

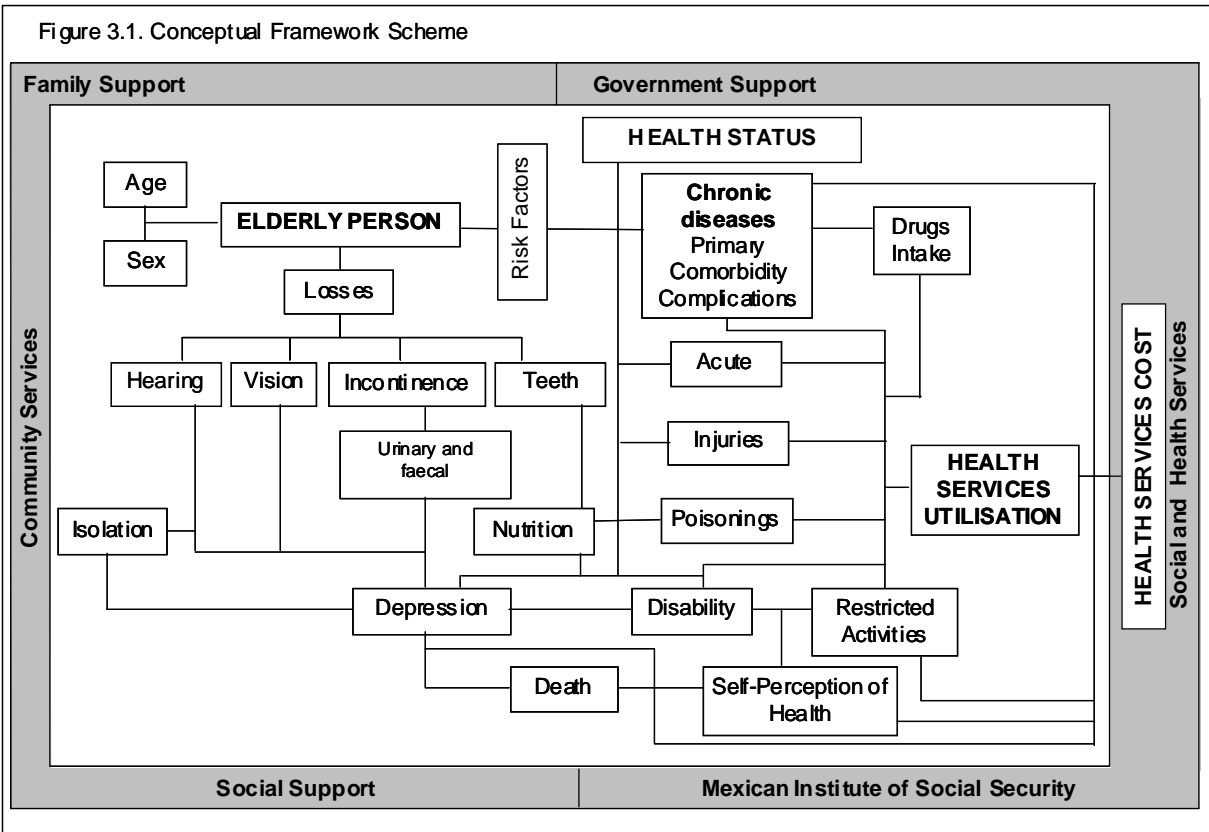
HEALTH CARE FOR THE ELDERLY—AN ANALYTICAL FRAMEWORK

The expected increasing cost of health care and the scarcity of available resources has become part of the agenda to be addressed by national and international health organisations in the future. Some of the factors directly or indirectly involved in the incremental cost are: The prevalence of chronic diseases in any group of population, use and abuse of new and old technology, over-utilisation of health services generated by different incentives, relative inflation in health services and products, and the ageing of the population. Independently of the predominant cause of such incremental cost in each health system, the rationing⁴³ of health services to lower utilisation using various mechanisms has been proposed. The idea behind those proposals is that the utilisation of health services can be moulded by generating incentives for the user, by lowering the availability of resources and reducing the utilisation of services within the system. However, factors, known to influence the utilisation of health services have been largely underestimated.

