without having actually conducted the interviews. All of the questionnaires provided by these interviewers were disqualified, and their behavior reported to relevant authorities. The respondents were later interviewed in order to recuperate the sample.
In order to capture the heterogeneity of the residential zones in the município, the BOAS sample was drawn from three residential areas representing different socio-economic strata. Five indicators were used to identify the census districts to represent these strata. The indicators included mean household income, availability of piped water and sewage, the average number of children for women 15 to 49 years of age, the proportion of elderly in each district, and the number of banking establishments. Each of these indicators had been shown to be valid and reliable markers of community socio-economic status in Brazil (Veras et al., 1989:3-7).

The original targeted BOAS sample size was to be 780 persons aged 60 years or more, with 260 from each designated SES area. However, the final BOAS sample consisted of only 738 respondents (see Table 3.2). Moreover, 28 participants who had served as the pilot sample for the BOAS were not included in this study because their identity was not available from the BOAS project staff. Therefore, the base sample from which this study selected its sample included only 710 elderly.

In selecting a sample for the BOAS project, twenty-four census districts were ranked according to scores received on an index composed of the above listed indicators. The three districts selected as representative of high, middle, and low socio-economic status communities were, respectively,
Copacabana (including the neighborhoods of Copacabana, Leme, part of Ipanema and Botafogo), Meier (including Meier, Maria da Graça, Cachambi, Pilares, del Castilho, Todos os Santos, Abolição, Cavalcante, Inhaúma, Engenho Nôvo, Engenho da Rainha, Tomás Coelho and Piedade), and Santa Cruz, including the communities of Santa Cruz, Paciência, Cosmos, and Sepetiba (Veras et al., 1989:10-11).

Table 3.2 - Summary Statistics of BOAS Study Participants

<table>
<thead>
<tr>
<th></th>
<th>Copacabana</th>
<th>Meier</th>
<th>Sta. Cruz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female (%)</td>
<td>63.5</td>
<td>60.7</td>
<td>60.3</td>
</tr>
<tr>
<td>Male (%)</td>
<td>36.5</td>
<td>39.3</td>
<td>39.7</td>
</tr>
<tr>
<td>Mean Age (years)</td>
<td>71.65</td>
<td>71.39</td>
<td>69.37</td>
</tr>
<tr>
<td>(SD)</td>
<td>(7.57)</td>
<td>(7.59)</td>
<td>(6.65)</td>
</tr>
<tr>
<td>n</td>
<td>252</td>
<td>244</td>
<td>242</td>
</tr>
</tbody>
</table>

For the present study the targeted sample size was 150 elderly for each district selected from the BOAS enumeration, for a total of 450. This would allow a power on the ability to detect a difference between the three strata on medication use of .97, with f=.25, which is a medium effect size, and alpha=.05 (Cohen, 1977). This was considered to be both an attainable figure and one that would allow for analysis with multivariate techniques. The sample was selected by using a random numbers table and BOAS questionnaire numbers as proxies for subject identification.
until the target sample size for each area was obtained. In anticipation of attrition due to mortality and change in residence, as well as refusal to participate, the remaining subjects were retained as alternates.

**Study Areas**

Rio de Janeiro is the capital city of the State of Rio de Janeiro. Rio de Janeiro, together with its neighbors to the south (São Paulo) and east (Belo Horizonte) make up the core cities of the Southeast region of Brazil, the wealthiest and most diversified region of the country. Rio de Janeiro, in addition to being a major tourist center, is one of the most important commercial, financial, and industrial centers in the country. It also harbors the largest slum (Rocinha) in Latin America. The **Municipio** (county) of Rio de Janeiro, with a population of more than 5.5 million, encompasses a part of a vast metropolitan area, several suburban and rural areas. The three study areas selected for this study are representative of this diversity. A map of the study areas is presented in Figure 3.1.

**Copacabana**

Copacabana is the most metropolitan of the areas studied. Internationally known for its beaches, night-life and social clubs, became a haven for the affluent in the 1940s and 1950s, after the construction of tunnels that made the area more accessible by automobile and increased the
Figure 3.1  Study areas in the Municipio of Rio de Janeiro, Rio de Janeiro, Brazil.
value of the property. Previously, it was dotted by beach houses used by vacationing middle class families from the older, more established parts of the city (Velho, 1973).

Now, apartment buildings are the modal dwelling structure and the principal streets are bordered by busy groundlevel shops and boutiques (i.e., a horizontal distinction between residential and business and commercial areas). Mass transportation in the form of buses are plentiful, their routes criss-cross major avenues, and lead directly to important points in the city. Most of the residents in this area are white collar workers and professionals. Although no longer the most wealthy part of the city (the money has since moved south to Barra de Tijuca), the level of infrastructural completeness and wealth of Copacabana relative to other areas remains high.

There is a INAMPS hospital in Ipanema, known for being one of the best, and inumerous physician offices and clinics as well as smaller private hospitals. In addition, compared to the other two study areas, this area is the closest in proximity to larger facilities in the center of the city. Pharmacies of various types of pharmacies (homeopathic, herbal, specialty), are plentiful, with as many as two or more to a block. The BOAS project estimated that 45,775 elders lived in this area in 1988.
Méier

Méier and surrounding neighborhoods constitute what once was the growing suburban residential area before interest turned to the beachfront. Méier was traditionally considered to be an upwardly mobile, middle class area. The suburban train routes and the subway also reach out to most of the neighborhoods in this area. There is an old, established commercial area that embraces these points of mass transit.

Single family houses still predominate although some areas are "building up". In some neighborhoods, such as Cachambi, there are apartment complexes more than thirty years old, developed by institutions like the Bank of Brazil (Banco do Brasil) for its employees with grants obtained from the federal government (elders living in these apartments today were among the first tenants).

There are several hospitals throughout the area (university, public and private), but fewer physician offices and more public health posts are visible than in the Copacabana area. The distribution of pharmacies is less concentrated as well. Approximately 11,249 elders lived in this area in 1988.

Santa Cruz

Santa Cruz is literally the end of the line: it is the last stop of the suburban train route after an hour and forty-five minute ride from downtown. Although there are
bus lines that go into the downtown area from Santa Cruz, they are relatively expensive and not practical unless one can afford to go by "frescão", an air-conditioned express bus that goes straight to downtown Rio de Janeiro.

Santa Cruz is a rapidly developing suburban area, yet it still has a rural flavor. Only the principal streets are paved, and construction is relatively simple, and there are still many open spaces. The population density in the area is relatively low compared to the other two study areas. The estimated number of elders living in this area in 1988 was 11,249.

In Santa Cruz, there is a public hospital, some clinics scattered about, and various small pharmacies, three of which are within walking distance of the train station. There is a large military base and a new industrial complex near Santa Cruz that provide employment for some residents, but many residents must commute into the city for their jobs.

Although there are obvious signs of prosperity in some of the houses in Santa Cruz proper and neighboring Sepetiba (approaching the coast), this is less so for the adjacent neighborhoods of Paciência and Cosmos. In these neighborhoods there are more dwellings in various stages of a slow construction, or, as the case may be, deconstruction. A local public elementary school lies in half completion, and the sewer drainage is open. There is minimal
commerical activity in these neighborhoods. There are two medical clinics, and the two pharmacies in Paciência carry only a minimal supply of medications.

**Analysis Strategy**

All measures of interest were measured using summated scales of relevant items. These summated scale scores were evaluated for internal consistency reliability using Cronbach's coefficient alpha. Modifications were made in the measures when appropriate (e.g. when an item greatly reduced the internal consistency of the scale, it was not part of the summated scale but was analyzed as an independent item).

Correlation coefficients were examined to determine the significance and strength of the bivariate relationships among predisposing, enabling, need and use variables. Next, a stepwise multiple regression analysis was performed in which number of physician prescribed (PP) and non-physician prescribed (NPP) medications used during the reference period (preceding two weeks) were treated as dependent variables and all other factors as independent variables. With this method, the independent variables are allowed to "compete" with each other in order to identify the best set of predictors of each of the medication use variables measured.

Often, residential area has been included as one of the indicators of the social structural dimension of the
predisposing component. In regression analyses, this leads to the creation of one or more dummy variable(s) whose parameter estimates reflect additive differences between areas. In doing so, however, such analysis assume that the effects of the other populations’ characteristics are the same for each of the areas studied. This assumption does not allow for different structures to emerge when various outcomes are assessed within separate groups. Therefore, in order to examine the difference between predictors for the aggregate data versus examining predictors for groups in smaller geographical locale, separate regression analyses were also conducted for each area independently.

A drug dictionary was compiled of the medications used by the sample. This included a listing of all active ingredients for each medication. Each active ingredient was coded according to therapeutic class, for a maximum of three codes per ingredient. This code was based on a modification of the WHO therapeutic classification for drugs, and is used by the research team on geriatric drug use in Dunedin, Florida (May et al., 1982). A drug received a single identifier number for different brand and/or generics of the same product.

Summary

This chapter reviewed the methodology employed for the study of medication use of the non-institutionalized urban elderly in Rio de Janeiro. This is a cross-sectional survey.
design. The project involved various stages, from instrument development to carrying out the survey. The analysis strategy includes the examination of relevant bivariate relationships and other descriptive statistics. Multivariate regression techniques were used to evaluate the medication use model developed in this study. The following chapter presents the results from the analyses.
CHAPTER 4
RESULTS

This chapter presents the results of the data analysis. The chapter begins with a discussion of the sample characteristics, including health status, health care expenses, and utilization of medical and pharmacy services. Some of the salient opinions and attitudes of the elderly regarding the role of the pharmacist in Brazil are also presented. This is followed by a description of medication use by the sample, including home remedies, and the frequency of different reported therapeutic indications for medication use. Finally, the results of the modelling of prescribed and non-physician prescribed medication use are presented for the sample as a whole, and for each area separately.

Sample Characteristics

A total of 436 subjects were interviewed for the survey: 138 in Copacabana, 147 in Méier, and 151 in Santa Cruz. Summary information of the sample for each area is presented in Table 4.1. Compared to the BOAS sample, there are no statistically significant differences in the proportion of women to men for any of the areas. As expected, mean age is slightly greater in the sample for the participants in this study.
Table 4.1 - Summary Statistics of Study Participants

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Meier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female (%)</td>
<td>63.8</td>
<td>57.8</td>
<td>65.6</td>
</tr>
<tr>
<td>Male (%)</td>
<td>36.2</td>
<td>42.2</td>
<td>34.4</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>72.58 (SD 7.27)</td>
<td>72.16 (SD 7.09)</td>
<td>70.69 (SD 6.37)</td>
</tr>
<tr>
<td>Civil status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (%)</td>
<td>50.0</td>
<td>62.6</td>
<td>42.4</td>
</tr>
<tr>
<td>Not Married (%)</td>
<td>50.0</td>
<td>37.4</td>
<td>57.6</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (%)</td>
<td>87.7</td>
<td>57.1</td>
<td>43.1</td>
</tr>
<tr>
<td>Non-white (%)</td>
<td>12.3</td>
<td>42.9</td>
<td>56.9</td>
</tr>
<tr>
<td>Literacy</td>
<td>100.0</td>
<td>92.5</td>
<td>74.8</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic (%)</td>
<td>73.9</td>
<td>61.9</td>
<td>55.0</td>
</tr>
<tr>
<td>Other Christian (%)</td>
<td>6.5</td>
<td>12.2</td>
<td>23.2</td>
</tr>
<tr>
<td>Spiritualist (%)</td>
<td>8.7</td>
<td>16.3</td>
<td>13.9</td>
</tr>
<tr>
<td>Other non-Christian (%)</td>
<td>2.2</td>
<td>0.0</td>
<td>1.3</td>
</tr>
<tr>
<td>None (%)</td>
<td>8.7</td>
<td>9.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Elders living alone (%)</td>
<td>15.9</td>
<td>4.8</td>
<td>11.3</td>
</tr>
<tr>
<td>Mean no. persons living with elder (SD)</td>
<td>1.75 (1.31)</td>
<td>2.26 (1.68)</td>
<td>3.21 (2.50)</td>
</tr>
<tr>
<td>Employed (%)</td>
<td>13.0</td>
<td>9.5</td>
<td>18.5</td>
</tr>
<tr>
<td>Personal monthly income (Cr$, 3/91) (SD)</td>
<td>209,688 (245,273)</td>
<td>47,688 (67,023)</td>
<td>29,687 (53,162)</td>
</tr>
</tbody>
</table>
A record was kept of persons who were contacted but who refused to be interviewed, persons unavailable for interview due to illness, persons who had died since the BOAS study had been conducted, and persons who were otherwise not available for an interview. Refusal to participate, mortality, morbidity, and other known and unknown reasons for non-participation are reported in Table 4.2.

Table 4.2  Reasons for Non-participation, by Area.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Copacabana</th>
<th>Méier</th>
<th>Santa Cruz</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refused</td>
<td>31</td>
<td>21</td>
<td>10</td>
<td>62</td>
</tr>
<tr>
<td>Death</td>
<td>6</td>
<td>13</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>Illness</td>
<td>9</td>
<td>14</td>
<td>5</td>
<td>31</td>
</tr>
<tr>
<td>Moved</td>
<td>5</td>
<td>17</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>Travelling</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Other knowna</td>
<td>11</td>
<td>9</td>
<td>6</td>
<td>27</td>
</tr>
<tr>
<td>Not knownb</td>
<td>16</td>
<td>24</td>
<td>49</td>
<td>89</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>100</td>
<td>89</td>
<td>274</td>
</tr>
</tbody>
</table>

*a Includes address not known and four defrauded questionnaires in Copacabana that were not recuperable.

*b Individuals not interviewed due to completed quota for a given area.

The refusal rate was highest in Copacabana. This was due in large part to the actual or perceived threat on the part of elderly residents of crime (break-ins, theft) in their apartment buildings. The difficulty associated with conducting interviews in this area was also documented in the BOAS study (Veras, et al., 1989: 12-13). In addition, however, many people stated that they were no longer interested in giving interviews. Non-participation due to
illness and death, and change of address was greatest in Méier.

**Descriptive Results**

**Health Status**

The participants were asked to evaluate their health status on two items rated on a five point Likert-type scale. The first item asked the participants to evaluate their current health status from very poor to very good. These categories were then collapsed into three categories in order to obtain sufficient cell frequencies for the application of statistical tests of association. Summary information is given in Table 4.3.

**Table 4.3 - Self-Reported Health Status**

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Meier (n=147)</th>
<th>Sta. Cruz (n=150)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>My health is:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very poor/poor</td>
<td>10.9</td>
<td>18.4</td>
<td>14.7</td>
</tr>
<tr>
<td>Average</td>
<td>38.4</td>
<td>46.3</td>
<td>44.4</td>
</tr>
<tr>
<td>Good/very good</td>
<td>50.7</td>
<td>35.4</td>
<td>40.7</td>
</tr>
<tr>
<td><strong>x^2=7.95, df=4, p=0.09</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Compared to others my age, my health is:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Much worse/worse</td>
<td>6.0</td>
<td>9.5</td>
<td>13.9</td>
</tr>
<tr>
<td>Same</td>
<td>41.4</td>
<td>36.5</td>
<td>33.6</td>
</tr>
<tr>
<td>Better/much better</td>
<td>52.6</td>
<td>54.0</td>
<td>52.5</td>
</tr>
<tr>
<td><strong>x^2=5.41, df=4, p=0.25</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Half of all respondents from Copacabana (50.7%) reported their health to be good to very good, 35.4% of those from Méier and 40.7% from Santa Cruz reported their health to be good to very good. The differences between the strata on this item, however, are not statistically significant. When asked to evaluate their health relative to others of the same age, 94% of those from Copacabana, 90% of those from Méier, and 86% of those from Santa Cruz believed that their health was the same as or better than their age cohorts, but, again, differences are not statistically significant.

Health status was also evaluated by the presence of certain symptoms. The participants were asked whether or not they were experiencing any of the symptoms listed in the questionnaire, or any other not listed. Summary information on the frequency of symptoms reported for the entire sample and for the three areas is given in Table 4.4. The three most commonly reported symptoms for both Santa Cruz and Copacabana are backaches and other pains in joints and extremities, vision problems, and nervousness. In Méier, the most frequently reported symptoms were vision related problems, followed by backaches and other aches in the extremities, and forgetfulness. The average number of symptoms reported for the entire sample was 6.3. On this
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Copacabana %</th>
<th>Méier %</th>
<th>Sta. Cruz %</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breathless</td>
<td>14.5</td>
<td>21.8</td>
<td>27.8</td>
<td>21.6</td>
</tr>
<tr>
<td>Palpitations</td>
<td>18.8</td>
<td>32.7</td>
<td>29.8</td>
<td>27.3</td>
</tr>
<tr>
<td>Constipation</td>
<td>22.5</td>
<td>29.9</td>
<td>33.8</td>
<td>28.9</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>4.4</td>
<td>8.2</td>
<td>6.6</td>
<td>6.4</td>
</tr>
<tr>
<td>Feeling sick, being sick</td>
<td>20.3</td>
<td>37.4</td>
<td>39.1</td>
<td>32.6</td>
</tr>
<tr>
<td>Indigestion</td>
<td>4.4</td>
<td>9.5</td>
<td>12.6</td>
<td>8.9</td>
</tr>
<tr>
<td>Lack of appetite</td>
<td>13.8</td>
<td>21.1</td>
<td>22.5</td>
<td>19.2</td>
</tr>
<tr>
<td>Dry mouth</td>
<td>27.5</td>
<td>42.2</td>
<td>33.8</td>
<td>34.6</td>
</tr>
<tr>
<td>Headache</td>
<td>18.1</td>
<td>23.1</td>
<td>31.8</td>
<td>24.5</td>
</tr>
<tr>
<td>Backache, other pains in arms, legs, or joints</td>
<td>60.1</td>
<td>67.4</td>
<td>69.5</td>
<td>65.8</td>
</tr>
<tr>
<td>Faintness, dizziness</td>
<td>19.6</td>
<td>25.9</td>
<td>32.5</td>
<td>26.1</td>
</tr>
<tr>
<td>Insomnia</td>
<td>39.1</td>
<td>37.4</td>
<td>37.1</td>
<td>37.8</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>15.9</td>
<td>29.9</td>
<td>23.2</td>
<td>23.2</td>
</tr>
<tr>
<td>Nervousness</td>
<td>44.9</td>
<td>48.3</td>
<td>45.7</td>
<td>46.3</td>
</tr>
<tr>
<td>Depressed</td>
<td>31.2</td>
<td>34.7</td>
<td>35.8</td>
<td>33.9</td>
</tr>
<tr>
<td>Forgetfulness</td>
<td>40.6</td>
<td>55.1</td>
<td>39.7</td>
<td>45.2</td>
</tr>
<tr>
<td>Incontinent</td>
<td>9.4</td>
<td>10.9</td>
<td>13.3</td>
<td>11.2</td>
</tr>
<tr>
<td>Confused</td>
<td>10.1</td>
<td>16.3</td>
<td>16.6</td>
<td>14.4</td>
</tr>
<tr>
<td>Rash, itching</td>
<td>7.9</td>
<td>23.8</td>
<td>26.5</td>
<td>19.7</td>
</tr>
<tr>
<td>Hearing problem</td>
<td>31.9</td>
<td>31.3</td>
<td>25.2</td>
<td>29.4</td>
</tr>
<tr>
<td>Vision problem</td>
<td>52.2</td>
<td>70.8</td>
<td>62.3</td>
<td>61.9</td>
</tr>
<tr>
<td>Other</td>
<td>11.6</td>
<td>15.0</td>
<td>19.9</td>
<td>15.6</td>
</tr>
</tbody>
</table>

N= 436

* Symptom list adapted from Cartwright and Smith (1988).
item, area differences in Rio de Janeiro were significant (see Table 4.5). A posteriori comparisons (Scheffé) indicated that the mean number of symptoms reported in Copacabana was significantly lower than that reported for Méier and Santa Cruz.

Table 4.5 Mean number of symptoms reported for areas.

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean no. symptoms reported</td>
<td>5.15 (SD 3.05)</td>
<td>6.84 (SD 3.79)</td>
<td>6.79 (SD 4.18)</td>
</tr>
<tr>
<td>F=9.42, df=2, p&lt;.0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean no. symptoms believed to be caused by a medication being used</td>
<td>0.24 (SD 0.53)</td>
<td>0.27 (SD 0.64)</td>
<td>0.31 (SD 0.81)</td>
</tr>
<tr>
<td>F=0.42, df=2, p=.66</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall, the participants reported that relatively few symptoms were caused by any medication being used. The symptom most often attributed to medication use was dry mouth (7.3%): 13% of those with dry mouth in Copacabana, 6.1% in Méier, and 3.3% in Santa Cruz, believed that their dry mouth was due to a medication. Overall, 2.9% of the sample reported that their symptom of drowsiness was due to a medication being used, 1.1% reported that their incontinence was due to a medication, and 1.1% reported that their vision problem was related to a medication being used.
Medical and Medication Expenses

Many elders (40%) interviewed pay for their own medical expenses. This question excluded medications, which was evaluated separately. Approximately one-fourth rely on a relative to pay for them. As shown in Table 4.6, significantly more elders had private health insurance in Copacabana (25%) than in the other areas, whereas more elders relied on free services provided by public institutions in Méier (24%) and Santa Cruz (32%) for their medical care ($X^2=55.66$, $df=6$, $p<.001$) and therefore had minimal out of pocket expenses.

Table 4.6 Who usually pays for your medical and medication expenses?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (%)</th>
<th>Méier (%)</th>
<th>Sta. Cruz (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medical expenses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public institution</td>
<td>5.2</td>
<td>24.7</td>
<td>32.9</td>
</tr>
<tr>
<td>Interviewee</td>
<td>48.5</td>
<td>37.0</td>
<td>36.2</td>
</tr>
<tr>
<td>Relative</td>
<td>20.6</td>
<td>30.8</td>
<td>22.8</td>
</tr>
<tr>
<td>Private insurance</td>
<td>25.7</td>
<td>7.5</td>
<td>8.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>138</td>
<td>147</td>
<td>151</td>
</tr>
</tbody>
</table>

$X^2=55.66$, $df=6$, $p<.001$

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (%)</th>
<th>Méier (%)</th>
<th>Sta. Cruz (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medication expenses:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public institution</td>
<td>0.0</td>
<td>0.7</td>
<td>11.3</td>
</tr>
<tr>
<td>Interviewee</td>
<td>75.4</td>
<td>65.5</td>
<td>56.3</td>
</tr>
<tr>
<td>Relative</td>
<td>23.2</td>
<td>33.1</td>
<td>29.8</td>
</tr>
<tr>
<td>Private insurance</td>
<td>1.5</td>
<td>0.7</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>138</td>
<td>147</td>
<td>151</td>
</tr>
</tbody>
</table>

$X^2=36.60$, $df=6$, $p<.001$
In Brazil, it is highly unusual for a health insurance program to pay for medications. In addition, because in Rio de Janeiro CEME products were relatively scarce at the time of this study, patients were generally required to purchase their own medications, even if entitled to free medicines. In the sample for this study, the majority of elders purchase their own medications: 75.4% in Copacabana, 64.6% in Méier, and 56.3% in Santa Cruz (see Table 4.6). Area associations were significant ($X^2=36.60$, df=6, $p<.001$). A relative pays for their medication expenses for 23.2% of the sample in Copacabana, 32.6% in Méier, and 29.8% in Santa Cruz. Only in Santa Cruz did any elder have their medication expenses paid for by a public institution (11.3%).

