PUBLIC HEALTH INSTITUTE OF SPLIT-DALMATIA COUNTY

SOCIAL AND MEDICAL CHARACTERISTICS OF THE ELDERLY POPULATION IN SPLIT

Split, 1998.

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PREFACE: Demographic Changes in the World's Population

For a variety of reasons, the world's population, especially that in Europe, is aging significantly. This is due to a multitude of factors. Population changes today affect our lives in much more immediate ways than they have throughout most of human history. In fact, for the first one-half million years of human existence, the population growth rate was roughly zero.

The population grew rapidly during the Industrial Revolution, not because the birth rate increased, but because the death rate began to fall. This "mortality revolution" began in Europe during the 1700s, and later spread to North America.

This fall in the mortality rate was due to an increased standard of living, and public health-care systems evolving from new technologies and increasing industrialization. In addition, there were new farming methods which increased the food supply and lessened the threat of famine.

Late in the 19th century, birth rates fell in Europe and North America. Since the 1900s, both birth and death rates in developed countries have continued to fall in tandem.

Demographers have attempted to explain the experience of these developed countries as a demographic transition from high birth and death rates to the current lower levels. Such a transition tends to occur in three stages:

Stage 1:

High birth rates and
High mortality rates = slow population growth

Stage 2:

High birth rates and
Low mortality rates = rapid population growth

Stage 3:

Low birth rates and
Low mortality rates = slow population growth

All developed countries have entered the third stage of demographic transition, while a few have gone on to a fourth stage where death rates are higher than birth rates, and the population has begun to decline.

The patterns of decline for mortality and fertility are different in developing countries. Therefore, the theory of the demographic transition is not completely appropriate in those instances. Regardless, a similar process is occurring in developing countries where mortality rates have fallen rapidly with the introduction of medical and public-health technology. Birth rates also began to decline in the 1970s.

Other than total size, the single most important demographic characteristic of a population is the age-sex structure, or the proportion of people at each age by sex. The age-sex structure of a country is often studied through the use of population pyramids, where the overall shape of the pyramid indicates the potential for future growth. This is illustrated in the following four examples.

The age-sex structure of a population determines its needs, and for this reason, has important governmental policy implications. For example, a population with a large proportion of young people

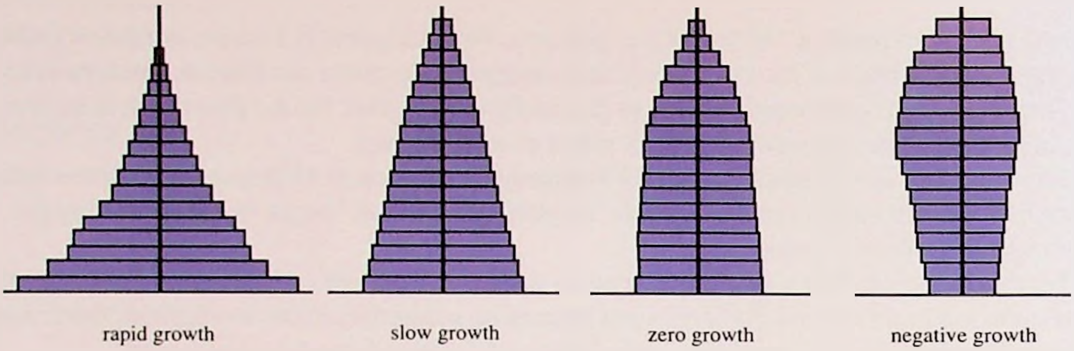


Figure 1. Transition from "Young" to "Old" Age - Sex Structure

needs a sufficient number of schools and, after graduation, enough jobs to accommodate the new members of the workforce. Countries with a large proportion of elderly people on the other hand, must develop retirement systems and medical facilities to serve them.

The aforementioned demographic transition is coupled with an epidemiologic transition. This means that as a population grows older, non-infectious, chronic diseases replace infectious diseases as the main cause of illness. Such changes in disease patterns have always had a strong impact on overall national health systems. This is especially evident in Europe, where the care and treatment of elderly patients affected by chronic disease is increasingly more expensive.

For these reasons, Cooperazione Italiana (Department for Cooperation, Italian Ministry of Foreign Affairs) encourages and supports programs to serve the elderly. These programs permit the Ministry of Health and public health institutes and hospitals to select the most effective and efficient health care for elderly populations.

In 1997, the Ministry of Health supported studies of the elderly which were carried out by the Public Health Institute of Split and Dalmatia County. Cooperation between the Republic of Croatia and the Italian government via Cooperazione Italiana provided the support for these studies. It is our hope that survey results regarding the social and medical characteristics of the elderly population will be a useful tool in the assessment of resources needed to care for the elderly.

COOPERAZIONE
ITALIANA

INTRODUCTION

Avoiding the changes implicit in the aging process has always occupied the human mind. Characteristic of almost every historical period and society is a belief in "immortality" and a search for "everlasting youth."

Cultures to this day promote youthfulness as the normal and desired state. Media is dominated by young and successful people, and the message is sent: it is imperative to maintain your youth, health and good looks.