In this analytical framework, those factors influencing the utilisation of health services are included. Although the framework proposed by Anderson⁴⁴ was used, it was modified and adapted to establish a more comprehensive model that focused on the elderly population in IMSS but this model could be applied to understand the same process in any group of elderly population (independently of their nationality).

Instead of dividing individual factors into enabling, predisposing and health needs,⁴⁴ it was decided to classified them into two sets: Enabling factors where socio-demographic characteristics are included and predisposing factors that are divided in risk factors, disability, and health status. They are presented in that sequence in this chapter. Other contextual factors are also

included in the scheme including: Community, government, social and family support, social and health services. They also influence demand, but they have largely been described in Chapter 2 (See figure 3.1).



3.1 FACTORS INFLUENCING THE UTILISATION OF HEALTH SERVICES IN IMSS

Population ageing has gained wider attention in the last decade by the international organisations,^{22,45,46} but instead of attracting resources to solve the needs of the elderly, they have been the target for the control or even a reduction of expenditure in health care. However, some authors have demonstrated that the level of savings achieved by reducing access to health services for elderly people are definitely low compared with all the other factors involved in the rising costs.⁴⁷

The cost of delivering health services for the elderly population in IMSS is assumed to be directly related to their utilisation of health services. However, the increasing expenditures in health care depend not only on the population ageing but also on the other factors mentioned previously.

Utilisation of health services by elderly subjects is associated with individual, social and institutional factors described by other authors. Health services are utilised if resources are available to produce services, and the population has some characteristics that allow them to overcome barriers to the access of the health services.⁴⁸ Barriers have been classified as: economic (for example payment for transportation or when services are paid out-of-pocket), cultural (perceived population needs, causes and consequences have mystical explanations and solutions), geographical (distance, type of transport available, access to buildings), and administrative (coverage, consultation by appointment, queues).

IMSS services have solved some of those barriers since the elderly are entitled to received services without restrictions and do not have to pay out-of-pocket expenses, fees for services, copayments, or premiums. FMUs are within walking distance for the insured population; however, some elderly subjects have to pay for transport to reach the second or third level of care. Public transport is available and free for the elderly in the Federal District and there are no geographical barriers where this project was located.

Although there are queues and waiting times for services, they can obtain services the same day as they are asking for them. Appointments have been established, especially for patients with chronic conditions, but they are not restricting access to services when they are required.

Even though there are some barriers, some characteristics may enable elderly subjects to overcome them in order to receive the service. These characteristics can be divided into enabling and predisposing factors.⁴⁴

3.2. ENABLING FACTORS

Socio-demographic characteristics

a. Age

According to some authors, utilisation of services and expenditure on health services increases with the age of the population. As explained before, some international economic organisations are predicting an increase in demand as a product of population ageing.

Utilisation of services has been shown to increase with age but only until a certain limit, after which utilisation decreases again.⁴⁹ The observed increment with age can be associated with an increase in the number of chronic conditions within the population. After diagnosis people with more severe conditions die, while healthy people and elderly people with fewer or less severe conditions survive, so the utilisation of health services decreases. Another factor contributing to the reduction in the utilisation of health services in later life could be disability. The proportion of disabled elderly increases with age. Elderly people who are unable to do basic and complex activities by themselves require help from relatives or friends if they are to receive health services. It means they depend on other people's time and the availability of health services. If carers or helpers are not available, or they do not think it is necessary, then the use of services will be limited even when resources are available within IMSS.

b. Sex

The utilisation of services is higher for women. It means that for the same condition women demand services with more frequency for different possible reasons. Although women survive longer than men by several years but men who survive are in better health, as was demonstrated in the Alameda County Study.⁵⁰ The proportion of women suffering with chronic conditions has been reported higher in this subgroup. Women have also been reported at being at a higher risk for depression.

c. Marital status

The influence of marital status has not been reported to be associated with the utilisation of health services. However, it would be important to know if people living without a partner are more likely to use some services such as hospitals. Anecdotally, it is known that the children or relatives of the elderly often take them to the IMSS emergency services.