Household income information was successfully obtained for only a portion of the total sample (73.6%). Nonetheless, it is an important measure, and some observations can be made about health care expenses and household income. As shown in Table 4.7, the proportion of the household income as health expenditure was greatest for elders in the middle class area, Méier (20%), and similar in the other two areas (12% and 13% in Copacabana and Santa Cruz, respectively). An analysis of the area differences of the proportion of monthly household income as medical expense, however, revealed no statistically significant differences ($F=1.12$, df=2, $p=.30$). In all three areas,
medications accounted for the greatest proportion of health expenditures. Paired comparison analysis (Scheffe') indicate significant area effects, with Meier having a significantly greater proportion of household income as medication expense than in the other two areas ($F=5.79$, $df=2$, $p<.005$).

Table 4.7 Proportion of monthly household income as medical and drug expense.

<table>
<thead>
<tr>
<th></th>
<th>Copacabana</th>
<th>Méier</th>
<th>Sta. Cruz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly household income as medical expense</td>
<td>4.8</td>
<td>6.3</td>
<td>4.1</td>
</tr>
<tr>
<td>Monthly household income as drug expense</td>
<td>7.0</td>
<td>13.5</td>
<td>8.9</td>
</tr>
<tr>
<td>N=</td>
<td>92</td>
<td>103</td>
<td>126</td>
</tr>
</tbody>
</table>

In an open-ended question, although over one half of the sample (53%) reported having no problems obtaining their medications, 30.9% reported that financial difficulty was the most important problem in obtaining their medications. Financial difficulty was clearly related to socio-economic status (see Table 4.8). Elders in Copacabana were less likely to report financial difficulty in obtaining their medications, and more likely to report problems finding the medications they needed. Half of the respondents from Santa Cruz reported financial difficulty as the most important problem.
Table 4.8 What is the most important problem you have in obtaining your medication?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138) %</th>
<th>Méier (n=147) %</th>
<th>Sta. Cruz (n=151) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>No problem</td>
<td>64.5</td>
<td>59.9</td>
<td>35.8</td>
</tr>
<tr>
<td>Financial</td>
<td>11.6</td>
<td>29.3</td>
<td>50.3</td>
</tr>
<tr>
<td>Hard to find drug(s)</td>
<td>14.5</td>
<td>2.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Other</td>
<td>9.4</td>
<td>8.1</td>
<td>10.6</td>
</tr>
</tbody>
</table>

X²=67.54, df=6, p<.001

The Role of the Physician

Participants were asked to identify their usual first recourse for help in the event of a health problem (see Table 4.9). Nearly half (47.8%) of the elders in Copacabana reported that they usually seek help from a private physician, and 39.1% from a physician from a private institution with which the elder is affiliated (for example, an HMO-type of facility for bank employees). Few elders in this area (6.5%) rely on a physician from a public institution, or on any other source of assistance. In contrast, a much greater proportion of elders in the other two areas rely on a physician from a public institution: 42.9% of the elders in Méier and 43.7% of those in Santa Cruz seek physicians from a public institution, usually a state institution, such as the organization for state employees, or a federal institution such as INAMPS. However, these results obscure some important relationships. For some elders, the "private" physician which is consulted
initially is often a family member or a friend: 24.2% in Copacabana, 28.6% in Méier, and 8.7% in Santa Cruz.

Relatively few elders reported seeking assistance from a nurse or pharmacist in any of the three areas: non-physicians were sought for 4.6% of the patients in Copacabana, 8.1% in Méier, and 14.5% in Santa Cruz. In all cases where a nurse was mentioned as the primary recourse, the nurse was a family member, and the regular physician was from a public institution.

Table 4.9  When you have a health problem, whom do you usually seek for help first?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana</th>
<th>Méier</th>
<th>Santa Cruz</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>No one</td>
<td>0.7</td>
<td>2.7</td>
<td>2.6</td>
</tr>
<tr>
<td>Physician</td>
<td>6.5</td>
<td>42.9</td>
<td>43.7</td>
</tr>
<tr>
<td>(public institution)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician</td>
<td>39.1</td>
<td>17.7</td>
<td>8.6</td>
</tr>
<tr>
<td>(private institution)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician</td>
<td>47.8</td>
<td>28.6</td>
<td>30.5</td>
</tr>
<tr>
<td>(private)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>1.5</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>0.7</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Lay person</td>
<td>2.2</td>
<td>2.7</td>
<td>5.9</td>
</tr>
<tr>
<td>Other</td>
<td>0.9</td>
<td>5.4</td>
<td>4.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>N</td>
<td>138</td>
<td>147</td>
<td>151</td>
</tr>
</tbody>
</table>

Alternative, or lay, sources for assistance in both Méier and Santa Cruz (n=15) included religious institutions or "spiritual" beings, such as spiritual guides (guias espirituales) and physician spirits (espiritos médicos), the
Church (evangelical), God, and Jesus Christ. This corresponds to the greater proportion of non-Catholics in these two areas relative to Copacabana. There are a number of Christian churches (large and small) that practice faith healing in these areas. Some respondents related stories of people they knew who had been cured of serious illnesses (cancer, for example) in this fashion. A Mason (male, 78 years old), reported that he had just participated in a faith healing (along with other members of his congregation) of a seriously ill friend. The "treatment" required that he fast and keep constant vigilance over the patient. Another respondent, a 76 year old woman (Santa Cruz) discontinued treatment for high blood pressure with cinnarizine (prescribed by her physician at the time), because it made her feel worse rather than better. She began to attend a new church which practices faith healing (Casa de Bengão) and reports that she no longer has any health problem.

Summary information on number of different physicians used and frequency of physician visits is presented in Table 4.10. The average number of physicians consulted on a regular basis for the aggregate sample is 1.54 (s.d.=1.14). However, the average number of physicians that an elder consults on a regular basis in each area varies significantly (F=20.33, df=2, p<.0001), and the paired comparison (Scheffé) indicated that all areas were significantly different from each other. The number of
physicians prescribing medications at the time of the interview varies accordingly ($F=11.22$, $df=2$, $p<.0001$). The mean for the aggregate was 1.20 prescribing physicians (s.d.=0.96). Paired comparisons of the areas revealed that only the difference between means for Copacabana (1.47) and Santa Cruz (0.95) were statistically significant. Similar analysis indicates that although elders in Copacabana see more physicians, the mean number of physician visits that occurred during the thirty days prior to the interview is significantly greater in Méier (1.09) than in the other two areas ($F=6.18$, $df=2$, $p<.001$). The average number of physician visits reported for the thirty day period prior to the interview was 0.78 (s.d.=1.37). Fifty-six percent of the sample reported not having had any physician visits.

Table 4.10  Utilization of physician services by area.

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean no. of physicians</td>
<td>1.96 (1.21)</td>
<td>1.55 (1.11)</td>
<td>1.14 (0.93)</td>
</tr>
<tr>
<td>Mean no. of prescribing physicians</td>
<td>1.47 (0.99)</td>
<td>1.21 (0.94)</td>
<td>0.95 (0.88)</td>
</tr>
<tr>
<td>Mean no. physician visits 30 days prior to interview</td>
<td>0.69 (1.15)</td>
<td>1.09 (1.77)</td>
<td>0.56 (1.02)</td>
</tr>
</tbody>
</table>

Over half (58.5%) of elders were of the opinion that one should completely trust their physician to prescribe appropriately, 33.9% reported that there are times when one
should be careful about prescriptions, and 7.6% reported that one should rarely trust the prescription (see Table 4.11). Of those that were the most skeptical, the greatest proportion was in Méier. However, the elders in Méier were also the most likely to always trust the prescription ($X^2=20.60$, df=4, p<.000).

Table 4.11 Should you always trust the physician’s prescription?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>57.5</td>
<td>64.2</td>
<td>54.1</td>
</tr>
<tr>
<td>Sometimes, but not always</td>
<td>38.8</td>
<td>21.9</td>
<td>40.5</td>
</tr>
<tr>
<td>Rarely</td>
<td>3.7</td>
<td>13.9</td>
<td>5.3</td>
</tr>
</tbody>
</table>

$X^2=20.60$, df=4, p<.000

The Role of the Pharmacy

Nearly 90% of the elderly in this sample obtained their medications from community retail allopathic pharmacies (see Table 4.12). The popular notion that the elderly are heavy users of homeopathic remedies was not supported in this study. Homeopathy has become an accepted alternative, even within the INAMPS system. Despite the growing interest and popularity of homeopathy among the general population in Rio over the last decade (Soares, 1987), only 3.2% of the elderly in this study reported using homeopathy.
Table 4.12 Usual source of medications.

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Physician</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Health post</td>
<td>0.0</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Hospital dispensary</td>
<td>0.0</td>
<td>1.4</td>
<td>7.9</td>
</tr>
<tr>
<td>Retail pharmacy (allopathic)</td>
<td>94.2</td>
<td>85.7</td>
<td>83.4</td>
</tr>
<tr>
<td>Retail pharmacy (homeopathic)</td>
<td>2.9</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Other, pharmacy</td>
<td>2.2</td>
<td>1.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Other, non-pharmacy</td>
<td>0.0</td>
<td>1.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Never uses medications</td>
<td>0.7</td>
<td>1.4</td>
<td>0.0</td>
</tr>
</tbody>
</table>

On average, the elders in the sample reported having visited a pharmacy twice during the thirty days prior to the interview. Summary information on pharmacy visits is presented in Table 4.13. Area differences were significant (F=4.17, df=2, p<.016), with a significant difference between Méier and Santa Cruz, according to the post hoc pairwise analysis. The frequency with which an individual patronizes the same pharmacy varies significantly among the three areas studied. Half of the elderly in Copacabana always go to the same pharmacy to purchase their medications, whereas only one-third do so in the other two areas. The tendency to "shop around" is greatest among the elderly in Méier, who probably try to take advantage of some of the discounts offered in the pharmacies closer to downtown.
Table 4.13 Utilization of Pharmacies

<table>
<thead>
<tr>
<th></th>
<th>Copacabana</th>
<th>Méier</th>
<th>Sta. Cruz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean no. pharmacy visits per month</td>
<td>2.03 (2.33)</td>
<td>2.15 (2.87)</td>
<td>1.31 (2.81)</td>
</tr>
</tbody>
</table>

F=4.17, df=2, p<.016

How often do you go to the same pharmacy?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana</th>
<th>Méier</th>
<th>Sta. Cruz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>53.4</td>
<td>35.7</td>
<td>34.5</td>
</tr>
<tr>
<td>Often</td>
<td>13.7</td>
<td>7.7</td>
<td>15.1</td>
</tr>
<tr>
<td>Sometimes</td>
<td>22.1</td>
<td>20.2</td>
<td>30.2</td>
</tr>
<tr>
<td>Never</td>
<td>10.7</td>
<td>36.4</td>
<td>20.1</td>
</tr>
</tbody>
</table>

N=131 129 139

X²=33.45, df=6, p<.0001

Participants were asked to identify the characteristics they appreciated of the pharmacy they most frequently patronized. Categories were provided and any number of items could be selected, including an option for "other" (see Table 4.14). Of those who go to a pharmacy to purchase their medications, the elders in Copacabana were most pleased about the location (75.6%), the prices (67.9%) and the quality of the medications sold (51.9%) in the pharmacies. In Méier, the majority elders were most pleased about the prices (76.7%), location (62.0%), and the inventory (selection of products) (40.3). In Santa Cruz, as in Méier, the prices of the drugs was the most frequently mentioned characteristic (60.4%), followed by location...
(56.1%). Unlike the other two areas, the trustworthiness of the pharmacist was mentioned relatively frequently in this

Table 4.14 Proportion of elders identifying positive aspects of their pharmacy(ies)

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=131)</th>
<th>Méier (n=129)</th>
<th>Sta. Cruz (n=139)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Nothing special</td>
<td>3.8</td>
<td>5.4</td>
<td>10.1</td>
</tr>
<tr>
<td>Location</td>
<td>75.6</td>
<td>62.0</td>
<td>56.1</td>
</tr>
<tr>
<td>The pharmacist is trustworthy</td>
<td>22.1</td>
<td>30.2</td>
<td>45.3</td>
</tr>
<tr>
<td>The prices are good/ discount is offered</td>
<td>67.9</td>
<td>76.7</td>
<td>60.4</td>
</tr>
<tr>
<td>The clerks are trustworthy</td>
<td>38.2</td>
<td>39.5</td>
<td>36.7</td>
</tr>
<tr>
<td>The inventory of drugs is good</td>
<td>50.4</td>
<td>40.3</td>
<td>41.7</td>
</tr>
<tr>
<td>The quality of the drugs sold is good</td>
<td>51.9</td>
<td>34.1</td>
<td>30.2</td>
</tr>
<tr>
<td>The pharmacy sells other useful merchandise</td>
<td>47.3</td>
<td>25.6</td>
<td>19.4</td>
</tr>
<tr>
<td>I can order by telephone</td>
<td>40.5</td>
<td>16.3</td>
<td>6.5</td>
</tr>
<tr>
<td>I can pay the pharmacy in installments (credit)</td>
<td>0.8</td>
<td>3.1</td>
<td>9.4</td>
</tr>
<tr>
<td>Other</td>
<td>17.6</td>
<td>10.9</td>
<td>12.9</td>
</tr>
</tbody>
</table>
Table 4.15 What do you like most about the pharmacy(ies) where you buy your medications?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=131)</th>
<th>Méier (n=129)</th>
<th>Sta. Cruz (n=139)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing special</td>
<td>3.1</td>
<td>4.6</td>
<td>7.9</td>
</tr>
<tr>
<td>Location</td>
<td>25.9</td>
<td>23.2</td>
<td>8.6</td>
</tr>
<tr>
<td>The pharmacist is trustworthy</td>
<td>0.8</td>
<td>4.6</td>
<td>12.9</td>
</tr>
<tr>
<td>The prices are good/discount is offered</td>
<td>34.4</td>
<td>39.5</td>
<td>41.7</td>
</tr>
<tr>
<td>The clerks are trustworthy</td>
<td>2.3</td>
<td>10.8</td>
<td>6.5</td>
</tr>
<tr>
<td>The inventory of drugs is good</td>
<td>3.8</td>
<td>5.4</td>
<td>7.2</td>
</tr>
<tr>
<td>The quality of the drugs sold is good</td>
<td>4.6</td>
<td>0.0</td>
<td>2.9</td>
</tr>
<tr>
<td>The pharmacy sells other useful merchandise</td>
<td>3.8</td>
<td>1.5</td>
<td>0.7</td>
</tr>
<tr>
<td>I can order by telephone</td>
<td>10.7</td>
<td>0.8</td>
<td>0.0</td>
</tr>
<tr>
<td>I can pay the pharmacy in installments (credit)</td>
<td>0.0</td>
<td>0.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>9.2</td>
<td>7.2</td>
<td>10.1</td>
</tr>
</tbody>
</table>
area (45.3%). That the pharmacy sold other useful merchandise (sundries) was mentioned by nearly half of the participant in Copacabana (47.3%), but only 19.4% of the respondents in Santa Cruz. Being able to order medicines by telephone was appreciated by 40% of the elderly in Copacabana, and 16.3% of those in Méier. This was not a meaningful category for many Santa Cruz residents because they have no telephones.

"Other" characteristics mentioned included: the clients are well attended (good service), the pharmacy (as opposed to the individuals who worked in the pharmacy) is well-known and trusted (it has a good reputation), the pharmacy offers some convenience (e.g., open 24 hours, has a weight scale, would search for a medication elsewhere if the pharmacy did not have on hand), and the cleanliness of the pharmacy.

Overall, the single most important characteristic that clients appreciated about the pharmacy they patronized was that the prices were good, or that a discount was offered (see Table 4.15). This was especially true for respondents in Santa Cruz. This corresponds with the prevailing public concern about the cost of medications in general at the time of the interview so that getting a good price was important. Location was mentioned by a quarter of the elderly in Copacabana and Méier as the most significant aspect, but was mentioned much less frequently in Santa Cruz, where the
trustworthiness of the pharmacist was more important that it was for the other areas.

The Role of the Pharmacist

The question of the need for a full-time qualified pharmacist in the pharmacy was posed to the participants. Eighty-five percent of the sample responded in favor of the pharmacists' presence, even though most medications are prepackaged and come with information package inserts. A test of differences among areas was not statistically significant at the 0.05 level ($X^2=5.03$, df=2, p<.08).

Most of the responses in favor of a full-time pharmacist presence in the pharmacy (61%) referred to the need for a competent person to provide correct information about medications, and to reassure clients about their drug regimens. They believe that the pharmacist is not only appropriately trained, but also is better at explaining these things than both physicians and balconistas. Reasons spontaneously given included the following: "pharmacists are responsible for the control of medications in the pharmacy", or, "it's the law"; "the balconistas need a qualified pharmacist to give them training so they can give good advice to clients"; package inserts are often "confusing" or "inadequate", and a pharmacist can explain the information "more clearly" by "interpreting the abbreviations and symbols"; the pharmacist can be helpful by reading the
package insert to illiterate clients; the pharmacist is "almost a physician" and, especially in emergency situations, can be very helpful by prescribing a remedy, or even giving stitches and first aid; "the pharmacist is an important source for health care for those who can’t afford to go to a physician"; and, "some medications have special formulas and still need to be made by a pharmacist."

Those who said that pharmacists are not needed (14.2% of the entire sample) gave the following reasons: "a patient gets all the information necessary from the physician and the package insert", "there is no longer any need to make formulas" (because all medications are industrialized), "you can’t trust those who work in the pharmacy", they are "false pharmacists" or "just ignorant balconistas."

When the patient has a question about a medication, the usual source for information varies by area (see Table 4.16). Elders in Copacabana were more likely than those in Méier and Santa Cruz not to ask anyone if they had a question about their medications, but if they did ask, they were more likely to ask a physician. Elders in Santa Cruz were most likely to ask someone, and those in both Méier and Santa Cruz were more likely than those in Copacabana to seek non-physician advice ($X^2=30.90$, df=4, $p<.0001$).
When you have a question about your medications, whom do you usually consult first?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No one</td>
<td>16.7</td>
<td>11.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Physician</td>
<td>74.6</td>
<td>60.5</td>
<td>63.6</td>
</tr>
<tr>
<td>Nurse</td>
<td>0.0</td>
<td>1.4</td>
<td>6.0</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>0.7</td>
<td>8.2</td>
<td>11.3</td>
</tr>
<tr>
<td>Lay person</td>
<td>4.4</td>
<td>15.0</td>
<td>11.3</td>
</tr>
<tr>
<td>Other</td>
<td>3.6</td>
<td>3.4</td>
<td>4.0</td>
</tr>
</tbody>
</table>

When asked if qualified pharmacists can explain to clients the effects of medications better, the same, or worse than physicians, 47.6% of the respondents answered that pharmacists explain worse than physicians, 39.3% believed that pharmacists explain the effects of medicines about the same as physicians, and only 13.2% believed that the pharmacist is better than the physician. There was no statistical association with area ($X^2=4.74, df=4, p=.31$).

However, when asked if the pharmacists should explain the effects of medications, the elders in Copacabana are much more skeptical than in the other two areas (see Table 4.17)

Should the pharmacist explain the effects of medications to their clients?

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>38.4</td>
<td>66.2</td>
<td>68.2</td>
</tr>
<tr>
<td>Not always</td>
<td>18.8</td>
<td>10.3</td>
<td>18.5</td>
</tr>
<tr>
<td>Never</td>
<td>42.8</td>
<td>23.5</td>
<td>13.3</td>
</tr>
</tbody>
</table>

$X^2=42.42, df=4, p<.000$
The elders who reported that pharmacists should explain the effects of medications to clients consider this to be nothing short of the pharmacist's professional obligation. This professional responsibility referred to the role of pharmacists as the producers of medications: "they make the drugs, they are logical ones to provide the information about the products they make"; "pharmacists are trained, they know about drugs and make them." Similarly, professional responsibility referred to the role of pharmacists as the providers of medications: "ordinary people generally are not knowledgeable about modern drugs and a pharmacist's advice or explanation can only help the client in the pharmacy"; "pharmacists can inform clients so they won't make mistakes (about when and how to take their medications)"; "pharmacists can inform or warn clients so that they will be prepared for any adverse effects"; and, "pharmacists can reassure clients who are insecure or worried about their drug regimen."

Many people indicated that the clients who would most benefit from a pharmacist's orientation are those who can't read the package inserts, or have no one else (friend or family) to help them to understand their drug regimen: "a pharmacist may reinforce what the physician has already told the patient"; sometimes the pharmacist is "better at
explaining about side effects than the doctor"; "sometimes doctors forget to tell their patients about the medicines they prescribe"; and, "the pharmacist can be sure that the patient knows what he needs to know, because pharmacists can read the doctor's writing on the prescription."

The reverse of some of these arguments were used against the role of the pharmacist providing clients with information about their medications. For some, this is the physician's role: "the patient should have all the information he needs with the prescription, and anything in addition that the pharmacist says may confuse the patient" or "scare the patient into not taking the medication"; "the physician may not want the patient to know some things about the medicine"; "it is not their job to inform clients about their drugs, it is the physician's professional obligation to do so"; "pharmacists receive training in chemistry, formulating drugs, and manipulating them" and "they do not know how these chemicals act on the body"; "pharmacists do not have sufficient information about the patient to be able to properly evaluate the effects of a drug on an individual." The elders who responded that there are times when a pharmacist should give information about a drug, and times when he should not, stipulated three kinds of situations: the pharmacist should give information if, and only if, the patient requests it; the pharmacist should give information only for non-prescription medications; the
pharmacist should give information if, and only if, it is a qualified pharmacist that is giving the information.

**Medication Use**

The majority of elders in the sample (88.1%) reported using at least one medication at the time of the interview, or up to two weeks prior to the interview: 78.4% reported talking at least one physician prescribed (PP) medication, and 34% reported taking at least one non-physician prescribed (NPP) medication use. The number of medications used ranged from 0 to 11, with a mean of 3.24 (sd=2.36). The average number of physician prescribed (PP) medications used ranged from 0 to 11, with a mean of 2.64 (sd=2.23), and the average number of non-physician prescribed (NPP) medications used was 0.59 (sd=1.08) with a range of 0 to 7.