While attempting to attain such "everlasting youth" however, many people grew old, and were completely unprepared for their own aging as a normal part of life.

Modern medicine is looked to to answer many of the questions that arise as one ages. Staying active and healthy, prolonging life and even delaying death, are the goals of many medical activities.

"Old is everyone who is ten years older than we are."

It is not easy to define old age. The aging process is a complex phenomenon which should be observed from demographic, biological, social and psychological points of view.

Demographically, old age is defined as 65 years of age and over (65+). This definition, while clear, is not readily accepted from a biologic point of view due to the great variations in abilities exhibited by individuals of the same age.

From the biologic standpoint, aging is a basic, biological process which leads to the constitutional and functional changes of all organisms, and there are great differences between individuals throughout this process.

Sociologic theories explain the position of the elderly in society. It is well known that social roles, the passing down of cultural traditions and the support of family members in everyday life are important factors for a long and healthy old age.

The position of elderly people in society is related to the distribution of social and economic power, factors that are constantly changing. Rapid technological development in modern society has caused elderly people to lose their "knowledge and experience monopoly" they had in traditional societies. This then, can be seen as the basis of their decline in the participation of active life.

Psychological theory describes the decline of psychological functions. There are many organic degenerative processes which reduce cognitive and perceptive abilities.

Such processes lead to the loss of physical and intellectual capabilities necessary for the elderly to retain their independence.

It is a common characteristic of old age to eventually become dependent on other people.

In traditional societies, this responsibility falls to the family. Modern societies however, have experienced changes which make institutions an appropriate and even necessary alternative for providing care to the elderly. Special problems are evident for older people without children, or whose children live far from them. The number of elderly people who live alone is increasing, and more and more, assistance for them must be organized in institutions. The rise in the number of elderly as a whole only compounds this problem for modern societies.

The fact that the proportion of elderly people in the total population is constantly increasing has affected the social and health needs of the population as a whole.

According to United Nations estimations, the proportion of the 65+ population will increase from 12.3 % in 1985 to 14.2 % in 2000. Countries in which the proportion of 65+ individuals exceeds 10% are considered "older societies" (Chart 1).

The aging of a population should not be confused with individual aging. Population aging is the change of a population's structure due to births, deaths and migrations. It is not necessarily related to the prolongation of individual life.

In other words, older societies do not have the same characteristics as older men, even though there are some formal similarities. For example, one similarity might be a decrease in the number of new descendants, although in the case of a society, this does not necessarily lead to a slow down in development.

Croatia is one of the countries in which we find a large proportion of 65+ individuals. According to demographic data from 1991, 65+ individuals account for 11% of Croatia's population.

Demographic Characteristics of the Elderly in Split, Croatia

Split is a town where many would prefer to spend their later years. In the center of the city, on the Eastern coast of the Adriatic Sea, is a third century palace built by the Roman emperor Diocletian. He chose the bottom of the Marjan hill for its Mediterranean climate, sources of thermal water, a coast sheltered from strong winds by the islands of Brać, Hvar and äolta and the mountains of Kozjak and Mosor.

Today, Split is the cultural and economic center of Split-Dalmatia County. It is the county's largest town, and the second largest in all of Croatia. Split-Dalmatia County has 474,019 inhabitants, 200,459 of whom live in Split. The proportion of the 65+ population compared to the total population is constantly increasing both in Split and the County as a whole (Chart 2).

A 65+ population of 10.5% and an age index of 0.55 define Split-Dalmatia County as an elderly population. As for the town of Split, according to the Census of 1991, 9.06 % of its residents belong to the 65+ population, and the age index is 0.32 (despite these high numbers, Split is not the "oldest" of the County's towns). The distribution of Split's population by age and sex is presented in Chart 3. Females account for 59% of the population, males 41%.

All parts of the town are not equally "old." Demographically, the oldest parts of Split are Bačvice, Lučac-Manuš, Meje (proportion of elderly population in total ranges from 15.8 to 27.43%), and Sitno Donje, Sitno Gornje, Grad, Gripe, Lovret, Slatine, Spinut, Bol, Plokite, Varoš (10.15 - 14.33%).

"Younger" parts of Split are Blatine, Brda, Kman, Lokve, Split 3, Srinjine, Trstenik, Žnjan and Žmovnica (5.38 - 9.56%).

The "youngest" parts of the town are Kamen, Kocunar, Mejaši, Mertojak, Neslanovac, Pujanke, Ravne Njive, Sirobuja, Stobreć, Sućidar and Visoka (2.36 - 4.64%) (Figure 2).