d. Education

Populations with higher levels of education are more likely to make demands on health services for chronic conditions, especially when they have to pay out-of-pocket for receiving them. Education could also reflect differences in the socio-economic level. In IMSS the more educated might also be using private services more frequently instead of using IMSS services for the same chronic conditions. In addition the more educated people could have higher survival than the less educated and thus make less demands on the services. Higher levels of education could also be associated with better understanding of the causes and consequences of the chronic conditions and thus increase the utilisation of services for some chronic conditions.

e. Occupation

People with non-salaried occupations (e.g. students and housewives) are more likely to demand services for the same type of conditions. In IMSS the highest proportion of people attending services in FMUs are housewives and children.⁵¹ There is a lack of information about the pattern of utilisation when people can make more flexible arrangements. If the elderly population follow the same pattern as other groups, the utilisation of services will probably be higher in this group as a result of their available time to demand them.

f. Income

People with their own income are expected to receive health services more frequently from the private sector than in IMSS. If the hypothesis that the private sector is fulfilling the high quality expectations that IMSS is not, people with their own income are more likely to use these “better” services,

as predicted by market forces. People receiving financial transfers to survive will certainly show the opposite phenomenon.

g. Type of insurance

There is no information about differences in utilisation by type of insurance. It is important, however, that IMSS adopts policies that increase coverage. It is expected that elderly retired subjects will use services more frequently, since they have been contributing directly to the system and, perhaps, would like to receive returns at this stage of their life. This is expected to be a more loyal group, using private services less frequently than other groups of beneficiaries (parents or spouse). It is also expected that people with additional public or private insurance will also use other services than in IMSS more frequently.

h. Family characteristics

There is no information about the influence of the type of family and structure on the utilisation of health services. It is possible that people living independently but in a nuclear family will also make more demands on the health services in medical units.

It is also possible that people living in extended families with more than two generations have a better support network and, therefore can demand services even if they are no longer independent. However, living in extended families could mean they have more responsibilities in looking after the grandchildren or preparing food for the family which means less time available to reach the services.

3.3. PREDISPOSING FACTORS

Risk factors

Health promotion programmes have the objective of improving life-styles, such as reductions in smoking and drinking and increasing physical activities, thus reducing the level of risk for some chronic conditions. A lower prevalence of some chronic diseases and a higher the level of functioning⁵⁰

would be expected to lead to improvements in health including better control of chronic diseases and fewer hospitalisations.^{52,53} Exercise has also been reported as an effective therapy for depression⁵⁴ and other psychiatric conditions. However, the effect of some life-styles on health services utilisation or health expenditure has not been well demonstrated.

Disability

Disability is one of the aspects that the OECD focused on as a priority for reducing the expenditure generated by the population ageing.⁵⁵ In other countries, where elderly people with disabilities (lack of independence) are frequently institutionalised, the cost of long-term care programs has become a major problem. In Mexico, and in particular in IMSS, there are no programs or institutions for long term care. The needs of disabled are being solved within the family, which has both advantages and disadvantages. Hospitalisation can be used for long term care for those patients that are not well enough to be discharged, but this increases the cost of hospitalisation services for the institution. At the same time this can also result in savings that could be spent in long-term care services and facilities. The consequence is that some patients are receiving high technology services when they are not justified (misuse of technology). However, this aspect and the costs for the family in time and investment have not been evaluated. This project attempted to answer such questions on the variable use of different services in IMSS and how this influences the cost of the services for this group of population.

Health Status

This project was developed with the explicit idea that in the elderly population utilisation of health services and their cost depends mainly on their health status, although other variables could participate in modifying this direct effect. The variable of health status was evaluated broadly by using direct and indirect indicators of health to examine if some of them acted in an isolated way or acted together with other factors and whether such factors could be the different levels of utilisation seen in IMSS.