Table 4.18 presents summary information on the frequency of medication use for each study area. In Copacabana, 93.5% of the elders were using at least one physician prescribed medication, compared to 80.3% in Méier and only 62.9% in Santa Cruz. A smaller proportion of elders in Méier were self-medicating than in the other two areas. The average number of medications used, and average number of PP medication used was significantly greater in Copacabana than in the other two areas. There were no significant differences between areas for mean NPP medication use.
Table 4.18 Extent of Physician Prescribed (PP) and Non-Physician Prescribed (NPP) use of Elderly

<table>
<thead>
<tr>
<th></th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Sta. Cruz (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons using at least one:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>medication (%)</td>
<td>96.4</td>
<td>86.4</td>
<td>82.1</td>
</tr>
<tr>
<td>PP medication (%)</td>
<td>93.5</td>
<td>80.3</td>
<td>62.9</td>
</tr>
<tr>
<td>NPP medication (%)</td>
<td>37.0</td>
<td>25.9</td>
<td>39.1</td>
</tr>
<tr>
<td>Mean no. medications used</td>
<td>3.87 (2.23)</td>
<td>3.07 (2.33)</td>
<td>2.81 (2.41)</td>
</tr>
<tr>
<td>F=8.11, df=2, p&lt;.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean no. PP medications used</td>
<td>3.31 (2.18)</td>
<td>2.57 (2.11)</td>
<td>2.09 (2.26)</td>
</tr>
<tr>
<td>F=11.46, df=2, p&lt;.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean no. NPP medications used</td>
<td>0.57 (0.93)</td>
<td>0.50 (1.11)</td>
<td>0.73 (1.18)</td>
</tr>
<tr>
<td>F=1.81, df=2, p=.16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of the 1154 medications used by this sample, 82% were prescribed by a physician. Most of the NPP medications were self-prescribed (92.7%), a pharmacist recommended the medication in 1.1% of the NPP medications, a friend or family member another 2.9%, and the remaining 3.3% were recommended by another individual.

The active ingredients of the medications used by the sample were analysed using the method employed by May et al. (1982), based on WHO therapeutic classifications. A drug dictionary was developed that listed active ingredients, and each ingredient was classified for up to three therapeutic
uses. An analysis was done to determine the number and percentage of participants receiving at least one ingredient of a given therapeutic class. If a participant was receiving more than one drug of a given class, it was counted only once. Results are presented in Table 4.19.

The most common types of drugs reported to be prescribed by physicians included antihypertensive drugs (29.5%), diuretics (26.9%), and congestive heart failure drugs (22.5%). For non-physician prescribed medications, the most common included analgesics/antipyretics (15.5%), antirheumatic drugs (13.5%), digestants (10.1%) and diuretics (9.4%). Overall, 24% of the elderly used at least one antihypertensive drug and 24% used at least one diuretic, followed by congestive heart failure drugs (17.9%), antirheumatic drugs (14.2%) and analgesics/antipyretics (13.9%). The ranking of the combined prescription and nonprescription medication use for this sample varies from the typical ranking reported for the elderly in the United States (Stewart, 1988:55). For example, in one study of Florida elderly, the top five rankings include vitamins (including vitamin and mineral combinations), antihypertensive drugs, analgesics (non-narcotic), antirheumatics, and coronary vasodilators (Hale et al., 1987).
Table 4.19 Most Common Therapeutic Indications for all Drugs for Physician Prescribed (PP) and Non-physician Prescribed (NPP) Medication Use.

<table>
<thead>
<tr>
<th>Therapeutic Indications b</th>
<th>Number of Participants a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PP</td>
</tr>
<tr>
<td>Antihypertensive drugs</td>
<td>101</td>
</tr>
<tr>
<td>Diuretics</td>
<td>92</td>
</tr>
<tr>
<td>Congestive health failure drugs</td>
<td>77</td>
</tr>
<tr>
<td>Antirheumatic drugs (incl. antiphlogistics)</td>
<td>42</td>
</tr>
<tr>
<td>Analgesic/antipyretics (non-narcotic)</td>
<td>38</td>
</tr>
<tr>
<td>Other metabolism and nutrition drugs</td>
<td>31</td>
</tr>
<tr>
<td>Vitamins</td>
<td>15</td>
</tr>
<tr>
<td>Coronary vessel dilators</td>
<td>18</td>
</tr>
<tr>
<td>Anxiolytic sedatives</td>
<td>16</td>
</tr>
<tr>
<td>Antiarrhythmic drugs</td>
<td>13</td>
</tr>
<tr>
<td>Antacids</td>
<td>11</td>
</tr>
<tr>
<td>Digestants (incl. stomachics, choleretics, digestive enzymes)</td>
<td>3</td>
</tr>
<tr>
<td>Water, mineral salts supply (incl. K+, Ca++)</td>
<td>10</td>
</tr>
<tr>
<td>Antidiabetic</td>
<td>16</td>
</tr>
</tbody>
</table>

Numbers listed indicate number of individuals taking at least one drug in each category. Total number of participants using at least one PP medication is 342; the total number using at least one NPP medication is 148; the total sample size is 436. Participants may be included in both PP and NPP categories.

b Based on WHO classifications. Only partial list of most frequent classes reported.
<table>
<thead>
<tr>
<th>Remedy</th>
<th>Reported Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black tea</td>
<td>Sedative</td>
</tr>
<tr>
<td>Arroz do campo, tea</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Broto de goiaba, tea</td>
<td>Antidiarrea</td>
</tr>
<tr>
<td>Herbal (various) tea</td>
<td>Digestive aid, sedative</td>
</tr>
<tr>
<td>Avocado leaf, tea</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Espinheira Santa, tea</td>
<td>Blood purifier</td>
</tr>
<tr>
<td>Quebra pedra, tea</td>
<td>To treat kidney stones</td>
</tr>
<tr>
<td>Bee pollen</td>
<td>General tonic, cold remedy</td>
</tr>
<tr>
<td>Cononut water</td>
<td>Rehydration, well-being</td>
</tr>
<tr>
<td>Garlic</td>
<td>Tonic, antihelminths</td>
</tr>
<tr>
<td>Boldo, tea</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Cabelo de milho, tea</td>
<td>Diuretic</td>
</tr>
<tr>
<td>Camomile, tea</td>
<td>Sedative</td>
</tr>
<tr>
<td>Cana do brejo, tea</td>
<td>Diuretic</td>
</tr>
<tr>
<td>Capim de limao, tea</td>
<td>Sedative</td>
</tr>
<tr>
<td>Carambola (Star Fruit)</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Carobinha</td>
<td>To treat skin irritation</td>
</tr>
<tr>
<td>Carqueja, tea</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Onion</td>
<td>Heart tonic (prevent heart problems)</td>
</tr>
<tr>
<td>Cidreira, tea</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Erva doce, tea</td>
<td>Diuretic sedative</td>
</tr>
<tr>
<td>Gervao Roxo, tea</td>
<td>Liver tonic</td>
</tr>
<tr>
<td>Spearmint, tea</td>
<td>Antihelminths</td>
</tr>
<tr>
<td>Orange, pulp</td>
<td>Laxative</td>
</tr>
<tr>
<td>Lemon, juice</td>
<td>Cold remedy</td>
</tr>
<tr>
<td>Lojna, tea</td>
<td>To treat liver illness</td>
</tr>
<tr>
<td>Mamao (papaya), juice</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Mate, tea</td>
<td>Digestive aid</td>
</tr>
<tr>
<td>Pata de vaca, tea</td>
<td>Antidiabetic</td>
</tr>
<tr>
<td>Rosa vermelha, tea</td>
<td>Glaucoma</td>
</tr>
<tr>
<td>Senne, tea</td>
<td>Cathartic</td>
</tr>
<tr>
<td>&quot;Vitamina&quot; (fruit drink)</td>
<td>General tonic</td>
</tr>
<tr>
<td>Comfrey, tea</td>
<td>Liver tonic</td>
</tr>
<tr>
<td>Honey</td>
<td>General tonic</td>
</tr>
</tbody>
</table>
A list of the home remedies used by the sample, and their purported use, is provided in Table 4.20. In all cases but one, the purported use was consistent with that listed in either Martindale's The Extra Pharmacopoeia (1992), or in the compilation of by Mello and Carrara (1982) of Brazilian popular medicines. The exception was the reported use of black tea as a sedative. Many of the remedies that were used as digestive aids have documented choleretic properties and may be considered to be digestants. Most of the teas are available in pharmacies.

**Measures**

The internal consistency of measures related to attitudes toward medical care (Att_Med_Care), attitudes toward lays advices about drugs (Att_Lay_Advice), and all measures of perceived access to medical and pharmacy services were examined using Cronbach's coefficient alpha. This coefficient is often used to estimate the internal consistency of items which have a wide range of scoring weights, such as those on attitude inventories (Crocker and Algina, 1986:117, 138). In measurement terms, this coefficient is a way of expressing the reliability of a composite, or total test score, in terms of total and true score variances. Because alpha is a function of item covariances, and high covariance between items can be the result of more than one common factor, alpha is not to be
interpreted as a measure of the unidimensionality, but rather as the lower bound of the proportion of variance in the composite scores that is explained by common factors.

**Access Measures**

The results of the analysis for the summated items of the final access measures, are presented in Table 4.21.

**Table 4.21 Access to medical and pharmacy services measures.**

<table>
<thead>
<tr>
<th>Label</th>
<th>No. Items</th>
<th>Cronbach's alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptability of Medical Services</td>
<td>15</td>
<td>.84</td>
</tr>
<tr>
<td>(Accept_Med_Serv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of Medical Services</td>
<td>11</td>
<td>.69</td>
</tr>
<tr>
<td>(Avail_Med_Serv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability of Medical Services</td>
<td>2</td>
<td>.32</td>
</tr>
<tr>
<td>(Afford_Med_Serv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acceptability of Pharmacy Services</td>
<td>15</td>
<td>.75</td>
</tr>
<tr>
<td>(Accept_Pharm_Serv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of Pharmacy Services</td>
<td>11</td>
<td>.56</td>
</tr>
<tr>
<td>(Avail_Pharm_Serv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affordability of Drugs</td>
<td>2</td>
<td>.61</td>
</tr>
<tr>
<td>(Afford_Drugs)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results indicate that the internal consistencies of the items are fairly strong on some of the measures, and weaker on others. Notably, the measure of affordability of medical care attained a very low coefficient (.32). This measure included only two items and there was little variance in the responses. This is likely reflective of the presence of national health care services which are
available to all citizens, either through social security affiliate status, or indigent status. These services may be used as a "backup" when private insurance or other private institutional support is not feasible or practical. Descriptive results for all item and subtest responses are presented in Appendix D.

The purpose of assessing these three dimensions of access to care is to address the question of the adequacy of a single measure of access as a proxy for its component parts. In other words, to what extent does the single measure obscure meaningful relationships that otherwise might emerge? In this case, we may test for differences in the means among the three areas for each dimension of access to determine if differences between areas are the same for each access variable. The mean scores for the access dimensions for each area were compared with an analysis of variance. Scheffé's test (with alpha=0.05, confidence=0.95, d.f.=433, F=3.016) was used for the a posteriori comparisons where statistical significance was found. The results are presented in Table 4.22.

**Perceived Acceptability of Medical Services** *(Accept Med Serv)*: This was the only dimension of access to medical care that was not found to be significantly different for the three areas. The construct of acceptability of services measured the extent to which the individual finds the quality of the medical services to
Table 4.22  Comparison of mean access scores by area.

<table>
<thead>
<tr>
<th>Access Label (Range)</th>
<th>Copacabana (n=138)</th>
<th>Méier (n=147)</th>
<th>Santa Cruz (n=151)</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept_Med_Serv (19-50)</td>
<td>43.78</td>
<td>42.22</td>
<td>43.25</td>
<td>n.s.</td>
</tr>
<tr>
<td>Avail_Med_Serv (13-31)</td>
<td>26.41</td>
<td>24.97</td>
<td>24.48</td>
<td>0.0001</td>
</tr>
<tr>
<td>Afford_Med_Serv (2-7)</td>
<td>5.12</td>
<td>5.33</td>
<td>4.56</td>
<td>0.0001</td>
</tr>
<tr>
<td>Accept_Pharm_Serv (18-51)</td>
<td>31.12</td>
<td>32.23</td>
<td>37.22</td>
<td>0.0001</td>
</tr>
<tr>
<td>Avail_Pharm_Serv (13-33)</td>
<td>26.48</td>
<td>23.73</td>
<td>23.46</td>
<td>0.0001</td>
</tr>
<tr>
<td>Afford_Drugs (2-5)</td>
<td>4.68</td>
<td>4.54</td>
<td>4.17</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Significance levels of 0.05 or less reported.
which s/he has access acceptable or satisfactory. Overall, the mean score for each area is fairly high, indicating a positive patient perception of acceptability of care.

Perceived Availability of Medical Services
(Avail Med Serv): Perceived availability of medical services differed significantly between Copacabana and the other two areas. The construct of availability included items assessing convenience, continuity of care, emergency care, the supply of physicians and hospitals. That Copacabana scored highest reflects both the higher concentration of services in this area and the easy access to a very effective mass transportation service in Copacabana.

Perceived Affordability of Medical Services
(Afford Med Serv): The elderly in both Copacabana and Méier scored higher than Santa Cruz on affordability. The difference between Copacabana and Méier was not statistically significant. As expected, therefore, the poorer Santa Cruz residents were more likely to have delayed seeking medical care for financial reasons, and more likely to have concerns about the costs of medical exams.

Perceived Acceptability of Pharmacy Services
(Accept Pharm Serv): This measure included items on the selection of medications available, the competence, prudence, and considerateness of the pharmacy personnel, exchange of information, modernity, and the courtesy and
respect offered to clients. Méier and Copacabana elders scored similarly on perceived acceptability of pharmacy services items, with less positive scores than Santa Cruz elders. This is consistent with Loyola's observation (1983) of a qualitative difference in the relationship between client and pharmacy in areas further away from commercial centers and of lower socio-economic status.

**Perceived Availability of Pharmacy Services (Avail Pharm Serv):** The differences among the three areas on this measure are similar to the differences found for the availability of medical services. Availability was measured in terms of the availability of medicines, convenience, continuity of service, the supply of pharmacies and pharmacists, emergency service, and ancillary services. Copacabana elderly gave significantly higher scores than each of the other two areas to items measuring availability of pharmacy services, and there was no significant difference between Méier and Santa Cruz. As in the case for medical services, the greater number of pharmacies, and their relatively high concentration in Copacabana probably accounts for this.

**Perceived Affordability of Drugs (Afford Drugs):** Significant differences in means for perceived affordability of medicines were found between Copacabana and Santa Cruz, and between Méier and Santa Cruz, reflecting differences in income in the three areas. Therefore, the elders in Santa
Cruz were significantly more likely to have delayed buying a needed medication and skipping or lowering a medication dose in order to economize.

The patterns that emerge from this analysis suggest that it is useful to analyze access to care in its separate dimensions for the different socioeconomic strata. In all dimensions other than availability of both medical and pharmacy services, Copacabana and Méier, the high and middle SES areas, were more similar than different. However, with respect to the perceived availability of services, Méier was more similar to Santa Cruz, the lower SES area.

**Attitude Measures**

The measure for attitudes toward formal medical care (Att_Med_Care) included the summated scores on seven items referring to skepticism of the ability of modern medicine to cure serious illnesses, reluctance to accept medical care, and the belief that the individual understands his/her health better than the doctor. Attitudes toward lay advice about medicines (Att_Lay_Advice) was measured by the summated scores on three items reflecting the willingness to accept non-medical advice about medicines. Item and descriptive statistics are also presented in Appendix D.

There were no significant differences in the means between the three areas on the measure of attitudes toward medical care (F=1.59, df=2, p>.20), but there were differences on the measure of willingness to accept lay
advice about drugs (F=25.96, df=2, p>.0001). Again, applying Scheffé's multiple comparison method, the mean for Copacabana (x=5.52, sd=1.73) and Meier (x=5.17, sd=1.67) were found to each be significantly different from the mean for Santa Cruz (6.79, sd=2.47).

**Correlates of Medication Use**

In order to identify factors that influence physician prescribed (PP) and non-physician prescribed (NPP) medication use and to assess the relative importance of the factors, 15 predictor variables were chosen, as defined in Chapter 3. Data from the study were evaluated for the appropriateness of the normality assumptions required for linear regression modelling. Five independent variables with highly skewed distributions (income, ATP, PAXMS, PAVMS, and number of symptoms) were transformed by taking logarithms to base e in order to induce normality. The means and standard deviations of the variables are presented in Table 4.23.

The measures of associations for the data are presented in Table 4.24: Pearson's product moment for interval data, Spearman's rank order correlation for ordinal data, point bi-serial correlations for associations between a dichotomy and continuous data, and eta correlation ratio for the associations between ordinal and categorical data. From the correlation matrix we can get an idea of which predictors,
Table 4.23 Means and Standard Deviations of Variables in Regression Models.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Copacabana</th>
<th>Mean</th>
<th>SD</th>
<th>Meier</th>
<th>Mean</th>
<th>SD</th>
<th>Sta. Cruz</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (0=male) X₁</td>
<td>0.62</td>
<td>0.48</td>
<td>0.62</td>
<td>0.48</td>
<td>0.58</td>
<td>0.49</td>
<td>0.66</td>
<td>0.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age X₂</td>
<td>71.79</td>
<td>6.87</td>
<td>72.53</td>
<td>7.09</td>
<td>72.23</td>
<td>7.04</td>
<td>70.71</td>
<td>6.40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education X₃</td>
<td>6.39</td>
<td>4.84</td>
<td>10.57</td>
<td>4.87</td>
<td>5.56</td>
<td>3.19</td>
<td>3.45</td>
<td>3.37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House. size X₄</td>
<td>2.44</td>
<td>2.01</td>
<td>1.73</td>
<td>1.33</td>
<td>2.31</td>
<td>1.69</td>
<td>3.22</td>
<td>2.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income X₅</td>
<td>0.54</td>
<td>0.45</td>
<td>0.89</td>
<td>0.48</td>
<td>0.44</td>
<td>0.34</td>
<td>0.32</td>
<td>0.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perc'd health X₆</td>
<td>6.67</td>
<td>1.71</td>
<td>6.99</td>
<td>1.39</td>
<td>6.52</td>
<td>1.66</td>
<td>3.53</td>
<td>1.97</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Symptoms X₇</td>
<td>1.84</td>
<td>0.59</td>
<td>1.69</td>
<td>0.50</td>
<td>1.91</td>
<td>0.61</td>
<td>1.89</td>
<td>0.64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att_Med_Care X₈</td>
<td>13.54</td>
<td>2.80</td>
<td>13.18</td>
<td>2.46</td>
<td>13.83</td>
<td>3.21</td>
<td>13.57</td>
<td>2.64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Att_Lay_Advice X₉</td>
<td>1.69</td>
<td>0.59</td>
<td>1.65</td>
<td>0.31</td>
<td>1.59</td>
<td>0.33</td>
<td>1.84</td>
<td>0.40</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Accept_Med_Serv X₁₀</td>
<td>2.38</td>
<td>0.44</td>
<td>2.34</td>
<td>0.38</td>
<td>2.45</td>
<td>0.44</td>
<td>2.35</td>
<td>0.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avail_Med_Serv X₁₁</td>
<td>1.76</td>
<td>0.56</td>
<td>1.58</td>
<td>0.52</td>
<td>1.83</td>
<td>0.51</td>
<td>1.85</td>
<td>0.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afford_Med_Serv X₁₂</td>
<td>4.99</td>
<td>1.40</td>
<td>5.11</td>
<td>1.17</td>
<td>5.33</td>
<td>1.26</td>
<td>4.56</td>
<td>1.61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accept_Pharm_Serv X₁₃</td>
<td>33.62</td>
<td>6.55</td>
<td>31.06</td>
<td>4.79</td>
<td>32.25</td>
<td>6.47</td>
<td>37.24</td>
<td>6.44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avail_Pharm_Serv X₁₄</td>
<td>24.52</td>
<td>3.81</td>
<td>26.52</td>
<td>2.72</td>
<td>23.81</td>
<td>3.94</td>
<td>23.42</td>
<td>3.85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afford_Drugs X₁₅</td>
<td>0.31</td>
<td>0.95</td>
<td>0.56</td>
<td>0.83</td>
<td>0.37</td>
<td>0.93</td>
<td>0.02</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP X₁₆</td>
<td>2.63</td>
<td>2.23</td>
<td>3.35</td>
<td>2.16</td>
<td>2.80</td>
<td>2.11</td>
<td>2.12</td>
<td>0.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPP X₁₇</td>
<td>0.59</td>
<td>1.08</td>
<td>0.54</td>
<td>0.91</td>
<td>0.51</td>
<td>1.13</td>
<td>0.69</td>
<td>1.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% no NPP</td>
<td>66.5</td>
<td>64.4</td>
<td>73.2</td>
<td>61.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N=</td>
<td>421</td>
<td>132</td>
<td>142</td>
<td>147</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a Values represent logged transformations of variables.

b 1=some problem with the affordability of drugs, -1=no problem with the affordability of drugs.
Table 4.24  Intercorrelation matrix of variables included in the hypothesized model for aggregate data.

| Variable                | $X_1$ | $X_2$ | $X_3$ | $X_4$ | $X_5$ | $X_6$ | $X_7$ | $X_8$ | $X_9$ | $X_{10}$ | $X_{11}$ | $X_{12}$ | $X_{13}$ | $X_{14}$ | $X_{15}$ | $X_{16}$ | $X_{17}$ |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Gender (O=male)        |       | -0.07 |       | -0.19*| 0.00  | -0.41*| -0.15*| 0.26* | 0.00  | 0.01      | 0.06      | -0.10     | -0.16     | -0.02     |           |           |
| Age                    |       | -0.03 |       | -0.02 | 0.03  | -0.05  | -0.08 | 0.02  | -0.13*| 0.01      | 0.02      | 0.12      | -0.07     | -0.01     | 0.05      | 0.16      | -0.02     |
| Education              |       | -0.15*| 0.55* | -0.15*| -0.23*| 0.00   | -0.18*| -0.06 | 0.23* | -0.14     | -0.30*    | -0.30*    | -0.20*    | 0.11*     | 0.01      |           |           |
| House. size            |       | -0.09*| -0.00 | 0.08  | 0.07  | 0.08   | 0.07  | 0.02  | 0.08  | 0.19*     | -0.03     | -0.10*    | -0.06     | -0.06     |           |           |
| Income                 |       |       |       |       |       |       |       |       |       | 0.17*     | -0.24*    | -0.11*    | -0.02     | 0.23*     | 0.15*     | 0.19*     | 0.34*     | 0.25*     | 0.10*     | 0.04      |
| Perc'd health          |       |       |       |       |       |       |       |       |       |           | -0.39*    | -0.06     | 0.06      | -0.05     | 0.16*     | 0.13*     | 0.04      | 0.23*     | 0.18*     | -0.29*    | 0.09*     |
| No. Symptoms           |       |       |       |       |       |       |       |       |       |           |           | -0.03     | 0.13*     | 0.10*     | -0.16*    | -0.23*    | -0.01     | -0.21*    | -0.24*    | 0.29*     | 0.04      |
| Att_Med_Care           |       |       |       |       |       |       |       |       |       |           |           |           | -0.14*    | -0.13*    | 0.19*     | 0.05      | 0.05      | 0.10*     | 0.08      | 0.10*     | -0.02     |           |
| Att_Lay_Advice         |       |       |       |       |       |       |       |       |       |           |           |           |           | -0.02     | -0.10*    | -0.22*    | 0.41*     | -0.01     | -0.23*    | -0.11*    | 0.21*     |           |
| Accept_Med_Serv        |       |       |       |       |       |       |       |       |       |           |           |           |           |           | 0.50*     | 0.08      | 0.18*     | 0.14*     | 0.14*     | 0.15*     | -0.10*    |           |
| Avail_Med_Serv         |       |       |       |       |       |       |       |       |       |           |           |           |           |           | 0.20*     | 0.01      | 0.39*     | 0.35*     | 0.09*     | -0.07     |           |           |
| Afford_Med_Serv        |       |       |       |       |       |       |       |       |       |           |           |           |           |           |           | -0.11*    | 0.18*     | 0.52*     | -0.08     | -0.04     |           |           |
| Accept_Pharm_Serv      |       |       |       |       |       |       |       |       |       |           |           |           |           |           |           |           | 0.18*     | -0.12*    | -0.14*    | 0.06      |           |           |
| Avail_Pharm_Serv       |       |       |       |       |       |       |       |       |       |           |           |           |           |           |           |           | 0.29*     | 0.02      | 0.02      |           |           |
| Afford_Drugs           |       |       |       |       |       |       |       |       |       |           |           |           |           |           |           |           |           | -0.02     | 0.00      |           |           |
| PP                     |       |       |       |       |       |       |       |       |       |           |           |           |           |           |           |           |           |           |           | -0.10*    |           |           |
| NPP                    |       |       |       |       |       |       |       |       |       |           |           |           |           |           |           |           |           |           |           |           |           | --        |

N=436; * All values greater than or equal to .09 are significant at p=.05 or better.
by themselves, appear to be related to medication use, and how highly correlated the predictors themselves are.