Among the indirect indicators were: Family background for chronic diseases, self-perceptions of health, days staying in bed or at home, and reduc-

tions in daily or heavy activities because of their health problems. Among direct indicators the following were included: Sensory losses, incontinence, acute diseases, injuries, depression and chronic conditions.

a. Family history of chronic diseases

The presence of a family history of diseases has been associated with the earlier onset of diabetes;⁵⁶ with the increased prevalence of diabetes or impaired glucose tolerance;^{57,58} with the prognosis or survival⁵⁹ of some diseases,^{60,61} and with the presence of complications.^{62,63} Family history has also been considered as a predictor of the presence and severity of high blood pressure, coronary artery disease,^{64,65,66,67} and stroke.⁶⁸ The higher prevalence of many different types of cancer (lung,⁶⁹ breast,⁷⁰ hepatocellular carcinoma,⁷¹ or colorectal⁷²) has been associated with the family history of cancer. If this variable is associated with different chronic conditions, it is likely also to be associated with a higher utilisation of health services and it could be a good indicator for screening the elderly population for intensive health promotion or preventive services, so as to avoid some diseases and reduce future costs. One example for this approach is that of radical surgery that women are receiving in the UK when the breast cancer gene is identified in their genetic information.

b. Self-perceptions of health status

There are several approaches to measure this variable. Some authors have used a limited number of questions or a single question^{73,74} to evaluate it. Others have proposed more complex constructs, for instance the concept of subjective vitality⁷⁵ with mental and somatic factors included. One of the more frequently used scales to measure health status (SF-36) includes five items about general health perception. Poorer self-perception among women is associated with worse health conditions.^{76,77} If this variable is a good indicator of health, should worsen as people become older. Self-rated health has been shown to be a good predictor of mortality⁷⁸ among healthy and chronically ill elderly subjects, even when different socio-demographic characteristics, risk factors, and health status are adjusted for.

It is expected that the poorer the health self-perception, the higher the utilisation of health services, since perceived need has been strongly related

to demand for services. There is no information about elderly subject's performance in this variable.

c. Sensory losses

i. Hearing loss

There are different approaches to measuring hearing loss, starting with self-reporting, to clinical evaluation and finally with the use of the audiometer. Although self-reporting has been questioned as a valid measure, Karlsson⁷⁹ et al. have pointed out the high correlation between the self-reporting and the measures obtained by using the audiometer. In surveys with big population samples, self-reporting can be used as a first approach even though the prevalence could be underestimated.^{80,81}

Some authors have reported that women have a better performance in this variable,⁸² which could mean that the problem is not altering their functional ability, and they do not recognise or report it. If this hypothesis was true, the level of underestimation will be higher in women.

Hearing loss is progressive with age and some drugs and chronic diseases⁸³ can increase the speed of the loss. Lack of communication and the non-awareness of some emergency situations because of the loss of hearing can produce isolation, low self-esteem,^{84,85,86} anxiety,⁸⁷ depression,^{85,88} desire of dying,⁸⁹ and a higher risk of injuries.

Use of hearing aids to correct this problem has been reported to be low,⁹⁰ which might be explained by the cost of hearing aids, stigma barriers, and the lack of medical diagnosis.

Screening for this problem, especially in the oldest and those having ototoxic drugs, is necessary if it is to be detected and any consequences avoided.

ii. Vision loss

Vision loss is one of the problems that are commonly taken for granted, as people become older. Changes brought about by ageing after the age of 40 years can reduce eyesight. This progressive process is also accelerated by some chronic conditions (diabetes mellitus and high blood pressure) but can be corrected through the surgery or the use of devices.

Wun et al. reported 72% of people with impaired vision⁹¹ and no differences by sex has been reported before.⁹² Visual impairment can increase dependency,^{93,94} reduce mobility or social relations,⁹⁴ produce depressive states⁸⁸ and a wish to die.⁸⁹

The best way to make an early diagnosis is through screening. The prevention of other diseases (injuries, depression, and intoxication) is worthwhile and can compensate for the cost of doing systematic screening. The examination of eyes once every two years after 65 years old has been recommended by the American Academy of Ophthalmology or more frequent if the person is diabetic or presents symptoms in their eyes. Elderly patients and their relatives should be advised to ask for help even if the physician has not asked about vision loss.