Perceived health status and number of symptoms are the variables most highly correlated with PP medication use: better perceived health status is related to less PP medications use \((r = -0.30)\), and increased number of symptoms is related to use of more PP medication use \((r = 0.29)\). Perceived health status and number of symptoms are, as expected, negatively correlated \((r = -0.39)\): good health status is related to fewer symptoms. These are consistent with findings from previous studies (Bush and Osterweis, 1978; Sharpe et al., 1985; Stoller, 1988).

The predisposing sociodemographic variables, with the exception of household size, are mildly correlated with increased PP medication use: being female \((r = 0.16)\), older \((r = 0.16)\), more educated \((r = 0.11)\), higher income \((r = 0.10)\), and having positive attitudes toward medical care \((r = 0.10)\). The relationships among gender, education, and income are not surprising: there is a strong positive relationship between education and income \((r = 0.55)\). In addition, the bivariate relationships between gender and both education \((-0.19)\) and income \((-0.41)\) reflect the relatively low levels of education and income among women.

None of the sociodemographic variables are correlated with NPP medication use. There is a weak, yet significant, relationship between more positive self-reported health
status with NPP medication use (r=.09). Slightly stronger associations were found between the willingness to accept non-medical advice about medicines and NPP medication use (r=.21).

There were no significant correlations between the sociodemographic variables and Att Med Care. However, age, education and income are all negatively correlated with Att Lay Advice (i.e., people who are older, those who are more highly educated, and those with higher incomes are less likely to accept lay advice about medicines).

Of the perceived access to medical services variables, Accept Med Serv and Avail Med Serv have fairly low correlations with PP medication use (r=.15 and r=.09 respectively). The lack of a significant relationship between Afford Med Serv and medication use (both PP and NPP) probably reflects the presence of a strong public medical care system that difuses the issue of cost of care. There is a negative association between Avail Pharm Serv and PP medication use (r=-.14), which may is most likely to reflect better health status/fewer symptoms in areas with greater concentrations of pharmacies. The negative association between Accept Med Serv and NPP medication use (r=-10), albeit a weak, confirms the notion that individuals who are more satisfied with the medical care they receive, are less likely to seek care elsewhere.
There is a strong positive correlation between Accept_Med_Serv and Avail_Med_Serv ($r=.50$), but no significant relationship between Accept_Med_Serv and Afford_Med_Serv. As might be expected, both education and income are positively correlated with Avail_Med_Serv ($r=.23$ and $r=.23$ respectively), and increased number of symptoms is associated with the perception that medical services are is less affordable ($r=-.23$). The Accept_Pharm_Serv is positively related to the Avail_Pharm_Serv ($r=.18$). Avail_Pharm_Serv positively associated with Afford_Drugs ($r=.29$). However, there is a mild negative relationship between Accept_Pharm_Serv and Afford_Drugs ($r=-.12$). This supports the observation that drogarias, in contrast to true pharmacies, offer retail services practically devoid of professional services. As discussed previously, most consumers do not expect much professional service in drogarias, but they do look for lower prices. Consumers will "shop around" at different drogarias for the lowest prices, and if there are more available, people are more likely to get the better prices they seek.

As expected, there is a strong positive relationship between perceived availability of medical and pharmacy services ($r=.39$), and between perceived affordability of medical services and pharmaceuticals ($r=.52$). There is also a strong positive relationship between willingness to accept
lay advice about medications and the acceptability of pharmacy services \( (r=.41) \).

**Modeling Medication Use**

In exploratory studies, regression analysis is generally of secondary importance. However, when many independent variables are correlated among themselves, there is some redundancy in the correlations, and an analysis of only simple correlations will not reveal relationships among variables which may emerge or be substantially altered when the effects of several variables are considered simultaneously. In these instances, regression analysis allows for these relationships to emerge. As such, regression analysis, and variable selection methods in regression analysis, can be a valuable descriptive tool in helping to point to influential determinants of behavior, and for suggesting avenues for expanded research (Afifi and Clark, 1984:165).

**Prescription Medication Use**

The original model for this problem is

\[
Y = a + b_1X_1 + b_2X_2 + \ldots b_{15}X_{15} + e
\]

The model may be considered to be overspecified in that not all variables are expected to be significant predictors. No interaction terms are included in this analysis because the primary interest is in identifying important variables for
future investigation. Although access and perceived health status variables are technically ordinal measures, they are treated as interval. All appropriate diagnostic tests were performed on residuals and for detecting multicollinearity, and no gross violations of the assumptions for the appropriateness of linear regression analysis were discovered. Fifteen observations were omitted due to missing values for the income variable (N=421).

The backward elimination procedure (using the SAS Stepwise Procedure) was used to select significant predictors. This procedure starts with all the variables in the model. It removes variables one at a time, according to which one gives the smallest partial F-value, given all the rest, provided that this partial F-value is not significant. The procedure terminates when all partial F-values are significant at the significance level for staying in. For the purposes of "theory trimming", an alpha level of 0.10 was chosen for the procedure (Pedhazur, 1982). This level is liberal enough to allow for the inclusion of useful determinants while excluding the less meaningful ones. Area was controlled for by creating two dummy variables: a=1 for Copacabana, b=1 for Meier. Santa Cruz is the reference area. The model that resulted is presented in Tabel 4.25.
Table 4.25  Regression Model for Prescribed Medication Use for Elderly, Rio de Janeiro.

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<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficients</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Beta</td>
</tr>
<tr>
<td>Intercept</td>
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</tr>
<tr>
<td>Copacabana</td>
<td>1.082***</td>
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<tr>
<td>Meier</td>
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<td>Gender</td>
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<tr>
<td>Age</td>
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<tr>
<td>Income</td>
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<tr>
<td>Health Status</td>
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<td>No. Symptons</td>
<td>.916***</td>
</tr>
<tr>
<td>Accept_Med_Serv</td>
<td>.944***</td>
</tr>
</tbody>
</table>

R² = .27  N=421; df=420

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

The prediction model, which accounts for 27% of the variance, follows rather closely the observations from the correlation matrix. When controlling for area, being female, being older, having greater incomes, experiencing more symptoms, and perceiving poorer health status are associated with increased use of prescribed medications. Of the access to care variables, both medical and pharmacy, only Accept_Med_Serv significantly contributed to the model when controlling for all other significant variables. By comparing the standardized regression coefficients, we can see that the number of symptoms has the strongest effect in the model (b=.24), followed by perceived health status (b= -.22) and the area, Copacabana (b=.22), where people use more medications.
Non-Physician Prescribed Medication Use

The distribution of values for the number of non-physician prescribed (NPP) medications was found to be bimodal and as such not appropriate for multiple regression analysis. The dependent variable was recoded to reflect two categories: 1=use of one or more NPP medications, and 0=no use of NPP medications. Logistic regression analysis (PROC LOGIST in SAS) was then applied in a fashion parallel to the stepwise backward elimination regression in the previous analysis, with .10 being the significance level a variable must have in order for that variable to be retained in the model.

For this analysis, a dummy variable was included in the model to control for PP medication use. The reasoning for this is that, if the patient is receiving prescriptions from a physician, s/he may be more likely to ask for the physician's recommendation for any other products that might be used without a prescription. The correlation matrix indicates a fairly low yet significant negative relationship between PP and NPP medication use (r=-.12), suggesting that a person is less likely to use one category if s/he uses the other. Furthermore, there is a relatively high utilization of physician services in this sample. The average number of physician visits per year was 9.3¹ for this sample,

¹ This is based on an extrapolation from the average of visits for the 30 day period prior to the interview, and, therefore, is a rough approximation.
compared to 4.8 per year for the United States (Simonson, 1984:9), which may account for the larger number of PP medications than expected relative to NPP.

Table 4.26 presents the results from the logistic regression analysis. The model may be evaluated in terms of the ratio of the concordant to discordant pairs, and described by the D statistic, an index of the rank correlation between predicted probabilities and the dependent variables, which may be likened to the $R^2$ in multiple regression analysis. This prediction model for NPP medication use yields a D statistic of .33.

Table 4.26 — Logistic Regression Model for Non-Physician Prescribed Medication Use for Urban Elderly, Rio de Janeiro.

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</table>

Concordant pairs = 66.6%
Discordant pairs = 33.1%
Tied pairs = 0.4%
(39480 pairs)

$*p < .05$  $**p < .01$  $***p < .001$
The model indicates that, controlling for area and PP medication use, household size, Att_Lay_Advice, health status and number of illness symptoms are significant in predicting NPP medication use. When controlling for all other significant factors, a larger household increases the probability of using NPP medications. This suggests that there is support for the conventional wisdom that the sharing of medications and/or information about treatment with medications occurs more frequently in larger households. As expected, even when controlling for other relevant variables, better perceived health status decreases the probability of NPP medication use. However, even controlling for perceived health status, the greater number of symptoms an individual experiences also decreases the probability of NPP use. This may be reflective of the situation that symptoms were often considered part of normal aging, an not an "illness" per se. Notably, no access variables were significant.

Correlates of Medication Use for Areas

The correlation matrices for each area are presented in Tables 4.27, 4.28 and 4.29. In comparing the matrices, various similarities and differences are evident, and, patterns begin to emerge.
Although perceived health status and number of symptoms are correlated with PP medication use in all three areas, the strengths of the relationships vary considerably: they are strongest in Santa Cruz ($r=-.47$ and $r=.47$, respectively), and weakest in Copacabana ($r=-.19$ and $r=.23$, respectively). Age is significantly related to prescription medication use only in Copacabana ($r=.23$) and gender (being female) is significantly associated with medication use only in Santa Cruz ($r=.35$). Gender is also more strongly related to poor health status and more symptoms in this area. In Copacabana, positive attitudes toward medical care are related to use of prescribed medications ($r=.21$).

In Santa Cruz, Accept_Med_Serv is positively related to PP medication use ($r=.20$) and Afford_Med_Serv is negatively related ($r=-.25$) to PP medication use. Afford_Med_Serv is negatively correlated to PP medication use in Meier ($r=-.16$). This latter relationship may be understood as reflecting the situation of an individual who is a heavy user of medical services with costs associated, as opposed to the well individual who has no such costs and therefore finds the cost of care (affordability) not to be a problem.

Measures of access to pharmacy services are related to PP use only in Meier. In this area, Accept_Pharm_Serv is negatively related ($r=-.16$), as is Avail_Pharm_Serv ($r=-.19$). The relationship may reflect the positive relationship
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N=138  * All values greater than or equal than .16 are significant at p=.05 or better.
Table 4.28  Intercorrelation matrix of variables included in the hypothesized model for Meier.

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N=147; * All values greater than or equal to .16 are significant at p=.05 or better.
Table 4.29  Intercorrelation matrix of variables included in the hypothesized model for Sta. Cruz.

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</table>

N=151; * All values greater than or equal to .16 are significant at p=.05 or better.
between availability of pharmacy services and use of NPP medications (r=.16) and the negative relationship between PP and NPP drugs (r=-.16).

Perceived health status was significantly correlated with NPP medication use only in Meier (r=.18), suggesting that some NPP medication use may be for health maintenance rather than for strictly curative purposes. Willingness to accept lay advice about medicines was positively associated with NPP medication use in Santa Cruz (r=.22), Meier (r=.18) and Copacabana (r=.18). Larger households are significantly associated with use of more NPP medications in Santa Cruz (r=.24).

None of the access to care variables, medical and pharmacy related, was significantly correlated with NPP medication use in Copacabana. However, Avail_Pharm_Serv is associated with NPP medication use in Meier (r=.16), suggesting that self-medication may be spurred on by the relative easy access to medications through the pharmacy. In Santa Cruz, where NPP medication is the most frequent, Avail_Med_Serv is negatively associated with NPP medication use (r=-.23), suggesting a possible substitution effect of self-medication when medical services are not available.

The relationships between income, education, and gender are similar for the three areas. In Santa Cruz, however, there is a significant negative relationship between age and education (r=-.22), a relationship which not significant in
the other two areas. This may be accounted for by the fact that the people who have lived in Santa Cruz for many years were originally "rural" residents. This area has become increasingly suburban only within the last decade. Typically, in rural Brazil, education levels fall below those of the more metropolitan areas (NEPP, 1988:280-281).

The relationship between perceived health status and number of symptoms is strong in all areas, although the strength of the relationship differs, being particularly strong in Santa Cruz \( (r=-.52) \) and weakest in Copacabana \( (r=-.23) \). The relationship between the Accept_Med_Serv and the Avail_Med_Serv is also strongest in Santa Cruz \( (r=.62) \) and weakest in Copacabana \( (r=.29) \). Similarly, a positive relationship between Att_Lay_Advice and Accept_Pharm_Serv is significant in the three areas. However, in Santa Cruz, the relationship is very strong \( (r=.49) \), in Meier it is the weakest \( (r=.19) \).

There is no relationship between Afford_Med_Serv and Accept_Med_Serv in Santa Cruz nor in Copacabana. If one was to expect a pattern that follows others present, the first relationship would be more strongly related in Santa Cruz than in the other areas. Only in Santa Cruz, the low SES area, is there a significant relationship between Afford_Med_Serv and income \( (r=.26) \).
Modeling Medication Use for Areas

Prescription Medication Use for Areas

The same procedures used in the previous analyses for PP and NPP medications use were applied to each area separately. All variables were entered into the regression equation, and the backward elimination selection procedure, with the significance level to stay in the model being .10, resulted in the prediction models presented in Table 4.30. The variable selection procedures resulted in different equations for each area. Not only are the variables different, but the amount of variance that is explained by each model is quite different as well.

**Copacabana:** The prediction model for this area includes three variables: age, Att_Med_Care, and number of symptoms. The number of symptoms has the strongest effect with Att_Med_Care exerting a positive influence about equal with age. The model accounts for 16% of the total variance in prescribed medication use for this area.

**Meier:** Household size, Accept_Med_Serv, Avail_Pharm_Serv, and number of symptoms were selected for this area. The model explains 45% of the variance. Controlling for Accept_Med_Serv, Avail_Pharm_Serv, and number of symptoms, elders living in larger households use fewer prescription medications. Similarly, when controlling for all other variables, those who perceive a greater availability of pharmacy services use fewer prescription
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<th>Std. Beta</th>
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<tr>
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<tr>
<td>No. Symptoms</td>
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R² = .16  N=138; df=137

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<td>.210</td>
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<tr>
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<td>.283</td>
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</table>

R² = .15  N=147; df=146

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<td>.156</td>
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R² = .45  N=151; df=150

*p < .05  **p < .01  ***p < .001, all others significant at p <= .10.
medications in Méier. However, the strongest relationships in the model are greater acceptability of medical care, controlling for all other variables, and increased number of symptoms, controlling for all other variables, both of which are related to increased use of prescription medications. Number of symptoms exerted the strongest effect (std. \( b = .283 \)).

**Santa Cruz:** The resulting prediction model for Santa Cruz included seven variables, five of which are significant at the \( p = .05 \) level. When controlling for all other variables, being female, older, with greater income, greater perceived acceptability of medical care, and more symptoms, all are related to an increase in prescription medication use. Greater perceived affordability of medical care, when controlling for the other variables (including income and health status), is associated with lower levels of PP medications. An examination of the standardized betas indicate that health status, by far, had the largest impact (std. \( b = -.417 \)). The model accounts for 45% of the variance in the sample.

**Non-Physician Prescribed Medication Use for Areas**

The models for NPP medication use for each area are presented in Table 4.31. The same procedures were followed for logistic regression for each area as for the total sample. All variables were entered into the equation, including a dummy variable to control for use of
prescription medications, with a significance level to stay in of \( p=0.10 \).

**Copacabana:** The resulting prediction model for Copacabana yielded a D score of 0.18. Controlling for prescription medication use, greater willingness to seek nonmedical advice about medications is associated with increased probability of self-medication, although the association is barely significant at the .10 level. The absence of any access variables suggests again that access may not be relevant issue for this area for NPP medication use and that there are perhaps other factors related to NPP medication use that are not being tapped by this study.

In Meier, controlling for PP medication use, health status and number of symptoms, greater Afford_Drugs is associated with decreased likelihood of NPP medication use, although the association is a weak one. An increase in number of symptoms, controlling for the other variables, is also associated with a decreased likelihood of NPP medication use. This model attained a D statistic of .41.

The prediction model for NPP use for Santa Cruz includes five variables, including the control for PP medication use, and explained a greater proportion of variance \((D=.48)\) than did the models for the other two areas. When controlling for PP medication use and all other variables, living in a larger household, being more willing to accept lay advice about medicines, perceiving pharmacy
### Table 4.31 Logistic Regression Model for Non-Physician Prescribed Medication Use for Elderly, Rio de Janeiro, by Area.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Area: Copacabana</th>
<th>Area: Meier</th>
<th>Area: Santa Cruz</th>
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<tr>
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<td>1.432</td>
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<tr>
<td>Att_Lay_Advice</td>
<td>1.018</td>
<td>- .432</td>
<td>1.712**</td>
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<td>Concordant pairs= 51.2%</td>
<td>Discordant pairs = 33.6%</td>
<td>Concordant pairs= 70.0%</td>
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</tr>
<tr>
<td>Discordant pairs = 33.6%</td>
<td>Tied pairs = 15.1%</td>
<td>Discordant pairs = 29.0%</td>
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</tr>
<tr>
<td>Tied pairs = 15.1%</td>
<td>(3995  pairs)</td>
<td>(3952 pairs)</td>
<td>(5096  pairs)</td>
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<td>Std. Error</td>
<td>Beta</td>
<td>Std. Error</td>
</tr>
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<tr>
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<td>1.018</td>
<td>- .432</td>
<td>1.712**</td>
</tr>
<tr>
<td>Concordant pairs= 51.2%</td>
<td>Discordant pairs = 33.6%</td>
<td>Concordant pairs= 70.0%</td>
<td></td>
</tr>
<tr>
<td>Discordant pairs = 33.6%</td>
<td>Tied pairs = 15.1%</td>
<td>Discordant pairs = 29.0%</td>
<td></td>
</tr>
<tr>
<td>Tied pairs = 15.1%</td>
<td>(3995  pairs)</td>
<td>(3952 pairs)</td>
<td>(5096  pairs)</td>
</tr>
</tbody>
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*\(p^2 < .05\)  **\(p^2 < .01\)  ***\(p^2 < .001\)
services as acceptable, and experiencing fewer symptoms are the best predictors of NPP medication use for elders in this area.

Summary

This study found that the majority of medications used by the elderly in the Municipio of Rio de Janeiro are physician-prescribed. Self-medication is not as prevalent as expected, given reports from previous studies for Brazil and other developing countries on medication use. Medication use rates varied among the areas, with the higher SES area residents using, on average, more prescribed medications, and low SES area residents using the least.

The most frequently used therapeutic classes of medications are antihypertensives, diuretics, and congestive heart failure drugs. The relative frequency of their use varies greatly from that evidenced in studies in the United States. The most frequently used therapeutic classes in self-medication are analgesics/antipyretics, antirheumatic drugs, digestants and diuretics. Home remedies used are primarily for these last two purposes.

Of the patient population characteristics (predisposing, enabling, and need), need variables were found to be consistently the most important in predicting both PP and NPP prescribed medication use. However, both need variables together were not always good predictors in the separate area analyses. The perceived acceptability of
the medical services was the only access variable that was found to be a predictor of use of physician prescribed medications. Enabling (access) variables were not found to be significant predictors for non-physician prescribed medication use in the aggregate data.

Residential areas were found to affect the interrelationships between predisposing, enabling, and need variables for both PP and NPP medication use. In the high SES area (Copacabana), for example, access variables were not significant predictors of PP medication use, but they were in the other two study areas. Access factors played a minimal role in NPP medication use in all three areas. Furthermore, different combinations of predisposing, need and access variables were found to be significant for each area. The ability of the prediction models to explain the total variance of the samples varied greatly among the areas. The following chapter discusses these results, and the limitations of the study, in greater detail.
CHAPTER 5
DISCUSSION AND CONCLUSION

Medication Use Among the Brazilian Elderly

There is a caricature in Brazil, recognized by all, of the fellow who takes a drug for every problem and a drug for everything that is not yet a problem. This is the fellow who visits the pharmacy once a week to ask "What's new?". There is also the popular figure of the bulista, the drug information package insert junkie. These two figures, however humorous in their representations, may indeed reflect some prevailing attitudes and behaviors in Brazil. But not, apparently, among the elderly.