There is no published information about the influence of sensory losses on the utilisation of health services. However, it is expected that people with total loss or a non-corrected partial problem might avoid attending services due to risk of travelling by themselves.

d. Incontinence

Urinary and faecal incontinence are not frequently reported or are neglected topics during medical encounters. It has been estimated that at least 12% of the population over 75 years in developed countries have urinary incontinence.⁵³ This problem is not a result of ageing but of the urinary infections and of the use of some drugs.

The association with age has not been reported before. In fact Guralnik⁷⁴ et al., reported a lower proportion of incontinent subjects in the oldest group of women they studied (85+). There appears to be no difference in frequency of incontinence between men and women.⁹⁵ However, Giebel⁹⁶ et al., have established that the time needed to reach the toilet is shorter in women and this urgency increases with age. Female morphology and the childbearing are the factors that can explain the predominance of this problem in women.

The most important consequences of the incontinence are the social isolation and depression,⁹⁷ as elderly people avoid social contact and outdoor or heavy activities. Some even become institutionalised⁷⁴ because of this problem.

The likelihood of successful treatment (exercises, drugs, surgery and recently the bladder pacemaker) and control of urinary incontinence is high,

as has been pointed out by different authors.^{98,99,100} In the future, the attitude of medical doctors, relatives and patients toward the incontinence needs to change in order to reduce the problem and improve the quality of life of the elderly people.

Incontinence might reduce the utilisation of health services, as people become more immobile. However, when incontinence is a factor in producing depression, it might generate a higher demand.

Finally, incontinence could be a symptom in terminally ill patients. Any increase or reduction in services utilisation probably depends on the family arrangements for looking after the elderly patient.

e. Oral health

It is commonly believed that oral health is mainly a problem associated with childhood and that visits to the dentist are no longer necessary if false teeth are worn or the original teeth are lost. The reality is quite different. If elderly subject's teeth are in a bad condition, infections or inappropriate dentures can produce malnutrition and/or worsen other chronic conditions. At the same time some chronic conditions¹⁰¹ can generate a higher susceptibility for the teeth to be damaged. An association between oral health and vascular cerebral accident,¹⁰² coronary disease,¹⁰³ malnutrition,^{104,106,106,107,108} and other illnesses¹⁰⁹ has been reported.

Worse oral health conditions are in females,^{110,111,112} and in those with lower levels of education, socio-economic status¹¹³ or social class.¹¹⁴

Educating elderly people in basic hygienic measures could prevent some of these problems and others might be solved with the proper medical care and dental hygiene. Investment in oral health could have an impact on general health^{105,115,116} and reduce the possibility of further complications that have a high cost to IMSS, especially when there are other co-existing chronic problems as well.

f. Performance status

Performance status includes such variables as staying at home or in bed and cutting down on heavy and daily activities because of health problems. The times or the number of days that an elderly person cuts down on activities due to health problems is one indicator of the severity of both acute and

chronic illness. It also reflects the physical and mental ability of the elderly to cope with that episode. The same severity can generate different coping responses.

This group of indicators is rarely mentioned in the literature, apart from studying the performance in ADL or IADL. Performance status includes a group of intermediate indicators affected by acute events; however, they could influence the performance in ADL and IADL in the long term.

Such information has been considered relevant since it has economic implications. The SF-36 measurement scale includes some elements of these indicators to evaluate the physical or social functioning or the limitations in their social role generated by health problems. However, they are analysed and reported together with the rest of the health status scale.

Some authors have pointed out the importance of these variables as good indicators of the global health,¹¹⁷ functional well being, and life satisfaction.¹¹⁸ However, their use in evaluating health status and impact of health problems on the elderly population, or the effect on health services utilisation, have not been reported.

g. Mental depression

Depression is one of the most frequent and under-diagnosed problems amongst the elderly population. There are different ways in which they become depressed, including by structural and biochemical changes with age and with social and medical distress.

The importance of depression can be measured by its consequences. Among the consequences are an increased mortality^{119,120,121} (in particular by suicides), depression of the immune system and a greater liability to acute infectious diseases, worsening of chronic conditions due to inappropriate use of drugs, lack of treatment adherence and over-utilisation of emergency services are among those consequences.