The results from this study suggest that self-medication may not be as prevalent among the elderly as for other segments of the population in Brazil. The proportion of elderly who use at least one medication (prescribed or non-prescribed) in this study (88.1%) and the average number of medications used (3.20) is roughly consistent with some previous studies in the United States (cf. May et al., 1982; Darnell et al., 1986; Stoller, 1988; Hale et al., 1987). However, only 18% of all medications taken by this Brazilian sample were reported to be NPP, compared to 31% in a British sample (Cartwright and Smith, 1988:16-17) and 30%
for the US (Simonson, 1984:14-15). Use of homeopathic medications, which were all reported to be prescribed by a homeopathic physician in this sample, was also less than expected, given conventional wisdom and reports of increasing use among the general population of all socioeconomic levels (Soares, 1987).

There are various possible explanations for the low rate of NPP medication use among this elderly sample. Younger, working adults with less time to go to a physician, for example, may be more likely to self-medicate, especially for apparently minor and transient ailments and those associated with the medicalization of "daily living problems" (Temporao, 1986:140-146, 157). Mothers are also likely to medicate their ill children with products obtained without a prescription (Greenhalgh, 1987; Hardon, 1987; Haak, 1988). The elderly in this study, especially the retired, had few time constraints. In addition, 86% of the elderly had at least one regular physician, and 80% had at least one prescriber. In addition, symptom experiences were more likely to be attributed to normal aging, and not "illnesses" per se. Those elderly who were taking medications for chronic and/or degenerative conditions were particularly cautious about deviating from their physician's recommendations.

Most of the medicines that were used without a prescription were for relatively mundane or banal purposes.
As in studies elsewhere, analgesics comprised a significant portion of NPP medications used by the Brazilian elderly. However, in contrast with the United States, where there would appear to be a "vitamin/mineral supplement culture" (one of the most common therapeutic classes in self-medication), use of "industrialized" vitamins in the study population was found to be relatively infrequent. Among the elderly in this study there was a great concern for maintaining a good appetite, and having a diet with plenty of fresh fruits and vegetables\(^1\) (many participants were not aware that some of the medications prescribed by their physician contained some vitamins). Similarly, many of the home remedies that the elderly in this sample used were for the purposes of digestive aids and have choleretic properties.

In the few cases where more potent drugs were used without a physician’s prescription, the patients were confident that a physician would have prescribed the same medication. For example:

A 76 year old employed machine operator (in Méier), began to self-medicate after consulting with a balconista about what medications other people use for symptoms he had been experiencing. For more than four years, this gentleman had been using methyldopa (.25 mg) on an "as needed" basis to treat his (undiagnosed) high blood pressure,

\(^1\) Many of the elders interviewed by the principal investigator mentioned that they had relatives who had died from tuberculosis, and they were particularly concerned about being too thin and weight loss, symptoms they associate with TB.
and digoxin (.25 mg) for his (undiagnosed) heart condition, once a day, for three years. He reported no current illness symptoms and considered himself to be in good health.

A 68 year old man (Copacabana) reported that he had been using Stugeron (cinnarizine), ever since he had participated in the original clinical trials for the medication some 20 years ago. He was convinced that since it appeared to do him no harm, and it is a relatively inexpensive medication, there was no reason to stop.

In general, the attitudes of the elderly toward their medications were of respect for their role in treating serious illnesses, and of respect for being potentially dangerous if used incorrectly. These attitudes, together with a great faith in the physician's ability to diagnose correctly and prescribe appropriately, was reflected not only in the relatively low rate of NPP medication use, but also in the tenacity with which some people kept prescriptions active. There were several examples of how drug regimens were made potentially dangerous by continuing a prescription that was no longer needed. The following are some examples:

A 74 year old woman (Santa Cruz) had been taking a daily dose of chloroquine (180 mg.) for nearly eight years, since a physician last prescribed it to treat malaria.

A 70 year old man (Méier) continued to take the brand Delacoron (verapamil), prescribed for him 17 years ago, even after a different physician prescribed the generic verapamil 12 years ago. No one told him to discontinue the Delacoron.

An 83 year old woman (Copacabana) received a prescription for flurazepam (.30 mg.) to help her get to sleep after she became widowed, more than 10 years ago. She continues use it daily, but has
had to increase the dose to .60 mg. in order to get any effect.

In most cases, it is probable that the physician simply neglected to tell the patient that the treatment was temporary. Because these medications can be obtained at the pharmacy without presenting an updated prescription, the unwitting patient can easily continue the treatment indefinitely. In the patient's mind, s/he is continuing to use a medication that is prescribed by a physician.

The problems of polypharmacy associated with the consultation with more than one prescribing physician are likely to be prevalent in this population. At the time of the interview, half of the sample reported having only one prescriber, and one-third of the sample reported having more than one physician prescribing a medication for them. This is in contrast with an urban elderly sample in the US in which 75% of the sample had only one prescriber (Ostrum et al., 1985). The situation is only exacerbated by the unnecessary continuation of old prescriptions. Without the coordination of drug therapies, either by a physician or by a pharmacy keeping prescription records, the probability of drug-drug interactions, drug duplications, and conflicting therapies increases. One blatant example includes the following:

A 76 year old woman (Santa Cruz) consulted three different general practitioners successively over a period of five years. Five years ago, the first physician prescribed a laxative (mineral oil, agar agar, phenolphthalein) to be taken once a day. At
about the same time she began to self-medicate, daily, with a naturopathic laxative recommended by a friend. Use of either of these alone also may affect the disposition other drugs being used, provoking toxicity or subtherapeutic levels. Two years later, a second physician prescribed a diuretic, cinnarizine, and a vascular vasodilator (flunarizine) to treat "circulation problems" and "dizziness", and dexamethasone for an "itch in the ear". Four years later (one year prior to the interview), a third physician prescribed Riopan and Mylanta Plus (to be taken everyday, twice a day) to treat her "belly aches" (which may have been caused by the dexamethsone). She continues all therapies, reported her health status to be "normal", notwithstanding numerous symptoms reported. The prolonged use of laxatives or antacids (especially aluminum-based antacids like Mylanta and Riopan) may affect bone strength, and use of either may also affect the therapeutic effectiveness of other medications being used.

Examples such as those mentioned above highlight some of the difficulties and special considerations required for the definition and operationalization of self-medication measures in a context like Brazil's. There are implications for both research and for patient education efforts aimed at reducing the incidence of inappropriate self-medication. A mutual understanding of what is considered self-medication is fundamental.

Health Services Utilization and Medication Use

In general, studies that used the HSU framework have been able to explain, on average, about 25% of the variance of the dependent measures in the models (Wolinsky et al., 1989). When applied specifically to medication use, the results have been similar. For PP medication use, Bush and Osterweis (1978), who included a perceived availability of care measure, were able to explain 29% of the variance for
their sample of American adults, but only 6% of the variance for non-prescription medication use. The study by Sharpe et al. (1985), which included a measure of perceived availability of pharmacy services, was able to explain 28% of the variance for the prescription medication use in their rural elderly sample, and 14% of the variance for OTC medication use. In the present study of the urban and suburban Brazilian elderly examining perceived access to medical and pharmacy care, the model for the aggregate data explained 27% of the variance for physician prescribed medication use, and 33% of the variance for non-physician prescribed medication use.

Patient Population Characteristics and Medication Use

The two models of medication use (PP and NPP) that emerged for the aggregate data were quite distinct. Of the predisposing variables examined in this study, gender, age, and income were found to be significant predictors of PP medication use, when controlling for other effects in the model. Household size and attitudes towards lay advice about pharmaceuticals were the only predisposing variables identified in the model as significant predictors of NPP medication use.

As expected, of the patient population characteristics identified in this study, the need variables (number of symptoms and perceived health status), were the major predictors of medication use. Perceived health status was
inversely related to both PP and NPP medication use, whereas a greater number of symptoms experienced was associated with increased use of PP medications. However, although the number of symptoms experienced did not have a significant bivariate relationship with NPP medication use, it did exert a significant negative effect on NPP medication use, when all other variables in the model were controlled for, including prescription drug use. The decision to control for PP drug use was based on the postulate that NPP would likely be discouraged by more frequent physician visits, and the assumption that use of PP medications indicates physician contact. The results from this study appear to support this, suggesting that the more symptoms a person experiences, the more ill s/he is likely to be, the more likely s/he is to seek medical attention, and, hence, to receive a prescription rather than to self-medicate. A more precise interpretation of this finding is hindered by a lack of a measure of symptom severity and actual morbidity. Haug et al. (1989), for example, found that measures of self-assessed health were related to self-care (including self-medication) only for those with less severe symptoms. Furthermore, given the cross-sectional nature of the data, it is not possible to determine a causal relationship (i.e. symptoms as a result of or precursor to drug therapy).

The finding that need variables emerge as strong and consistent predictors of prescribed medications use must be
carefully interpreted. In the case of medical services, for example, Aday and Anderson (1981) have argued that the primacy of need characteristics as predictors of utilization indicates that there is equitable access to care (i.e., those who need care, get it). However, Wolinsky et al. (1989) have argued that such findings alone cannot be interpreted as an indicator of equitable access to care. The implication of this debate emerges in the following discussion of findings for the separate study areas.

**Access to Care and Medication Use**

In this study, the perceived availability and the perceived affordability of medical and pharmacy services, and drugs were not significant predictors of either PP or NPP medication use for the aggregate data. These findings support the observation that the public health care services (including INAMPS) in Rio de Janeiro do help to eliminate these barriers to obtaining medical care. These results are also consistent with previous utilization studies for the general population for the region, as discussed in Chapter 2 (IBGE, 1989) that indicated that financial considerations did not keep patients from seeking care when needed. Time barriers (including waiting time) were probably less significant for elderly than for the general population. Researchers in the United States have also questioned the affordability measures in predicting physician and hospital utilization since the instigation of Medicaid and Medicare,
programs designed to reduce financial barriers to care (Wolinsky and Coe, 1984).

There is some evidence to suggest that self-medication may be a substitute and/or a supplement for seeking medical care and for prescription medication use. Patients that found the quality of their medical care wanting (Accept_Med_Serv) tended to use more non-physician prescribed medications. Patients who were more willing to accept lay advice about medications were also more satisfied with the pharmacy services they receive, and patients more willing to accept lay advice about medications were more likely to self-medicate.

Of the enabling access variables that were evaluated, only perceived acceptability of medical care was found to be a significant predictor of prescription medication use for the aggregate data. When controlling for area and other significant predisposing (age, gender, income) and need variables, the more the patient perceived the quality of medical services to be acceptable and satisfactory, the more likely s/he was to use prescription medications. Self-medication, therefore, may be a substitute for formal care when medical services are considered unsatisfactory in ways unrelated to their cost to the patient or their availability. However, without more specific information regarding illness history (e.g., severity of condition, seeking alternative treatments, and so on), the nature and
direction of the relationship cannot be conclusively determined.

This study measured the number (volume) of prescribed medications used, and not the number of prescriptions received, possibly obscuring some significant aspects of the relationship between affordability of medications and availability of services. Some individuals reported purchasing medications for only a portion of the prescription they received. Examples include the following:

A 66 year old man (Santa Cruz) had received a prescription for four medications (Higroton, Organo Cerebral, Stugeron, and Theragram M), but he could not afford them. He reported using no medications at all.

A 74 year old man (Santa Cruz) received a prescription for Drenol (hydrochlorothiazide), Adalat (nifedipine) and aspirin. He is only using Drenol, because he said he could not afford the other medications.

It is worth noting that in the few cases that were documented of prescriptions received, but not used (due to high cost to the patient), the individuals did not substitute with other drugs.

**Access to Care and Medication Use in Areas**

The increased specificity obtained by examining each residential area separately allowed for the important relationships among predisposing, enabling, need, and use variables to emerge. In particular, the utility of examining each area independently was revealed with the finding that the significance of the different dimensions of
perceived access to care in predicting medication use varied for each area.

The hypothesized access-oriented behavioral model was much more effective in explaining the variance in the lower SES area (Santa Cruz) than for the other two areas, for both PP and NPP medication use, explaining 45% and 48% of the variance for each, respectively. In Copacabana, the prediction model for PP medication use explained 16% of the variance, and NPP model explained 18% of the variance. The PP model for Meier explained 15% of the variance, and the NPP model explained 41% of the variance.

In high SES, metropolitan Copacabana, with a high concentration of medical and pharmacy services, perceived access to care was not related to medication use. In the multivariate analysis, attitudinal measures emerged as more important predictors for both NPP and PP medication use in this area. Other critical factors are clearly not being addressed in the model for this area. For example, the role of private health insurance, particularly in this area, may be significant. It may be that the level of medication use is more closely related to the particular prescribing habits of private physicians (not constrained by the national formulary) versus physicians of public institutions or to the kinds of physicians (specialists) most frequently visited by patients in this area. These are questions yet to be investigated.
In Méier (where medication expenses were proportionately the greatest of the three study areas), together with health status and symptoms, the perception of drugs being more affordable is related to a decreased likelihood of self-medicating. There was no effect with prescribed medication use. Patients may be less willing to spend "additional" money on medications that a physician does not recommend. The inverse of this relationship (the perception of medications being less affordable is related to an increased probability of self-medication, all else being equal) is compelling. This may actually be reflecting the resort to the use of home remedies rather than to the purchase pharmaceuticals without a prescription.

The perceived acceptability of medical services was a significant predictor of PP medication use in both Meier and Santa Cruz, confirming the notion that patients who are more satisfied with the care they receive are more likely to use them. In Santa Cruz, however, this included a control for the perceived affordability of medical services. In Santa Cruz, after controlling for age, gender, income, need variables, and acceptability of medical services, the perceived affordability of medical services was a negative predictor of PP medication use. This is likely to reflect an interaction effect with health status, implicit in the measure of affordability. Those who perceived care to be more costly included patients who delayed seeking care when
needed due to financial constraints. A healthy person would not have delayed seeking care, for whatever reason, if there was no need.

The perceived acceptability of pharmacy services was a significant predictor of NPP medication use in only in Santa Cruz, after controlling for attitudes towards accepting lay advice about drugs and household size and including prescription drug use. This is consistent with previous studies in Brazil that depict the pharmacy as having a central role in popular medicine as an acceptable alternative source for care in health seeking, particularly in more deprived or remote areas, both urban and rural (Loyola, 1983; Haak, 1988).

Need characteristics were found to be important determinants of PP medication use in all three areas. As mentioned previously, there are some limitations with respect to the interpretation of the relationship between need characteristics, access to services, and utilization measures of the HSU model. For example, Wolinsky et al. (1989), in their study of ethnic differences in physician and hospital utilization, found that need was more important in predicting the demand for physician’s services among minority elderly than among majority elderly. The researchers suggest that equivalent coefficients (both standardized regression and multiple correlation coefficients) would indicate equitable access between
groups. However, without more precise measures of need, such conclusions regarding equity may be premature. Furthermore, alternative sources of care are not taken into consideration in such conclusions. In the specific case of medication use, however, there are the four alternatives in use (use of PP medications, NPP medicines, simultaneous use of both, or no medicines). Although the present study was able to capture these alternative, the overall conceptual model does not allow for the evaluation of the adequacy of care (or, in this case, drug therapy), as evidenced in the rationing by patients of physician prescriptions due to financial difficulty.

**Limitations**

If a measure is only as good as the yardstick used, the first limitation in this study is the quality of the instrument. The instrument used has not been used previously and so the reliability and validity is limited to the results obtained in this study. The problem of translating items into exactly parallel items in Portuguese and items relevant to the Brazilian health care context make even items commonly used in the United States essentially brand new. Further application and review can only help to refine the instrument.

The correlation of measures of perceived access with more traditional measures also remains to be examined. This includes the effect of using personal income versus family
income, as well as measures of time and distance travelled to receive care, and number of facilities located within a given area. However, this requires a valid measure that was not afforded at the time of the investigation given the instability in service availability (number of operating hospitals, number of available hospital beds, and other physician services) at the time of the investigation. Use of existing "official" statistics about the availability of such services alone would have been misleading. These concerns are left for future research.

In this study, self-medication was broadly defined to include the use of legend and non-legend pharmaceuticals without a physician's prescription as well as other medicines (home remedies). This project did not distinguish between categories of legend and nonlegend drugs. This precludes comparison of the results in this study with studies conducted elsewhere which distinguish between prescription and OTC categories. Although the extent to which the self-medication that was reported may be considered dangerous was not directly examined in this study, it is of relevance to the issue of the unrestricted access to many potent legend medications. Given current pharmacy practice standards in Brazil, the OTC verses legend distinction is, for all practical purposes, a moot concern. However, from a health policy perspective, an evaluation of the use of medications in these categories is required for
the determination of the of hazardous self-medication occurring as a result of the relaxed commercialization of drugs. Data gathered in these interviews could be examined according to the legend/nonlegend distinction in future analyses.

The findings are generalizable only to the non-institutionalized elderly in the Municipio of Rio de Janeiro, and generalizations to the institutionalized elderly and to other Brazilian municipios is limited. The variables may be examined in other areas and other age cohorts, thus allowing for comparison of results. This might be necessary especially for the increased understanding of the importance of access to care in medication use in different contexts.

There are no interaction effects evaluated in this study. Because different predictor variables emerged for each area, this suggests that there may be significant interactions with area, and there are likely to be others within each area. However, the examination of interaction effects beyond those with area lies beyond the scope of the present study.

Timing was of the essence in this study. The timing was unique in that interviews began soon after and throughout a very turbulent period of crisis regarding the price and supply of medications, many of which were important to elderly patients. As a result, there was
likely to be an effect of that historical period on the responses. Further analyses may help determine if there was an effect of the point in time the data were collected and the effects it had on the results.

Several restrictions on the interpretation of results emanated from limitations imposed by the use of cross-sectional data in conjunction with the general HSU conceptual model. Notwithstanding the temptation to infer process and causality, the relationships revealed in the study can only suggest several avenues for future investigation.

Policy Implications

Health Care and Medication Use among the Elderly:

Access to care: In general, the study indicates that barriers to care related to the perceived supply of services (availability) and price (affordability) are minimal for the aggregate Rio de Janeiro data. Rio de Janeiro is a relatively wealthy state and is endowed with a greater health care resources than many other regions in Brazil. Within each area there are various health care alternatives, including services of the public medical and health care sector, despite their various shortcomings. The dimensions of access related to the cost and availability of services, therefore, appear not to be significant barriers to care. Instead, the perceived quality of the services received (or, patient satisfaction) is likely to be a better predictor of
health services utilization in general, and of medication use in particular, in the Brazilian urban/suburban context.

As the areas studied were not homogenous, neither were the elderly within the areas. With the possible exception of the low SES area, Santa Cruz, the small amount of variance explained by the prediction models suggests not only that there are factors not being tapped, but that the elderly are more heterogenous in some areas than in others. The findings of this study support the notion of the utility of the investigation and comparison of smaller geographical areas for the discovery of meaningful variables and their relationships. Only by conducting an independent analysis for each study area, rather than relying on the results of the aggregate data that controlled for area, was the relative importance of some access to care measures (for both medical and pharmacy services), their interrelationships and relationships with other variables in the model, observed. Clearly, there is much to yet to be discovered in this respect, especially with regard to the relationship between medical and pharmacy services.

Medication use: Medication use rates in this sample approximates that of some elderly populations in the more developed countries. Given the average per capita medication use rates for the general Brazilian population, these elderly are apparently high volume users of medications. There can be no doubt that the elderly are a
patient group that merits special attention with respect to medication use precisely because of their increased vulnerability to various types of drug related problems.

Although similar therapeutic classes of medications are used, their rankings differ considerably in Brazil from that in the United States. This may be due to underlying epidemiological differences (morbidities, including culture-bound syndromes) between the elderly populations, differing prescribing habits, or other sociocultural factors.

The finding of a low frequency of self-medication in this sample was unexpected, although it is suspected that, technically, more people were probably self-medicating than were reported. Some elderly clearly had received a prescription at some point, but were never given a treatment endpoint (or they forgot, etc.). They consider themselves to be using prescribed medications, and not self-initiating drug treatment. These results suggest that, in the absence of precautionary measures in community pharmacies, physicians should be sensitive to the possibility of the unnecessary continuation of old prescriptions among their elderly patients.

The converse (patient’s prematurely discontinuing treatment) may also be a problem for this population, although not specifically addressed in this study. In the absence of patient-specific dosage packaging of medications, it is conceivable that once the patient finishes the last
dose of a package, s/he terminates treatment prior to obtaining the desired therapeutic response. Only two such cases (one involving an antibiotic and the other an antihypertension medication) were identified in this study. Given the chronic nature of many of the illnesses and therapies of the elderly, this issue merits further investigation.

A significant proportion of the household health-related expenses is medication expense. In the study sample there was considerable concern expressed by the participants regarding the availability and cost of commonly used medications during the crisis at the time of the study. It was apparent that many elderly who were eligible to receive government subsidized medications (through CEME) free of charge, did not receive them (indeed, many of the drugs used by the elderly surveyed are theoretically available as CEME products). There may be various reasons for this besides the scarcity of CEME products in this region. They may include, for example, "inconsiderate" physician prescribing (when a physician simply does not bother to verify whether a CEME product is appropriate), various patient-specific prescribing considerations (especially in the case of convenient combination drugs), or patient preference for name brand products. It is certainly conceivable that pharmacy personnel have a role in promoting a particular product over the other, especially if price differences are
significant enough to make a difference in any forthcoming commissions.

Pharmacy Health Care

The elderly are an interesting group to interview regarding pharmacy services. They have the advantage of experiencing the changes in pharmacy practice over time and are able to compare their recollections of the past with their perceptions of the present. The elderly who were immigrants were also able to compare the way pharmacy was practiced in "the old country" (usually Portugal) with pharmacy practice in Brazil.

The elderly in this study had very decided opinions about pharmacy practice in Brazil and lamented the near-extinction of the trusted "farmacia do bairro". Specifically, the majority of the elderly in this study (85%) felt the loss of the trained and qualified pharmacist in the pharmacy, even though the formulating role of the pharmacist is practically obsolete. The thin relationship between the pharmacy personnel and their elderly clients was evident in this study. More than two-thirds reported not knowing the name of anyone who worked in the pharmacy, although 33% reported that someone in the pharmacy knew their name. The primacy of price considerations and the tendency to "shop around" for the best bargains in this sample, together with medication scarcities, encouraged the patronizing of more than one pharmacy. Good relationships
cannot be established and fostered without frequent and regular contacts between the pharmacist (or pharmacy personnel) and the client.

The pharmacist is still considered to be a valuable source of information, especially for patients with limited access to medical care, lack of caregivers (responsible friends and family), and in the case of illiteracy. The pharmacist was also portrayed as a partner in health care with the physician, providing specialized information, although in an unequal partnership with the physician in charge. It is from this partnership relationship that the pharmacist derives most of his/her respect.