The high risk of depression among elderly women has been reported before.^{122,123} This association could be explained by other factors as loneliness (they have more frequently been widowed¹²⁴), sickness and dependency (physically, socially and economically), more losses, and their poorer self-perceptions of health, education, and socio-economic conditions.^{50,122}

Poor performance in the ADL scale,¹²³ and physical impairment or handicaps¹²² have been previously associated with depression. Loneliness and iso-

lation generated by the lack of mobility could be a direct factor. Social intrafamilial and extrafamilial contacts^{122,125} have been reported as playing an important role in helping healthy and chronically ill people to cope with challenges and restrictions. When those contacts are restricted, the elderly subjects have a higher risk of being depressed.

Van Marwijk¹²⁶ et al have reported that general practitioners identified only 26% of those really depressed. This under diagnosis of the problem could be avoided using screening methods and more closely evaluating the elderly who are suspected of being depressed. It can be assumed that depressed elderly subjects would use health services more frequently, which would have consequences for medical care utilisation at all service levels.

h. Acute diseases

Although chronic diseases are the most common factors affecting the health of the elderly, acute diseases are also important since the risk of mortality and utilisation of health services is high even in healthy elderly people. When acute episodes are in those with chronic disease it can lead to an increase in complications. Among the most frequent acute problems are upper respiratory track infections and diarrhoea.

Pneumonia is a rare but important complication of upper respiratory infections in the elderly subjects. The high mortality rate and the increasing number of admissions to hospital¹²⁷ have lead to the promotion of the greater use of the influenza vaccine in developed countries. Metlay¹²⁸ et al. have reported that the recognition and reporting of pneumonia decreases with age, which is important in preventing mortality in this group of population.

i. Injuries

Injuries have been poorly explored in the elderly population, partly because the frequency is low compared with acute or chronic diseases.¹²⁹ However, these events can produce a great physical and mental deterioration and indirectly influence the incidence of new diseases or complications.

The higher frequency of accidents and injuries in women¹²⁹ is reported in other studies and is associated with poorer health conditions and a higher number of drugs used.

Falls and poisonings^{130,131,132} are the most common causes of injuries in

the elderly and preventive measures could easily be established to prevent them. Once these happen elderly subjects require more time to recover and take longer for rehabilitation.¹³³ Severe complications can more frequently lead to death. This is particularly true and important when one bone is broken, as this can lead to the mineral density and bone strength being reduced in this group of population. The prevention of injuries could help to maintain health, prevent deterioration and reduce health services utilisation.

The most common type of poisoning is by drugs. As Siegel¹³⁴ has reported, although the elderly may metabolise and eliminate drugs as well as younger people when they are healthy, susceptibility is influenced by decreases in the renal or hepatic rate¹³⁵ and the slower drugs elimination as a consequence. Heredity factors, general nutrition, general health status and incorrect management of drugs can also play a part.¹³⁶

Drugs need to be used carefully in this population.¹³⁵ Attempts are needed to use fewer drugs and the lowest feasible dose. An explanation to patients about side effects as well as when to stop taking the drug, and interactions with common self-prescribed drugs should be part of the written prescription. Self-prescription in Mexico is common since the acquisition of most drugs is without a medical doctor's prescription.

Adherence to prescribed drugs should be promoted through health education provided by the health team, as well as actions to be used in case of forgetfulness¹³⁷ or excess intake¹³⁸ need to be known by the elderly person and their family. At the same time, when the elderly people present new signs or symptoms not associated with chronic diseases, the first step should be to evaluate drugs that are taken and look for adverse effects.¹³⁹ Rochon¹⁴⁰ has proposed the concept of "cascade" such reactions thus are interpreted as due to a new disease, which is then followed by the prescribing of new drugs. Patients can experience other adverse reactions due to such un-necessary treatments.

j. Chronic diseases

Even though chronic diseases could be one of the most important groups of health conditions, little attention was paid to them until health economists more recently highlighted the increasing costs generated by them. In fact, current discussion has even focused on whether scarce resources should be invested on chronic problems for which there are no cost-effective interventions.