Although there is respect for the profession as the most knowledgeable about medications, this respect does not necessarily extend to contemporary community pharmacy practice. Distrust and some skepticism of pharmacy services was particularly evident when participants interviewed used terms such as "false pharmacists" to describe pharmacy personnel qualifications, and phrases such as "they only want to sell you something" to describe the motivations of pharmacy personnel in general. These descriptions are in sharp contrast to those used for a "true pharmacist", who would be most concerned with the patient’s welfare.

There is, nonetheless, a clear dissonance between the patient’s perceived ideal and perceived real role of community pharmacy. Specifically, there is a some
ambivalence about having a pharmacist available to provide more professional, patient-oriented services (such as follow-up on prescription drug use). This is due in part to the idea that pharmacists do not usually have sufficient patient-specific information, even if they are the most qualified drug experts. Some concern was raised not so much about the ability of the pharmacist to perform this function, but rather about the logistics of doing so, including the large number of clients, and the business (movement) in the pharmacy. However, as the study showed, although most of the elderly patronize the same pharmacy most of the time, the primary motive is not for the professional (or personal) services they received, but rather for the price of the medications sold. Therefore, it was not surprising that there was considerable concern over the possibility (probability?) of the pharmacist charging an extra fee for these services.

The conflict between the ideal and the real rages strongly within the pharmacy profession as well. It is ironic that in Brazil, where pharmacists have been subsumed into industry and have had no relationship with the public for many years, there is a renewed professional interest in returning to the community, while the future of community pharmacists in some more developed countries has been questioned (Hepler and Strand, 1990). The challenge of offering more professional services to the community has
become a matter of policy for the national professional pharmacy association, the Conselho Federal de Farmácia (CFF), yet many barriers have been identified. These include the cost to the pharmacy of employing a pharmacist who has become accustomed to the salaries offered in industry.

That the distinction between a licensed pharmacist and a salesperson was not as meaningful to some elderly clients as to others may have some positive implications for the difficulties the CFF expresses regarding the feasibility of having a greater professional presence in the community. Some balconistas have many years of work experience, they pick up on some aspects of the "trade", and do adopt a professional posture toward their work. A more complete evaluation of this important figure in community pharmacies in Brazil may reveal practical alternatives to the presence of a full-time professional pharmacist in the pharmacy. These may be akin to the oficiales or prácticos (assistants trained through practicum or apprenticeship), but with a minimum of formal training required to accomplish the basic goals of the CFF of preventing certain drug-related problems that do not require the exercise of professional judgement. Future research may focus more on client expectations of pharmacy services with an eye to developing an "appropriate" assistant. Until then, the prevalence of prepackaged dosage forms and the lack of control or verification of
prescription status in the pharmacy (with refills continuing indefinitely), casts a particularly significant responsibility on physicians to confirm that proper drug therapy is currently appropriate for all of their patients. It will be interesting to see if the recent growth of a consumer protection movement will have any real impact on drug use related problem. The potential for a change in pharmacy practice can only increase if the efforts of the CFF and the consumer movements were combined.

Conclusions

The large body of research on modern pharmaceuticals in developing countries confirms the central role of medications in every day health seeking behavior, their potential benefit and harm to these populations. This research also indicates that the extent to which generalizations about factors affecting drug use from more developed countries can be applied to the situations of the lesser developed countries, and even to situations from one developing country to another, is limited. Differences in the structure and organization of formal and informal health care systems between and within countries which influence medication use behavior, particularly self-medication, are difficult to control for, not well understood, and yet critical to an understanding of health services utilization (Kroeger, 1983; van der Geest, 1984). In addition, the rather precarious status of health care services in
countries like Brazil is not conducive to some of the approaches used in examining access to care in the more developed countries. This study aimed to address some of these issues for the Brazilian context.

The primary goal of this project was to assess the relative influence of perceived access to medical and pharmacy services in determining both physician and non-physician prescribed medication use in a elderly sample in the Municipio of Rio de Janeiro. The availability and affordability of care were not found to be significant factors in prescribed medication use. It may be that, in this region, the combination of a relatively strong private and public health sector have helped to reduce these as barriers. The most important dimension of access to affect use was the patient’s perception of the quality of medical services (acceptability). The positive relationship between patient satisfaction, health services utilization, and positive health outcomes should be the intent of any health care system.

This study revealed that different dimensions of perceived access to care were significant factors in predicting medication use, depending on the area. While SES status and location were the significant characteristics that differentiated the study areas, the results indicate that behavior was affected by more than these two variables alone. Studies of smaller geographical areas within larger
regions should continue to explore the dynamic between area, individual, and society.

A secondary goal of this study was to describe the medication use of the sample. The medication use rates in this population matched those of the elderly in the more developed countries, although there were differences in therapeutic indications for use of the medications used, and self-medication was relatively infrequent. Although only a superficial review of medication use was provided in this study, this information provides the basis for further examination and comparison of findings from other areas in Brazil as well as other countries. Indeed, this study confirms that the elderly in Brazil share many of the same health-related concerns of the elderly in some of the more developed countries. In particular, medication use plays a significant role in their health seeking.

The elderly provide a view to a past from which many lessons can be learned. The elderly also provide a view not to the future, but rather to many future possibilities. The growing importance of this population as users of health care services in many developing countries is evident. Comparative analyses of the experiences of the lesser developed countries with those of the more developed countries provide many clues not only for understanding behavior, but also for formulating relevant proactive policies to enhance the quality of care for all patients.
APPENDIX A
ITEM SELECTION CANDIDATES
ACCESS TO MEDICAL AND PHARMACY SERVICES
QUESTIONNAIRE ITEM SELECTION CANDIDATES

A. ATTITUDES TOWARD MEDICAL CARE

1. SKEPTICISM REGARDING THE EFFICACY OF MEDICAL CARE
   a. Most of the time, when people are ill, they will eventually get well without medical care
   b. Nearly all serious illness can now be cured.
   c. Someday, all serious illnesses will be able to be cured.
   d. It is best to let illnesses that are not very serious run their course without resorting to medical treatment.
   e. Doctors should continue to treat their patients even when they are unsure of what's wrong.

2. RELUCTANCE TO ACCEPT PROFESSIONAL CARE
   a. When doctors give patients advice, it is in the patient's best interest to do as he/she is told.
   b. When doctor's give a patient a piece of advice it is likely to create more problems that it solves.
   c. The patient should do everything the doctor tells him to do, even if he does not want to follow the advice.
   d. When the doctor advises a patient to do something that the patient does not want to do, the patient should talk to another doctor, and then decide what to do.

3. BELIEF THAT THE INDIVIDUAL UNDERSTANDS HIS/HER OWN HEALTH BETTER THAN THE PHYSICIAN
   a. When I feel ill, I usually know what's wrong with me.

---

1 Items are adapted from Ware and Snyder (1975) and MacKeigan and Larson (1989).
b. When I feel ill, I can usually cure the problem without seeing a physician.

c. Doctors make us think that medicine is more complicated than it really is.

d. Most people, if they had the right books to look up information, could do just as good a job as a physician in treating illness.

e. Experience with illness makes people a lot better at treating sickness than going to medical school.

B. ATTITUDES TOWARDS DRUGS

1. SKEPTICISM REGARDING THE EFFICACY OF DRUGS
a. Most of the time, when people are ill, they will eventually get well without drugs

b. Nearly all serious illness can now be cured by drugs.

c. There will always be some serious illnesses that cannot be cured by drugs.

d. It is best to let illnesses that are not very serious run their course without resorting to drugs.

2. WILLINGNESS TO ACCEPT NON-PHYSICIAN ADVICE ABOUT DRUGS
a. When a pharmacist gives advice about drugs, it is usually good advice.

b. It’s not always a good idea to try the remedies that pharmacy clerks prescribe.

c. My friends often have good advice about medications they have taken for health problems like mine.

d. It is usually best not to deviate from the doctor’s advice about drugs.

e. I have bought/tried a medicine because I saw it advertised for a particular problem I have.

3. BELIEF THAT DRUGS ARE SAFE
a. Most drugs are dangerous.
b. Drugs requiring a physician's prescription are dangerous.

c. There are some drugs that can make you worse than the illness itself.

e. Medicines you can buy in a store without seeing a doctor are not dangerous.

4. BELIEF THAT EXPENSIVE MEDICINES ARE BETTER

a. Less costly drugs are worthless (do nothing).

b. If you want to get a drug that really works, you will probably have to pay dearly for it.

c. Drugs that cost more than others are made with better quality (or, "fresh") ingredients.

d. Name brand products are generally better than generic drugs.

e. Generic drugs are not always made with "fresh" ingredients.

C. ACCEPTABILITY OF MEDICAL CARE

GENERAL:

a. For the most part, I am satisfied with the medical care I receive.

b. Most people in this area receive medical care that could be much better.

c. There are many things about the medical care I receive that could be much better.

SPECIFIC:

1. COMPLETE FACILITIES

a. I think that my doctor's office is has all the necessary equipment and facilities to provide complete medical care.

b. My doctor's office it adequately equipped to provide the kind of care I need.
c. The medical care available to me should be more complete

2. FOLLOW-UP CARE (using information)
   a. My doctor has ignored things about my medical history when trying to make a diagnosis.
   b. When I see my doctor for something new, he usually checks up on the problems I’ve had before.
   c. I think that my doctor often forgets to look at my records.

3. INFORMATION GIVING
   a. Doctors should be more careful to communicate to the patient about illness and treatments.
   b. My doctor is careful to explain what I am expected to do.
   c. My doctor seldom explains why he orders lab tests and x-rays.
   d. My doctor never tells me when and how to take the medicine that is prescribed.
   e. My doctor is careful to explain the side effects of the medicines he/she prescribes for me even when I don’t ask.
   f. My doctor does not always explain the medical treatment choices open to me.
   g. My doctor always explains the nature of my illness so that I can understand the problem.

4. PREVENTIVE MEASURES
   a. My doctor has asked about what foods I eat and explains what foods are best for me.
   b. My doctor has told me what I should do to avoid illness.

5. PRUDENCE/DISCRETION
   a. When my doctor is unsure about what is wrong with a patient, he/she would refer to a specialist.
b. It is possible that my doctor might recommend surgery (an operation) when another treatment would be better.

c. My doctor has continued to treat some of his patients even when he/she was unsure about what was wrong with them.

6. MODERNITY

a. In general, the medical care in my area is somewhat out-of-date.

b. My doctor keeps up on all of the latest medical discoveries.

7. THOROUGHNESS (INFORMATION TAKING)

a. I think that my doctor forgets to ask about the problems I’ve had in the past.

b. Sometimes my doctor misses important information when I talk to him/her.

c. My doctor will examine his patients carefully before deciding what is wrong.

d. My doctor lets his/her patients tell him/her everything that is important.

8. CONSIDERATION

a. My doctor does not seem to care if he hurts me during an examination.

b. My doctor never keeps his patients waiting very long.

b. My doctor takes the feelings of his/her patients into consideration.

d. My doctor does his best to keep his patients from worrying.

9. COURTESY/RESPECT

a. The people who work in my doctor’s office are always courteous and friendly.

b. My doctor always treats his/her patients with respect.
c. Sometimes I think that my doctor acts like he/she is doing me a favor by treating me.

D. **AVAILABILITY OF MEDICAL CARE**

1. **ACCESSIBILITY**
   a. I can reach my doctor to ask questions about my health at any time.
   b. If I can’t reach my doctor, I can reach another doctor to ask questions.
   c. If I have a health problem, I’m not always sure that I can get the care I need.

2. **CONVENIENCE**
   a. My doctor’s office hours are good for me.
   b. My doctor’s office is in a very convenient location.
   c. Getting to the doctor’s office is a problem.
   d. My doctor will make a house call if I ask.
   e. It takes a long time to get to my doctor’s office.
   f. I can usually get to see a doctor in the evening if I’m busy during the day.

3. **CONTINUITY OF CARE**
   a. I have had the same doctor for several years.
   b. My doctor treats others in my family.
   c. I see the same doctor every time I go for a consultation or examination.

4. **EASE OF APPOINTMENT**
   a. It’s usually easy to get an appointment to see my doctor right away.

5. **EMERGENCY CARE**
   a. In an emergency, I can always get a doctor.
b. In an emergency, it’s very hard to get to my doctor quickly.

6. SUPPLY OF DOCTORS
a. There is a noticeable shortage of general practitioners in this area.
b. There are enough doctors in this area that specialize.

7. SUPPLY OF HOSPITALS/CLINICS/LABORATORIES
a. More hospitals are needed in this area.
b. More clinics are needed in this area.
c. There are enough laboratories in this area.

E. AFFORDABILITY OF CARE
1. COST OF CARE:
a. Sometimes I delay going to see the doctor until I can pay.
b. I can pay all of my medical expenses.
c. Someone helps me pay for my medical expenses.
d. The cost of my medical care is reasonable
e. My doctor’s fees are too high.
f. The cost of laboratory tests and x-rays is too high.
g. There have been times when I have needed to see a doctor but did not because I could not afford it.
h. There have been times I could not afford to see a doctor, so I bought drugs to treat the problem myself.

2. PAYMENT MECHANISM
a. You can get emergency care easily even if you don’t have money with you.
b. It’s always cash in advance when I seek medical care.
c. My doctor will let me pay later if I'm short of cash.

3. INSURANCE (IF PATIENT HAS INSURANCE)
   a. My medical insurance pays for all of the medical expenses I have.
   b. I am happy with the coverage provided by my medical insurance.
   c. I think that my medical insurance should cover more things than it does.
   d. You don't get what you pay for with medical insurance.

F. ACCEPTABILITY OF PHARMACY SERVICES

GENERAL:
   a. For the most part, I am satisfied with the pharmacy/dispensary where I receive my medications.
   b. Most people in this area get pharmacy services that could be much better.
   c. I usually have to a pharmacist when I go to the pharmacy.
   d. There are many things about pharmacy services that could be much better.

SPECIFIC:

1. Complete facilities
   a. I think that the pharmacy I usually go to is complete with all the necessary facilities and medicines.
   b. My pharmacy sometimes does not carry the medicine I need.
   c. There is always a trained pharmacist in the pharmacy.
   d. Clerks who work in the pharmacy are carefully supervised by a pharmacist.
e. Clerks are usually well informed about medicines.

2. FOLLOW-UP CARE (PERSONNEL SPECIFIC)
   a. I think that my pharmacist forgets to ask about the medications I’ve had in the past.
   b. My pharmacist has ignored things my medical history when selling me a drug.
   c. Clerks are not usually interested in the health problems I’ve had in the past.

3. INFORMATION GIVING
   a. Pharmacists should be careful to communicate to the patient about treatments.
   b. My pharmacist is careful to explain what I am expected to do with my medicines.
   c. My pharmacist often explains why my doctors order and medicines and lab tests.
   d. My pharmacist is careful to explain the side effects of the medicines I buy.
   e. My pharmacist will explain the side effects of medicines even when I don’t ask.
   f. My pharmacist does not always explain the drug choices open to me.
   g. The pharmacy clerks do not always explain the drug choices open to me.
   h. My pharmacist always explains the nature of a drug so that you can understand how it will affect you.

4. PREVENTIVE MEASURES
   a. My pharmacist rarely suggests ways to keep from getting sick.
   b. My pharmacist asks what other medications I am taking so that I won’t mix drugs that I should not.
   c. My pharmacist asks what allergies I have to avoid allergic reactions.
d. My pharmacist recommends ways for me to recall to take my medicines when I should so that I won’t forget.

5. PRUDENCEDISCRETION
a. My pharmacist would never recommend an unnecessary drug.

b. When my pharmacist is unsure about what is wrong with a patient, he/she would refer to a physician or other specialist.

c. It is possible that my pharmacist might recommend one drug when another drug would be better.

d. It is possible that clerks recommend unnecessary drugs.

e. My pharmacist has continued to treat some of his patients even when he/she was unsure about what was wrong with them.

6. MODERNITY
a. In general, the pharmacies in my area are somewhat out-of-date.

b. My pharmacist keeps up on all of the latest drug discoveries.

7. THOROUGHNESS (INFORMATION TAKING)
a. My pharmacist does not ask questions about my problem before selling me a drug.

b. Sometimes my pharmacist misses important information when I talk to him/her.

c. Clerks frequently miss important information when I talk to them.

d. My pharmacist lets his/her patrons tell him/her everything that is important.

8. CONSIDERATION
a. My pharmacist does not seem to care if I don’t get better.

b. My pharmacist never keeps his patrons waiting.
c. The clerks do not seem to care if I don’t get better.

d. Clerks often keep the patrons waiting to be served.

e. My pharmacy takes the feelings of his patrons into consideration.

f. My pharmacist does his best to keep his patrons from worrying.

9. COURTESY/RESPECT

a. The people who work in the pharmacy are always courteous and friendly.

b. My pharmacist always treats his/her patrons with respect.

c. Sometimes I think that my pharmacist acts like he/she is doing me a favor by selling me a drug.

d. Clerks usually treat their patrons with respect.

e. Sometimes, pharmacy clerks act as though they are doing me a favor by selling me a drug.

G. AVAILABILITY OF PHARMACY SERVICES

1. ACCESSIBILITY

a. There are several pharmacies I could go to.

b. I can reach my pharmacy to ask questions at any time.

c. If I can’t reach my pharmacist, I can reach another pharmacist to ask questions.

d. If the pharmacist is not available, I can count on the clerks to help me.

e. If I have a health problem, I know I can get the drug I need at my pharmacy.

f. If I have a problem with a drug, I can get the help I need from the pharmacy.
2. CONVENIENCE
   a. My pharmacy's hours are good for me.
   b. My pharmacy is in a very convenient location.
   c. Getting to the pharmacy is a problem.
   d. My pharmacy will deliver to my house if I ask.
   e. It takes a long time to get to my pharmacy.

3. CONTINUITY OF CARE
   a. I hardly ever go to the same pharmacy for all my medications.
   b. I have had the same pharmacist for several years.
   c. My pharmacist knows (treats) others in my family.
   d. If more than one person in the family needs medicine, we have to go to different pharmacies (i.e., this in the event that some members are covered by a medical plan to receive medications at a particular dispensary, but others not).
   e. I see the same pharmacist every time I go for a consultation or prescription renewal.

5. EMERGENCY CARE
   a. In an emergency, I can always get a pharmacist.
   b. In case of emergency, I can always count on the pharmacy.

6. SUPPLY OF PHARMACISTS
   a. There are enough pharmacists in this area.

7. SUPPLY OF PHARMACIES/DISPENSARIES
   a. More pharmacies are needed in this area.

H. AFFORDABILITY OF CARE
1. COST OF CARE:
   a. Sometimes I delay getting a prescription filled until I can pay.
b. I need help to pay for my medications.

c. Someone helps me pay for my medications.

d. The cost of my medications is reasonable.

e. I have sometimes needed drugs but could not afford to buy them.

f. Sometimes I try to make my medicines last longer to save costs.

g. When I stop taking a drug and still have some left over, I save it for future use.

h. Sometimes, a friend or family member will lend me a drug they have so I don’t have to buy it.

i. I often loan medicines to friends who need them.

j. The price of prescription medications is very high.

k. The cost of non-prescription medications is very high.

l. I have had doctors recommend a drug but I did not take them because I could not afford them.

2. PAYMENT MECHANISM

a. You can get emergency medications easily even if you don’t have money with you.

b. It’s cash in advance when I need to buy my medications.

c. My pharmacist will let me pay later if I’m short of cash.

d. If you can’t prove that you can pay, you can still get the medicines you need at the pharmacy.

3. INSURANCE (IF PATIENT HAS INSURANCE)

a. My medical insurance pays for all of the medications I need.

b. I am satisfied with the coverage provided by my medical insurance with respect to medications.

c. My insurance only pays for "cheap" drugs.
APPENDIX B
INSTRUMENT
PROJETO
REMÉDIOS NA TERCEIRA IDADE

RIO DE JANEIRO, RIO DE JANEIRO
BRASIL
1990

Maria Andrea Miralles, MA
COORDENADORA

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College of Pharmacy
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em colaboração com o
Projeto de Epidemiologia da Terceira Idade
Instituto de Medicina Social, UERJ

Número do Questionário _______ _______
Área 1 (Copacabana) 2 (Meier) 3 (Santa Cruz)
Cluster _______ _______

Nome do entrevistado _____________________________________________
Endereço _________________________________________________________
Bairro ___________________________________________________________
Cidade RIO DE JANEIRO Código Postal _______________________________
Telefone _____________________________

Nome do entrevistador _____________________________________________
Data da entrevista ___/___/_______
Hora (Início) ___ ___ : ___ ___ Hora (Fim) ___ ___ : ___ ___
ENTREVISTADOR: Explique a organização do questionário.

SEÇÃO 1 - INFORMAÇÕES GERAIS

1. Sexo do entrevistado
   0. Masculino
   1. Feminino

2. Quantos anos o(a) Sr(a). tem? ______ anos

3. Atualmente, qual é seu estado conjugal?
   1. nunca casou
   2. casado/morando junto
   3. viuvo
   4. divorciado
   5. separado
   8. N.S.
   9. N.R.

4. Quantos anos de escola o(a) Sr(a). completou? ______ anos

5. O(a) Sr(a). está trabalhando atualmente? 0. Não
   1. Sim
   ______ horas/semana

6. Qual é/era sua ocupação principal? __________________________

7. Atualmente, quantas pessoas vivem com o(a) Sr(a). nesta casa?

   00. o entrevistado mora só _____ pessoas
   98. NS
   99. NR

8. Por favor, eu gostaria de saber, qual é a sua renda (dinheiro) mensal. Não preciso saber o valor exato, diga-me o valor aproximado do rendimento mensal que o(a) Sr(a). percebe regularmente.

   Entrevistador: caso haja mais de uma fonte, anote a soma destes valores. Atenção: valor líquido.

   rendimento mensal
   NA   7 0 0 0 0 0
   NS   8 0 0 0 0 0
   NR   9 0 0 0 0 0

9. Por favor, agora eu gostaria de saber o total mensal dos rendimentos das pessoas que vivem nesta residência. Não preciso saber o valor exato, diga-me o valor aproximado do rendimento mensal regularmente percebido pelas pessoas.

   Entrevistador: se o entrevistado vive sozinho e tem rendimento, repita o valor informado na Q.8. Se o entrevistado vive sozinho e não tem rendimento, marque NA.

   rendimento mensal
   NA   7 0 0 0 0 0
   NS   8 0 0 0 0 0
   NR   9 0 0 0 0 0

10. Quantas pessoas, incluindo o(a) Sr(a). e os empregados que moram na casa, vivem com esse rendimento familiar?
   _____ pessoas
   98. NS
   99. NR
11. O(a) Sr(a). se considera de que raça ou cor?