Elderly people are one of the most vulnerable groups with regard to rationing policies, since the frequency of chronic diseases increase with age. However, the shared proportion of the elderly in the total number of people with chronic diseases is not as high as it has been believed.¹⁴¹

In 1999, Fredman¹²⁰ et al. reported that 61% of the 806 elderly subjects 65+ years old under study had at least one chronic disease. Hoffman¹⁴¹ et al., using data from the 1987 National Medical Expenditure Survey in the USA, reported that 88% of the population 65+ years old reported at least one chronic condition. And in 1998, Harwood¹⁴² et al. reported 91% for the same age group in a London District.

Cornoni¹⁴³ et al., have pointed out that analysis of co-existing morbidities could help to identify preventive actions to avoid early mortality and complications in vulnerable groups. Freeman et al., reported 59% of their population having 1-3 chronic diseases with only 2% having four or more. Harwood¹⁴² et al., reported 74% of their population with 1-4 diseases and 14% with five or six and 3% with 7+ (2.7 conditions in average). Lorig¹⁴⁴ has reported an average of 2.3 chronic conditions per person in a 40 to 90 years old group of population. An association between the presence of chronic diseases, age (higher number of conditions as older they are) and gender (higher in women) has been found in the Gospel Oak Project.¹⁴²

The most frequently reported chronic conditions in the literature are: high blood pressure (HBP),^{142,145,146} diabetes mellitus,¹⁴⁷ and arthritis.¹⁴² Independently of the frequency of one chronic disease or the other, it is important to consider the complex presentation when acute or chronic diseases occur together or when they become complicated. The burden for the elderly can be increased when, in addition to chronic or acute problems, there is also sensory loss, incontinence or a reduction in physical or social activities.

This increasing complexity has a direct effect on the utilisation of health services. Sometimes this is also due to the way health services and programmes are structured as well as self-perceptions about the need for services.

The first logical step in reducing the cost of health services associated with population ageing would be to improve this population's health status. This could be achieved by delaying the onset of the chronic diseases or disability; and reducing sensory losses, co-morbidity and acute complications of chronic conditions. Prevention and treatment of depressive disorders would also help.

The healthier a population ages the fewer resources that would be needed

in delivering services. Controlling one of the important variables could reduce the exponential increment expected with the population ageing. If the number of years with chronic conditions could be reduced, so would the need for services.

Greater equity is one of the objectives to be achieved by health systems. If this value is to be applicable to elderly citizens, the investment they require is higher but worthwhile in human societies. Measures to ration the delivery of services for the elderly need to be evaluated, therefore, not only from the economic perspective but also for their ethical component.

3.4. SUMMARY

1. One of the aspects receiving attention in international organisations is the increasing cost of health services, caused in part by increases in population ageing.
2. Factors influencing utilisation of services can be divided in those from the organisation of health services and those related to the individual itself.
3. Policy decisions based on the organisational point of view have been promoted in order to reduce the utilisation of services and their costs.
4. Although organisational factors are important, this thesis has focused on the characteristics of elderly people which influence the utilisation of health services, especially those related to health status. This research supposes that savings per capita are possible only if health status is improved by using promotion of health, prevention of diseases, treatment and rehabilitation.
5. Health policies with economic objectives without any consideration of the health status of elderly people health status and their needs are possible, but ethically and socially very questionable.
6. Anderson's framework was used and modified to analyse factors influencing the utilisation of services in IMSS by the elderly.

7. Although the analytical model was created to help understand services utilisation in IMSS, it could be used also to study utilisation in other institutions and countries.
8. The model considered two sets of individual factors: enabling and predisposing factors. Health status characteristics were included in the later group.
9. Enabling factors included socio-demographic and family characteristics. Predisposing factors included risk factors, disability, self-perception of health, mental depression, changes in activities due to health problems, and acute and chronic diseases.
10. Although international organisations have focused their attention on chronic diseases, the assumption in this study is that utilisation and costs for chronic diseases also increase according to other factors.
11. Most of the other conditions included in the predisposing factors are preventable and treatable, thus avoiding worsening chronic diseases and loss of functional capacity.
12. It is possible that future promotion and prevention programmes should focus on effective ways of keeping patients free from chronic diseases.