Entrevistador: deixa o entrevistado dar a informação livremente.

1. Branco  
2. Pardo  
3. Amarelo  
4. Moreno  
5. Moreno claro  
6. Negro  
8. NS  
9. NR  
7. Outro ______________________

12a. O(a) Sr(a). tem alguma religião ou filosofia de vida?

1. Sim  
0. Não (Entrevistador: se Não, vá para 012)

Qual?________________________________________

12b. O(a) Sr(a). pratica essa religião? 0. Não 1. Sim

13. Quando o(a) Sr(a). está doente ou precisa de atendimento médico, onde ou a quem o(a) Sr(a). normalmente procura primeiro?

00. o entrevistado não procura ninguém  
01. o médico da instituição pública que o entrevistado tem direito de utilizar  
02. médico particular  
03. médico de instituição privada  
04. médico em uma instituição de caridade  
05. enfermeira  
06. farmacêutico ou balconista de farmácia  
07. conselho de um leigo  
08. outros (especificar) ______________________

98. NS  
99. NR

14a. Quantos médicos e/ou pessoas não médicas o(a) Sr(a). consulta?

Entrevistador: especifique quais são: (ex: cardiologista, neurologista, homeopata...).

________________________________________

________________________________________

________________________________________

_____ (número) Total Favor escrever no outro lado da página se faltar espaço

14b. Quantos destes tem receitado algum remédio, de qualquer tipo, para o(a) Sr(a).?

Entrevistador: marque com "X" os que tem receitado remédios.

_____ (número)
15. Quantas vezes o(a) Sr(a). foi a um consultório médico ou hospital nos últimos trinta dias?
   ______ vezes 98. NS 99. NR

16. Por favor, eu gostaria de saber aproximadamente quanto (dinheiro) o(a) Sr(a). gastou em despesas médicas últimos trinta dias?
   despesas 8 0 0 0 0 0 0 .00
   NS 9 0 0 0 0 0 8
   NR

17. Em geral, quem paga a maior parte da despesa médica do(a) Sr(a)?
   1. instituição pública.
   2. o entrevistado.
   3. a família ou parente (ex. marido, filho, sobrinho, cunhado, etc.)
   4. seguro/plano médico particular/privado
   5. outro (especifique) ____________________________
   8. NS 9. NR

18. Quantas vezes o(a) Sr(a). se consultou com uma pessoa não médica sobre um problema de saúde nos últimos trinta dias?
   ______ vezes 98. NS 99. NR

19. Em geral, quando o(a) Sr(a). precisa de um remédio, onde o consegue?
   1. o médico
   2. posto de saúde
   3. farmácia particular
      Que tipo?  a. drogaria (farmácia comercial comum)
               b. de homeopatia
               c. outro ____________________________
   4. dispensário de uma instituição médica/hospital
   5. outro (especifique) ____________________________
   7. NA (não usa remédio nunca)
   8. NS 9. NR

20. Quantas vezes o(a) Sr(a). utilizou uma farmácia para comprar algum remédio nos últimos trinta dias? (inc. telefonou, foi, mandou alguém, etc.)
   ______ vezes 98. NA 99. NR

21. Por favor, eu gostaria de saber aproximadamente quanto (dinheiro) o(a) Sr(a). gastou em remédios nos últimos trinta dias.
   despesas 8 0 0 0 0 0 0 .00
   NS 9 0 0 0 0 0 9
   NR
22. Em geral, quem paga a maior parte da despesa com remédios do(a) Sr(a)?
   1. instituição pública paga todas as despesas (ou dá remédio).
   2. o entrevistado.
   3. a família ou parente (ex. marido, filho, sobrinho, cunhado etc.)
   4. seguro/plano médico particular/privado
   5. outro (especifique) _________________________
   8. NS  9. NR

23. Quando o(a) Sr(a). tem alguma pergunta sobre um remédio, onde ou a quem o(a) Sr(a). normalmente pergunta primeiro?
   00. o entrevistado não procura ninguém
   01. o médico da instituição pública que o entrevistado tem direito de utilizar
   02. médico particular
   03. médico de instituição privada
   04. médico em uma instituição de caridade
   05. enfermeira
   06. farmacêutico ou balconista de farmácia
   07. conselho de um leigo
   08. outros (especificar) _________________________
   98. NS  99. NR

24. Em geral, qual é o problema (dificuldade) mais importante que o(a) Sr(a). tem para obter os remédios que usa (toma) regularmente?
   (Entrevistador: NÃO leia a lista de alternativas)
   01. o entrevistado não tem problemas para obter os remédios
   02. problema financeiro
   03. remédio que não é fácil de ser encontrado
   04. dificuldade em obter receita
   05. difícil acesso à farmácia (falta de transporte)
   06. problema em obter alguém para ir à farmácia
   07. outro problema (especifique) _________________________
   97. NA (não usa remédio)  98. NS  99. NR

25. Em geral, quando o(a) Sr(a). tem um remédio que não precisa mais, o que é que faz com ele? (Entrevistador: NÃO leia a lista)
   1. fica com ele para possível uso no futuro
   2. joga no lixo
   4. dá para outra pessoa que precisa
   5. outro (especifique) _________________________
   7. NA  8. NS  9. NR
26. Quando o(a) Sr(a). precisa ir à farmácia, o(a) Sr(a). sempre vai à mesma farmácia? (Ler p/o entrevistado os itens)
   1. sempre
   2. muitas vezes
   3. as vezes
   4. nunca
   8. NA (nunca vai)

27. Em geral, o(a) Sr(a). está satisfeito(a) com a farmácia onde o(a) Sr(a). consegue os remédios?
   1. bastante satisfeito(a) (Ler p/o entrevistado os itens)
   2. satisfeito(a)
   3. insatisfeito(a)
   4. bastante insatisfeito(a)
   8. NS 9. NR

28a. Quais dos seguintes aspectos lhe agradam da farmácia onde o(a) Sr(a.) usualmente consegue os remédios?
Entrevistador: leia a lista de alternativas e marque todas que são aplicáveis.
   01. o entrevistador não relata nada especial
   02. bom local
   03. o farmacêutico é de confiança
   04. os preços são razoáveis / dá desconto
   05. os balconistas são de confiança
   06. sempre tem os remédios que precisa
   07. os remédios que se vende são de boa qualidade
   08. vendem outra mercadoria além dos remédios que são úteis
   09. pode fazer pedidos pelo telefone / entrega ao domicilio
   10. pode comprar remédio a prazo
   11. outro ______________________________
   97. NA (nunca vai a nenhuma farmácia)
   98. NS 99. NR

28b. Qual o aspecto que mais lhe agrade da farmácia?
Entrevistador: leia a lista de novo e marque o número do item que mais agrade ao entrevistado.
   _______ (número de só um item) agradar mais.
29. O(a) Sr(a). acha que o pessoal que trabalha na farmácia é bem dirigido por um farmacêutico qualificado?
   1. muito bem dirigido.
   2. bem dirigido.
   3. mal dirigido.
   4. nada dirigido.
   5. NS

30. Na sua opinião, em geral, os balconistas que atendem a gente na farmácia sabem
   1. tudo sobre remédios.
   2. muito sobre remédios.
   3. alguma coisa sobre remédios.
   4. pouco sobre remédios.
   5. nada sobre remédios.
   9. NS

31. Se o(a) Sr(a). precisar do pessoal da farmácia, o(a) Sr(a). poderia falar com ele(a), a qualquer hora,
   1. sem nenhuma dificuldade.
   2. com alguma dificuldade.
   3. com bastante dificuldade.
   4. com muita dificuldade.
   9. NS

32. O(a) Sr(a). acha que há bastante farmacêuticos formados neste bairro?
   1. há bastante
   2. falta
   9. NS

33. O(a) Sr(a). acha que há bastante farmácias neste bairro?
   1. há bastante
   2. falta
   9. NS

34. Na farmácia, o pessoal sabe dar injeção e tomar pressão?
   1. sabe os dois.
   2. sabe dar injeção, mas não tomar pressão.
   3. sabe tomar pressão, mas não dar injeção
   4. não sabe nem um nem outro
   9. NS
[ENTREVISTADOR: Favor resumir (ex: Terminamos a primeira seção...) e explicar o objetivo da seguinte seção (ex: agora vamos falar sobre.....)].

SEÇÃO 2 - SAÚDE FÍSICA

35. Em geral, o(a) Sr(a). diria que sua saúde está: (Q14:13)
   1. muito ruim  
   2. ruim  
   3. na média (regular)  
   4. boa  
   5. muito boa  
   6. NS  
   7. NR

36. Em geral, o(a) Sr(a). diria que, em comparação com a última vez que foi entrevistado(a), a sua saúde está:
   1. melhor  
   2. mesma coisa  
   3. pior  
   4. muito pior  
   5. muito pior  
   6. NS  
   7. NR

37. Em comparação com as outras pessoas da sua idade, o(a) Sr(a). diria que sua saúde está: (Q16:13)
   1. muito pior  
   2. pior  
   3. igual (na média)  
   4. melhor  
   5. muito melhor  
   6. NS  
   7. NR

38. O(a) Sr(a). tem algum problema de saúde que não está tratando com remédio?
   0. Não (marque 7. NA na Q39 e vá para Q40a)
   1. Sim Quantos? _____  
   8. NS  
   9. NR

39. O(a) Sr(a). acha que deve tratar desses problemas com remédio?
   0. Não  
   1. Sim Quantos?  
   7. NA  
   8. NS  
   9. NR
40a. O(a) Sr(a). tem alguns dos seguintes sintomas atualmente ou com frequência?

40b. Quais sintomas são causados **principalmente** por um remédio que o(a) Sr(a). está tomando?

<table>
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<tr>
<th>NÚMERO</th>
<th>SÍNTOMAS</th>
<th>Sim</th>
<th>Não</th>
<th>a. SÍNTOMAS</th>
<th>Sim</th>
<th>Não</th>
<th>b. CAUSADO POR REMÉDIO?</th>
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<th>Não/N.A.</th>
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</table>
SEÇÃO 3 - USO DE REMÉDIOS

41. [Entrevistador: "Terminamos as primeiras duas partes do questionário. Agora eu vou pedir ao(a) Sr(a.) para trazer todos os remédios que está tomando atualmente, ou que usou durante as últimas duas semanas. Isto pode incluir medicamentos, vitaminas, remédios homeopáticos, etc. Vamos começar com os remédios que o(a) Sr(a.) está tomando atualmente que foram receitados por um médico...

Nota: OPM=outra pessoa médica (veja o manual)

<table>
<thead>
<tr>
<th>a. Nome do remédio</th>
<th>b. Dosagem</th>
<th>Razão por usar (especificar)</th>
<th>Receitado ou recomendado por</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. LANOXIN</td>
<td>b. 0.25 mg</td>
<td></td>
<td>1. Médico/OPM</td>
</tr>
</tbody>
</table>

| | Como usa (frequência) | Duração (# meses) | Toma | O remédio Serve? | Percebe problema com o remédio? |
| | 1. todos os dias, | 98, NS         | 1. regularmente | 0. Não | 0. Não |
| | x vezes por dia | 99, NR         | 2. se esquece de tomar de vez em quando | 1. Sim | 1. Sim (especificar) |
| | 2. <7 vezes/semana | 8. NS         | 3. amigo/familiar | 8. NS | 8. NS |
| | 5. so quando precisa | | | | |
| | 6. parou de tomar | | | | |
| | 7. outro | | | | |

[Entrevistador: Leia a lista dos remédios ao entrevistado para verificar os nomes e para que são usados.
IMPORTANTE: Pergunte sobre os remédios que o entrevistado tomou nas últimas duas semanas mas que não tem na casa atualmente. Se o entrevistado disser todos os remédios, marque "NA" na primeira coluna.

208
Notas: OPM=outra pessoa médica (veja o manual)

<table>
<thead>
<tr>
<th>a. Nome do remédio</th>
<th>b. Dose (exemplo)</th>
<th>Razão por usar (especificar)</th>
<th>Receitado ou recomendado por</th>
<th>Como usa (freqüência)</th>
<th>Duração (meses)</th>
<th>Toma</th>
<th>O remédio Serve?</th>
<th>Percebe problema com o remédio?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. LANOXIN</td>
<td>b. 25 mg</td>
<td></td>
<td>1. Médico/OPM</td>
<td>1. todos os dias,</td>
<td>98, NS</td>
<td>8. NS</td>
<td>1. Não</td>
<td>0. Não</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Farmacêutico</td>
<td>x vezes por dia</td>
<td>99, NR</td>
<td>9. NR</td>
<td>1. Sim</td>
<td>8. NS</td>
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<tr>
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<td></td>
<td>3. Amigo/familiar</td>
<td>&lt;7 vezes/semana</td>
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<td>8. NS</td>
<td>1. Sim</td>
<td>8. NS</td>
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<td></td>
<td>5. Alguém (auto-receitado)</td>
<td>so quando precisa</td>
<td></td>
<td></td>
<td>9. NR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6. parou de tomar</td>
<td></td>
<td></td>
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<td></td>
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<td>7. outro</td>
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<td>8. NS (não lembra)</td>
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<td>9. NR</td>
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[Entrevistador: Leia a lista dos remédios ao entrevistado para verificar os nomes e para que são usados.
IMPORTANTE: Pergunte sobre os remédios que o entrevistado tomou nas últimas duas semanas que não tem na casa atualmente. Se o entrevistado disser todos os remédios, marque "NA" na primeira coluna.]
<table>
<thead>
<tr>
<th>a. Nome do remédio</th>
<th>Razão por usar (especificar)</th>
<th>Recomendado ou usado por</th>
<th>Como usar (frequência)</th>
<th>Durção (# meses)</th>
<th>Toma</th>
<th>O remédio</th>
<th>Percebe problema com o remédio?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. LANOXIN</td>
<td></td>
<td>1. Médico/OPM</td>
<td>1. todos os dias, x vezes por dia</td>
<td>98. NS</td>
<td>8. NS</td>
<td>8. NS</td>
<td>0. Não</td>
</tr>
<tr>
<td>b. 25 mg</td>
<td></td>
<td>2. Farmacêutico</td>
<td>2. ≤7 vezes/semana</td>
<td>99. NR</td>
<td>9. NR</td>
<td>9. NR</td>
<td>0. Não</td>
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<tr>
<td></td>
<td></td>
<td>3. Amigo/familiar</td>
<td>3. &lt;3 vezes/semana</td>
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<td>4. Outro (espec.)</td>
<td>4. so quando precisa</td>
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<tr>
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<td>5. Ninguem (auto-receitado)</td>
<td>5. parou de tomar</td>
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</table>

[Entrevistador: Leia a lista dos remédios ao entrevistado para verificar os nomes e para que são usados. IMPORTANTE: Pergunte sobre os remédios que o entrevistado tomou nas últimas duas semanas mas que não tem na casa atualmente. Se o entrevistado disser todos os remédios, marque "NA" na primeira coluna.]
SEÇÃO 4 - OPINIONES

[Entrevistador: "Esta parte do questionário trata de suas opiniões. Vamos começar com as suas impressões da medicina em geral. Depois vamos concentrar na sua própria experiência com atendimento médico e a farmácia." Ler p/o entrevistado todas as opções.]

42. O(a) Sr(a). acha que, em relação às doenças graves, hoje em dia, a medicina pode curar
   1. todas as doenças graves.
   2. muitas doenças graves.
   3. algumas doenças graves.
   4. nenhuma doença grave.

43. O(a) Sr(a). acha que, em vinte anos, a medicina conseguiria curar
   1. todas as doenças graves que hoje em dia não tem cura.
   2. muitas doenças graves que hoje em dia não tem cura.
   3. algumas doenças graves que hoje em dia não tem cura.
   4. nenhuma doença grave que hoje em dia não tem cura.

44. Na sua opinião, das doenças graves que hoje em dia não tem remédio, o(a) Sr(a). acha que, em vinte anos,
   1. todas serão curadas com remédios.
   2. muitas serão curadas com remédios.
   3. algumas serão curadas com remédios.
   4. poucas serão curadas com remédios.

45. Em relação às doenças não graves, o(a) Sr(a). acha que
   1. sempre a gente se cura sem ir ao médico ou hospital.
   2. muitas vezes a gente se cura sem ir ao médico ou hospital.
   3. algumas vezes a gente cura sem ir ao médico ou hospital.
   4. nunca a gente se cura sem ir ao médico ou hospital.

46. Quando o médico manda o doente fazer algo que o doente não quer, o(a) Sr(a). acha que o doente
   1. sempre deve fazer o que o médico manda.
   2. nem sempre deve fazer o que o médico manda.
   3. nunca deve fazer o que o médico manda.

47. Algumas pessoas acham que os remédios podem fazer mal. Outras pessoas acham que remédio que não faz bem tãopouco faz mal. O(a) Sr(a). acha que
   1. a maioria dos remédios não fazem mal.
   2. alguns remédios fazem mal, outros não.
   3. a maioria dos remédios fazem mal sim.
   9. NS
48. O(a) Sr(a). acha que, se as pessoas tivessem as informações ou os livros apropriados para buscar as informações (ex. o motivo da doença)

1. muitas pessoas poderiam tratar das doenças igual a um médico.
2. algumas pessoas poderiam tratar das doenças igual a um médico.
3. quase ninguém poderia tratar das doenças igual a um médico.
4. ninguém poderia tratar das doenças igual a um médico.

49. O(a) Sr(a). acha que para tratar uma doença, a experiência

1. muitas vezes vale mais do que cursos na escola de medicina.
2. algumas vezes vale mais do que cursos na escola de medicina.
3. quase nunca vale mais do que cursos na escola de medicina.
4. nunca vale mais.

50. Quando o(a) Sr(a). se sente doente, o(a) Sr(a).

1. sempre sabe qual é o problema.
2. muitas vezes sabe qual é o problema.
3. algumas vezes sabe qual é o problema.
4. nunca sabe qual é o problema.

51. O(a) Sr(a). acha que quando pessoal da farmácia dá conselhos sobre os remédios.

1. usualmente são bons conselhos.
2. algumas vezes são bons conselhos.
3. raramente ou nunca são bons conselhos.
4. não dá conselhos.

52. O(a) Sr(a). já procurou de um amigo ou parente/familiar conselhos sobre os remédios

1. muitas vezes
2. algumas vezes
3. poucas vezes
4. nunca

53. O(a) Sr(a). já comprou algum remédio por que ouviu um anúncio no rádio, leu um artigo no jornal, ou viu um comercial na televisão sobre esse remédio

1. muitas vezes
2. algumas vezes
3. poucas vezes
4. nunca

54. Quando o(a) Sr(a). precisa de uma receita médica, é

1. fácil conseguir a receita
2. um pouco difícil conseguir a receita
3. difícil conseguir a receita
4. NS
55. O(a) Sr(a). acha que, quando os médicos receitam um remédio,
1. não se deve nunca se desconfiar das receitas.
2. poucas vezes dá para se desconfiar das receitas.
3. muitas vezes dá para se desconfiar das receitas.
4. sempre dá para se desconfiar das receitas.

56. Em geral, na sua experiência, quais são as diferenças entre os remédios que precisam de receita médica e os remédios que não precisam de receita médica? (Resposta "Sim" ou "Não")
1. Os que precisam receita são mais fortes? a. Sim b. Não
2. Os que precisam receita são mais perigosos? a. Sim b. Não
3. Os que precisam receita são mais eficazes? a. Sim b. Não
4. Os que precisam de receita médica são mais caros? a. Sim b. Não
5. Outro ____________________________
6. NS 9. NR

57. Em relação aos remédios caros e remédios baratos, o(a) Sr(a). acha que remédio barato
1. nunca faz nada/não vale nada.
2. às vezes dá o mesmo resultado que remédio caro.
3. muitas vezes dá o mesmo resultado que remédio caro.
4. em geral, remédio barato dá o mesmo resultado que remédio caro.

58. O(a) Sr(a). acha que quando os médicos aconselham, eles
1. sempre criam mais problemas do que resolvem.
2. muitas vezes criam mais problemas do que resolvem.
3. algumas vezes criam mais problemas do que resolvem.
4. raramente criam problemas.

Entrevistador: Alguns dos entrevistados podem se consultar com mais de um médico. Nesse caso, daqui em diante, estamos interessados no médico com quem mais consulta. Se o entrevistado sempre recebe atendimento médico da mesma instituição (ex. hospital de INAMPS) mas nem sempre com o mesmo médico, substitua a expressão "seu médico" para "os médicos de (nome da instituição).” Caso contrário, alguns entrevistados não consultam médico nunca, ou faz muito tempo que não procuram atendimento médico, mas tem direito a algum, seja público ou privado e até de caridade. Sendo assim, o objeto de "seu médico" seria "o médico que atenderia em caso de você precisar de atendimento médico" ou "médicos em geral.”

59. Para o tipo de equipamento que o(a) Sr(a). normalmente precisa, o consultório do seu médico está
1. muito bem equipado.
2. suficientemente equipado.
3. pouco ou nada equipado.
9. NS
60. Quando o(a) Sr(a). vai ao médico para um novo problema de saúde, seu médico

1. sempre examina os seus antecedentes médicos.
2. às vezes examina os antecedentes médicos.
3. nunca examina os antecedentes médicos.
9. NS

61. Na sua experiência, seu médico explica seu estado de saúde

1. sempre explica
2. muitas vezes explica.
3. às vezes explica
4. nunca explica.

62. Quando seu médico pede exames de laboratório ou raios X, ele(a) explica o que espera dos resultados?

1. sempre explica.
2. muitas vezes explica.
3. às vezes explica.
4. nunca explica.

63. Quando o médico receita um remédio para o(a) Sr(a)., ele(a) explica como e quando tomar o remédio?

1. sempre explica.
2. muitas vezes explica.
3. às vezes explica.
4. nunca explica.

64. O seu médico explicou alguma vez o que é que o(a) Sr(a). deve ou não deve fazer para evitar doenças, por exemplo, parar de fumar, mudar a dieta, fazer mais exercício, etc.?

1. Sim
2. Não
9. NS

65. Seu médico se preocupa em explicar as coisas para o(a) Sr(a). entender

1. sempre se preocupa.
2. nem sempre se preocupa.
3. nunca explica.

66. Se seu médico não tiver certeza do problema de um paciente, o(a) Sr(a). acha que ele(a)

1. mandaria a outro médico que poderia examinar o problema melhor.
2. não mandaria a outro médico (tentaria resolver o problema ele mesmo).
9. NS
67. Se o médico recomendar um tratamento médico, o(a) Sr(a). teria
1. total confiança de que seria o melhor tratamento para o(a) Sr(a).
2. bastante confiança de que seria o melhor para o(a) Sr(a).
3. pouca confiança de que seria o melhor para o(a) Sr(a).
8. NR
9. NS

68. Na sua opinião, seu médico acompanha de perto as últimas descobertas médicas
1. sempre acompanha.
2. nem sempre acompanha.
3. nunca acompanha.
9. NS

69. Quando o(a) Sr(a). consulta o médico, as perguntas que ele(a) faz sobre seu problema são
1. em geral, boas perguntas.
2. perguntas que não tem muito a ver.
3. em geral, pergunta pouco ou nada.
9. NS

70. Na consulta, o seu médico deixa a(o) Sr(a). falar tudo que é importante
1. sempre ou quase sempre deixa a gente falar.
2. muitas vezes deixa a gente falar.
3. às vezes deixa a gente falar.
4. nunca ou quase nunca deixa a gente falar.

71. Falando com o médico, o(a) Sr(a). acha que ele(a)
1. presta atenção.
2. nem sempre presta atenção.
3. nunca presta atenção
9. NS

72. Em geral, os médicos são cuidadosos quando fazem exame médico. Na sua opinião, o seu médico é
1. muito cuidadoso.
2. bastante cuidadoso.
3. um pouco cuidadoso.
4. nada cuidadoso.
9. NS

73. As vezes demora muito tempo para os doentes serem atendidos pelo médico. Na sua experiência, os pacientes esperam muito tempo no consultório?
1. Sempre sempre
2. muitas vezes
3. às vezes
4. nunca
9. NS

74. O(a) Sr(a). acha que o pessoal que trabalha no consultorio (recepcionistas, atendentes,
enfermeiras, etc.) são

1. todos gentis e simpáticos.
2. alguns são gentis e simpáticos.
3. poucos são gentis e simpáticos.
4. nenhum e' gentil.
9. NS

75. O(a) Sr(a). acha que seu médico lhe atende com respeito

1. sempre atende à(o) Sr(a). com respeito.
2. nem sempre atende à(o) Sr(a). com respeito.
3. nunca atende à(o) Sr(a). com respeito.

76a. O(a) Sr(a). acha que alguma vez o médico lhe atendeu com má vontade?

1. nunca atendeu com má vontade.
2. algumas vezes atendeu com má vontade.
3. muitas vezes atendeu com má vontade.
4. sempre atendeu com má vontade.

76b. Em geral, o horário do consultório do seu médico é bom para o(a) Sr(a).?

1. Não
2. Sim

76c. Se o(a) Sr(a). tivesse algum problema, o(a) Sr(a). poderia falar com o médico a qualquer hora, dia ou noite?

1. facilmente, a qualquer hora, dia e noite.
2. com alguma dificuldade.
3. com bastante dificuldade.
4. com muita dificuldade.
9. NS

77. Para o(a) Sr(a). marcar uma consulta com seu médico, é

1. fácil
2. um pouco difícil
3. difícil
4. muito difícil
9. NS

78. É fácil para o(a) Sr(a). ir ao consultório do seu médico?

1. fácil
2. um pouco difícil
3. difícil
4. muito difícil

79. O seu médico atenderia na sua casa se o(a) Sr(a). quisesse?

1. Não
2. Sim
9. NS
80. O(a) Sr(a). consulta sempre o mesmo médico?
   1. Sim
   2. Não

81. Para o(a) Sr(a). se consultar sempre com o mesmo médico é
   1. fácil
   2. um pouco difícil
   3. difícil
   4. muito difícil
   9. NS

82. Em caso de emergência, o(a) Sr(a). procura atendimento médico logo
   1. facilmente
   2. com alguma dificuldade.
   3. com dificuldade.
   4. com muita dificuldade.
   9. NS

83. O(a) Sr(a). acha que há bastante médicos em seu bairro?
   1. Não, falta
   2. Sim
   9. NS

84. O(a) Sr(a). acha que há bastante hospitais/clinicas em seu bairro?
   1. Não, falta
   2. Sim
   9. NS

85. Na sua opinião, há bastante laboratórios em seu bairro?
   1. Não, falta
   2. Sim
   9. NS

86. O(a) Sr(a). acha que os custos dos exames de laboratório e raio X são
   1. bastante razoáveis
   2. razoáveis.
   3. pouco razoáveis
   9. NS

87. O(a) Sr(a). demorou em procurar atendimento médico até poder pagar
   1. muitas vezes.
   2. algumas vezes.
   3. poucas vezes.
   4. nunca.

88. O(a) Sr(a). teve que esperar para comprar um remédio até poder pagar?
   1. muitas vezes
   2. algumas vezes
   3. nunca
89. O(a) Sr(a). já diminuiu a dose que deveria tomar de um remédio para economizar?

1. sim
2. não

90. Em caso de urgência, o(a) Sr(a). consegue os remédios necessários mesmo se não tiver o dinheirno na mão?

1. sem dificuldade.
2. com alguma dificuldade.
3. com muita dificuldade

91. Na sua experiência, a farmácia permite pagar mais tarde se a gente não tem o dinheiro na hora?

1. sempre
2. muitas vezes
3. algumas vezes
4. nunca ou raramente

92. O(a) Sr(a).acha que há alguém na farmácia que se preocupa com os problemas de saúde dos clientes?

1. Sim
2. Não

93. O(a) Sr(a).costuma pedir informações sobre remédios na farmácia, inclusive as bulas dos remédios?

1. sempre pede informações.
2. muitas vezes vezes pede informações.
3. algumas vezes vezes pede informações.
4. nunca pede informações.

Na sua experiência, o pessoal da farmácia explica como usar os remédios mesmo quando a gente não pede?

1. sempre explica.
2. muitas vezes explica.
3. algumas vezes explica.
4. nunca explica.

94a. O(a) Sr(a).acha que os farmacêuticos podem explicar sobre os remédios para a gente

1. melhor que um médico?
2. igual a um médico?
3. pior que um médico?

94b. O(a) Sr(a).acha que os farmacêuticos devem explicar quais são os efeitos dos remédios sobre a gente?

1. sempre devem explicar.
2. nem sempre devem explicar.
3. nunca devem explicar.

Por quê?

95a. Quando se usa mais de um remédio por dia, aumenta a probabilidade de misturar ou confundir os remédios. O(a) Sr(a).acha que isto é um problema grave para
1. muitas pessoas idosas.
2. algumas pessoas idosas.
3. poucas pessoas idosas.

95b. O(a) Sr(a). acha que o pessoal da farmácia deve acompanhar os remédios que a gente usa para evitar os problemas de misturar ou confundir remédios?

1. Sim
2. Não
9. NS

Por quê?  

96a. O(a) Sr(a). acha que o pessoal da farmácia deve explicar sobre outros remédios, além dos que o médico receita, que podem ser bons para a gente?

1. **sempre** deve explicar.
2. nem sempre deve explicar.
3. nunca deve explicar.

Por quê?  

96b. Na sua experiência, o pessoal da farmácia explica para o(a) Sr(a). quando tem opções com os remédios?

1. sempre
2. muitas vezes
3. poucas vezes
4. nunca

97. O(a) Sr(a). acha que o pessoal da farmácia se preocupa com que a gente tome o remédio errado?

1. **sempre** se preocupa.
2. muitas vezes se preocupa.
3. poucas vezes se preocupa.
4. nunca se preocupa.

98. O(a) Sr(a). acha que o pessoal da farmácia recomenda remédios que não são necessários?

1. muitas vezes recomenda remédios que não são necessários.
2. às vezes recomenda remédios que não são necessários.
3. raramente recomenda remédios que não são necessários.
4. nunca recomenda remédios que não são necessários.

99. Se o farmacêutico não tiver certeza do problema de um fregués, o(a) Sr(a). acha que ele(a)

1. mandaria o freguês para o médico ou outro especialista.
2. tentaria resolver o problema ele(a) mesmo.
9. NS

100. O(a) Sr(a). acha que o pessoal da farmácia acompanha de perto as últimas descobertas e pesquisas sobre medicamentos?

1. **sempre** acompanha de perto.
2.
3.
9.

101. O(a) Sr(a). acha que, em geral, o sortimento de remédios na farmácia é completo/incompleto?

1. completo
2. falta alguma coisa
3. falta muita coisa
9. NS

102. Já aconteceu com o(a) Sr(a). de a farmácia não ter o remédio que o(a) Sr(a). procurava?

1. aconteceu muitas vezes
2. aconteceu algumas vezes
3. aconteceu poucas vezes
4. nunca aconteceu.

103. Quando o(a) Sr(a). fala com uma pessoa da farmácia, o(a) Sr(a). acha que ele(a) presta atenção?

1. presta atenção.
2. não presta atenção.
9. NS

104. Quando o(a) Sr(a). consulta alguém na farmácia, o(a) Sr(a). acha que, em geral, as perguntas que ele(a) faz sobre seu problema

1. não tem nada a ver.
2. tem pouco a ver.
3. são boas perguntas.
8. NA
9. NS

105. O(a) Sr(a). acha que o pessoal da farmácia realmente quer que a gente fique bem de saúde?

1. Sim.
2. Não.
9. NS

106. Em geral, a pessoa da farmácia que lhe atende,

1. faz outras coisas primeiro e depois lhe atende, ou
2. lhe atende logo.
9. NS

107. O(a) Sr(a). acha que as pessoas da farmácia são

1. todos ou quase todos corteses e atendem com respeito.
2. alguns são corteses e atendem com respeito.
3. poucos são corteses e atendem com respeito.
9. NS

108. Na farmácia onde o(a) Sr(a). consegue os remédios,

1. sempre há alguém de confiança para atender à gente.
2. muitas vezes há alguém de confiança para atender à gente
3. às vezes há alguém de confiança para atender à gente.
4. nunca há alguém de confiança para atender à gente.
109. Se o(a) Sr(a). não consegue falar com o pessoal de uma farmácia, o(a) Sr(a). conseguiria falar com o pessoal de outra farmácia

1. sem dificuldade.
2. com alguma dificuldade.
3. com bastante dificuldade.
4. com muita dificuldade.
9. NS

110. A farmácia está aberta sempre que o(a) Sr(a). precisa?

1. sim
2. não
7. NA

111. Para o(a) Sr(a). ir à farmácia, é

1. fácil
2. um pouco difícil
3. bastante difícil
4. muito difícil
7. NA
Por que? ________________________________

112. O(a) Sr(a). pode pedir à farmácia para entregar em casa?

1. Sempre pode pedir para entregar em casa.
2. Algumas vezes pode pedir.
3. Nunca pode pedir.

113. O(a) Sr(a). sabe o nome de alguém que trabalha na farmácia, seja balconista ou farmacêutico?

1. Não
2. Sim

O(a) Sr(a). sabe se alguém que trabalha na farmácia sabe o seu nome

1. Não
2. Sim
114. Algumas pessoas acham que ainda que o **farmacêutico formado** seja muito informado sobre os remédios, **hoje em dia**, como todo remédio já vem embalado e com bula, não se precisa mais do farmacêutico na farmácia particular. O que é que o(a) Sr(a). acha?

1. Não se precisa mais do farmacêutico formado na farmácia.
2. Ainda se precisa do farmacêutico formado na farmácia.
8. NS
9. NR

Por quê? ____________________________________________________________

115. Sem aumentar os gastos do governo com a saúde, o(a) Sr(a). acha que o atendimento poderia ser

1. **muito** melhor.
2. **um pouco** melhor.
3. **não poderia** ser melhor.
9. NS

Por quê? ____________________________________________________________

=================================================================================
ENTREVISTADOR: Faça um resumo (ex. Já terminamos a quarta e última seção...).

Anote a hora ___ ___ : ___ ___

1. Pergunte ao entrevistado se ele(a) tem alguma outra observação sobre a farmácia onde ele(a) vai que não foi discutido neste questionário mas que é importante para ele(a). Faça o favor de escrever as observações no outro lado da página.


Assinatura do Entrevistador
APPENDIX C
LETTER OF INTRODUCTION TO STUDY PARTICIPANTS
Prezado Sr(a).:

No ano passado, o(a) Sr(a). participou, com mais 730 outras pessoas idosas, de uma pesquisa coordenada pelo Departamento de Epidemiologia do Instituto de Medicina Social na UERJ - Universidade do Estado do Rio de Janeiro. Naquela época, o(a) Sr(a). respondeu a um questionário sobre vários aspectos da sua saúde, cujos resultados estão sendo analisados pela equipe da UERJ. Graças à sua colaboração, estamos conhecendo melhor a população idosa brasileira e seus problemas e assim fornecendo subsídios para o planejamento de serviços.

Este ano, o Departamento de Farmácia da Universidade da Flórida, está fazendo uma segunda pesquisa a respeito do consumo de remédios da população idosa brasileira. Os temas de interesse desta segunda pesquisa são:

1) quais os remédios mais usados pelos idosos, e

2) qual o uso, por parte dos idosos, dos serviços de atendimento médico e dos serviços farmacêuticos.

Em cooperação com o Projeto da Terceira Idade do Instituto de Medicina Social, foram escolhidas aleatoriamente 450 pessoas que foram entrevistadas no primeiro estudo. É assim que o Sr(a). foi selecionado(a) para participar neste segundo estudo.

A coleta dos dados para o Projeto Remédios na Terceira Idade está programada para os meses de Outubro, Novembro e Dezembro. As entrevistas duram uma hora. Um membro credenciado da equipe de entrevistadores, (nome, #ID), entrará em contato com o(a) Sr(a). com antecedência para marcar uma hora para a entrevista. As opiniões das pessoas entrevistadas nesta pesquisa, como na anterior, são confidenciais.

Agradeço a sua colaboração,

Maria Andrea Miralles
Coordenadora
APPENDIX D
ACCESS TO CARE AND ATTITUDE MEASURES
## Access to Care and Attitude Measures

<table>
<thead>
<tr>
<th>Label</th>
<th>(Cronbach’s alpha)</th>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERCEIVED ACCEPTABILITY OF MEDICAL SERVICES (0.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Completeness

| 2.35 0.69 | a. For the type of care I normally require, my doctor’s office is well equipped. |

### Follow-up

| 2.60 0.72 | a. When I go to the doctor for a new health problem, s/he always reviews my medical history. |

### Offering Information (0.67)

| 3.35 1.03 | a. My doctor always explains my health status. |
| 3.74 1.03 | b. When the doctor prescribes a medication for me, he always explains when and how to take it. |
| 2.77 0.54 | c. My doctor always explains things so that I can understand. |

### Prevention

| 1.79 0.40 | a. My doctor has explained to me what I should and should not do in order to keep from getting sick. |

### Prudence/Competence

| 2.51 0.59 | a. If my doctor recommends a treatment for me I would have complete confidence that it would be the best treatment for me. |

### Modernity

| 2.33 0.92 | a. My doctor always keeps up with the latest medical advances. |

### Asking the Patient for Information

| 2.66 0.72 | a. When I go to see the doctor, the questions s/he asks about my problem are usually good questions. |

### Courtesy/Respect from Doctor (0.66)

| 3.66 0.72 | a. My doctor always lets me say everything that is important. |
| 2.90 0.32 | b. When I speak to my doctor, s/he always pays attention. |
3.53 0.66  c. In general, my doctor is very careful when s/he examines me.
3.86 0.38  d. My doctor has never treated me grudgingly.

Considerateness
2.40 1.19  a. I never have to wait very long in the doctor’s office.

Courtesy/Respect from Staff
2.53 0.62  a. The people who work at the doctor’s office are all courteous and pleasant.

PERCEIVED AVAILABILITY OF MEDICAL SERVICES  (.69)

Convenience  (.50)
1.84 0.36  a. The doctor’s office hours are good for me.
3.56 0.83  b. It is easy for me to get to the doctor’s office.
1.50 0.50  c. My doctor would make a house call if I asked.
3.47 0.92  d. It is easy to make an appointment to see my doctor.
2.64 0.64  e. It is easy for me to get a prescription from the doctor if I need one.

Continuity of Care
1.72 0.44  a. I always see the same doctor.

Emergency Care
3.05 1.00  a. If I had a health problem, I could reach the doctor at any time, day or night.
3.32 0.98  b. In case of emergency, I can get medical care right away.

Supply of Physicians
1.46 0.49  a. There are enough doctors in my neighborhood.

Supply of Hospitals/Clinics and Laboratories  (.62)
1.27 0.44  a. There are enough hospitals/clinics in my neighborhood.
1.37 0.48  b. There are enough laboratories in my neighborhood.
### PERCEIVED AFFORDABILITY OF MEDICAL SERVICES (.32)

#### Seeking Care When Needed
1.60 0.81  
  a. I have never had to delay seeking medical attention when I needed because I could not pay for it.

#### Price of Medical Exams
3.35 1.01  
  a. The price of medical exams and X-rays is reasonable.

### PERCEIVED ACCEPTABILITY OF PHARMACY SERVICES (.75)

#### Completeness
2.21 0.75  
  a. The selection of medications in the pharmacy is complete.

#### Competence (.64)
2.28 1.23  
  a. The pharmacy personnel are well supervised by a qualified pharmacist.
3.00 1.29  
  b. The pharmacy personnel know a lot about drugs.
1.57 1.13  
  c. When I ask for advice at the pharmacy, the questions they ask me are usually good questions.
2.95 1.18  
  d. There is always someone who works in the pharmacy that I trust.

#### Prudence
2.58 1.20  
  a. The pharmacy personnel never recommend medications that are not necessary.

#### Considerateness (.63)
1.90 1.11  
  a. The pharmacy personnel really want me to be healthy (get better).
1.97 1.10  
  b. The pharmacy personnel worry that I not take the wrong medications.
1.40 0.99  
  c. There is someone in the pharmacy who is concerned about my health problems.
2.32 1.13  
  d. The pharmacy personnel will tell me when I have options with my medications.

#### Giving Information to Client (.58)
1.52 0.87  
  a. I often ask for information about my medications at the pharmacy.
2.03 1.11  
  b. The pharmacy personnel will explain to me how to use my medications even if I don’t ask.
**Modernity**

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.24</td>
<td>1.06</td>
<td></td>
<td>a. The pharmacy keeps up on all the latest drug discoveries.</td>
</tr>
</tbody>
</table>

**Courtesy/Respect (.59)**

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1.81</td>
<td>0.45</td>
<td></td>
<td>a. When I speak to someone at the pharmacy, they always pay attention.</td>
</tr>
<tr>
<td>2.47</td>
<td>0.73</td>
<td></td>
<td>b. The pharmacy personnel are courteous and treat me with respect.</td>
</tr>
</tbody>
</table>

**PERCEIVED AVAILABILITY OF PHARMACY SERVICES (.56)**

**Availability of Medications**

<table>
<thead>
<tr>
<th>Value</th>
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<th>Unit</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2.17</td>
<td>0.96</td>
<td></td>
<td>The pharmacy always has the medications that I need.</td>
</tr>
</tbody>
</table>

**Convenience (.44)**

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<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.56</td>
<td>0.75</td>
<td></td>
<td>a. If I am unable to reach someone at one pharmacy, I can easily reach someone at another pharmacy.</td>
</tr>
<tr>
<td>1.60</td>
<td>0.49</td>
<td></td>
<td>b. The pharmacy is always open when I need it.</td>
</tr>
<tr>
<td>3.62</td>
<td>0.86</td>
<td></td>
<td>c. It is easy for me to get to the pharmacy.</td>
</tr>
<tr>
<td>1.83</td>
<td>0.92</td>
<td></td>
<td>d. I can always ask the pharmacy to deliver to my home.</td>
</tr>
</tbody>
</table>

**Continuity**

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.51</td>
<td>1.25</td>
<td></td>
<td>a. I always go to the same pharmacy.</td>
</tr>
</tbody>
</table>

**Supply of Pharmacists**

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.66</td>
<td>0.47</td>
<td></td>
<td>a. There are enough pharmacists in my neighborhood.</td>
</tr>
</tbody>
</table>

**Supply of Pharmacies/Dispensaries**

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.70</td>
<td>0.45</td>
<td></td>
<td>a. There are enough pharmacies in my neighborhood.</td>
</tr>
</tbody>
</table>

**Availability of Ancillary Services**

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.70</td>
<td>0.40</td>
<td></td>
<td>a. The pharmacy personnel can give injections and/or measure blood pressure.</td>
</tr>
</tbody>
</table>

**Emergency Care (.37)**

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.67</td>
<td>1.26</td>
<td></td>
<td>a. If I need to speak with someone from the pharmacy, I can easily reach them at any time.</td>
</tr>
</tbody>
</table>
1.29 0.78  b. In case of an emergency, the pharmacy will allow me to pay later for my medication if I don't have the money at the time I need it.

**PERCEIVED AFFORDABILITY OF DRUGS  (.61)**

2.58 0.65  a. I have never had to wait to buy a medication I needed because I could not pay for it.
1.87 0.33  b. I have never had to lower/skip a dose of a medication in order to economize.

**ATTITUDES TOWARDS MEDICAL CARE  (.49)**

**Skepticism toward modern medicine  (.67)**

2.44 0.83  a. Medicine can cure all serious illnesses.
2.08 0.87  b. In twenty years, modern medicine will be able to cure all serious illnesses.

**Reluctance to Accept Medical Care  (.32)**

1.37 0.67  a. When doctor's give advice, they usually create more problems that they solve.
1.58 0.79  b. When the doctor prescribes a medication, one should always doubt the prescription.

**The opinion that the individual understand his/her health better than the doctor  (.42)**

1.33 0.47  a. When the doctor tells the patient to do something that the patient does not want to do, the patient should not do it.
2.17 1.09  b. If people had the information or the books to look up the information, many people could treat illness as well as a doctor.
2.55 1.00  c. In order to treat an illness, experience is worth more than medical school.
ATTITUDES TOWARD LAY ADVICE ABOUT DRUGS (.53)

Willingness to accept lay advice about medicines (.53)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.40</td>
<td>1.02</td>
<td>a. When the pharmacy personnel give advice about medicines, it is usually good advice.</td>
</tr>
<tr>
<td>1.46</td>
<td>0.81</td>
<td>b. I have often sought the advice of a (lay) friend or family member about a medicine.</td>
</tr>
<tr>
<td>1.88</td>
<td>1.09</td>
<td>c. I have often bought medicines because of an announcement I heard on the radio, saw on television, or read in a journal.</td>
</tr>
</tbody>
</table>
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Maria Andrea Miralles received her Bachelor of Arts degree from the University of California, Los Angeles, in Latin American studies, with a minor in anthropology, in 1982. She received her Master of Arts degree in Anthropology from the University of Florida in 1986. The title of her thesis is "Health Care Seeking Behavior of Guatemalan Refugees in South Florida." She also holds a certificate in gerontology from the Center for Gerontological Studies at the University of Florida. Her research has taken her to Mexico, Ecuador, India, and Brazil. Research interests include social pharmacy, aging in the Third World, and community development.
I certify that I have read this study and that in my opinion it conforms to acceptable standards for scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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Health Care Administration

I certify that I have read this study and that in my opinion it conforms to acceptable standards for scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards for scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards for scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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August 1992

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Dean, Graduate School