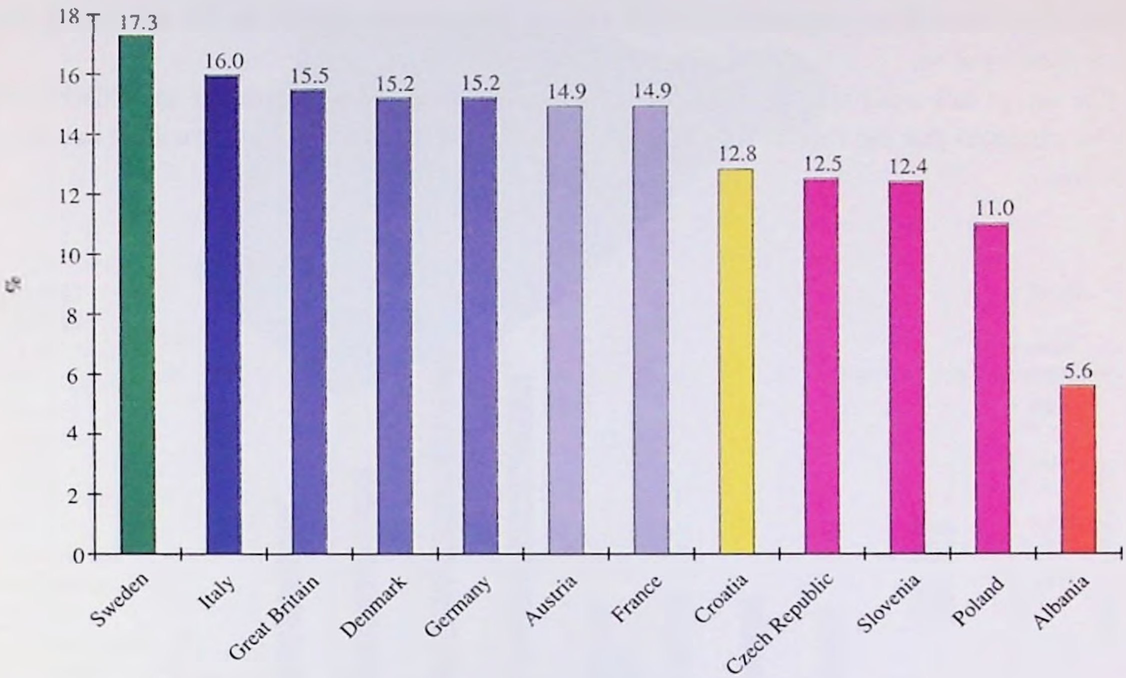


Chart 1. Proportion of 65+ population in European countries in 1995

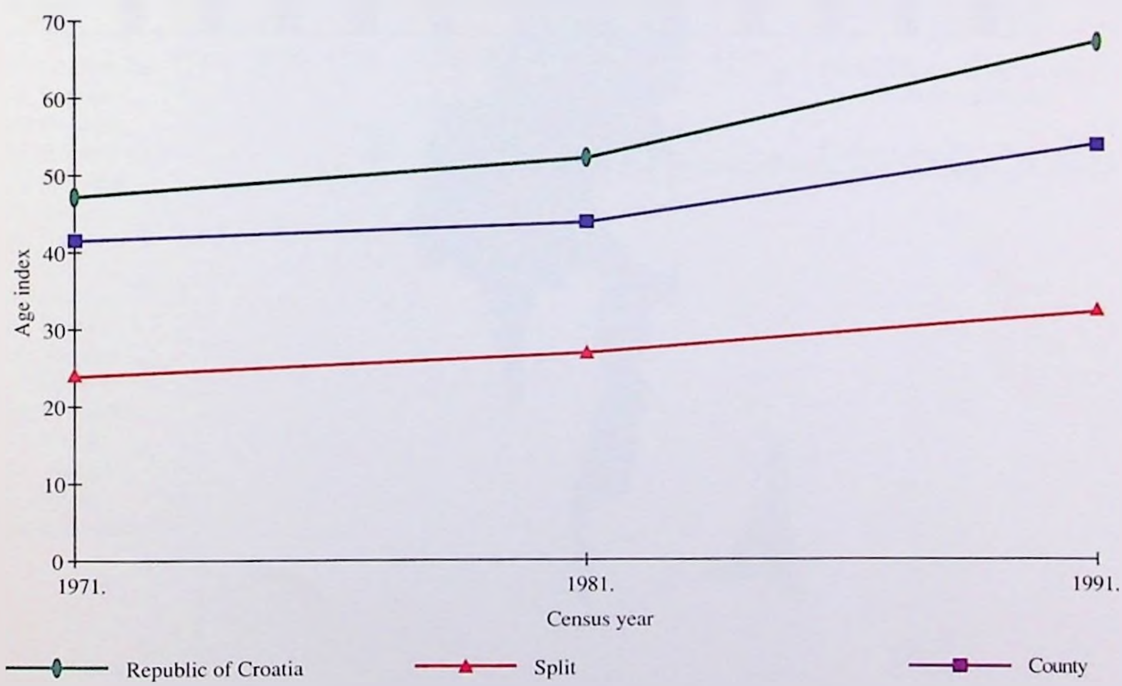


Chart 2. Population age index of Republic of Croatia, Split and Dalmatia County and town of Split according to 1971, 1981 and 1991 Census data

Demographically, the population of Split can not presently be defined as old, but trends suggest that it will become so.

The aim of this study is to describe the social and medical characteristics of the elderly in Split. It can be expected that the results will help to illuminate the health status and medical needs of this population.

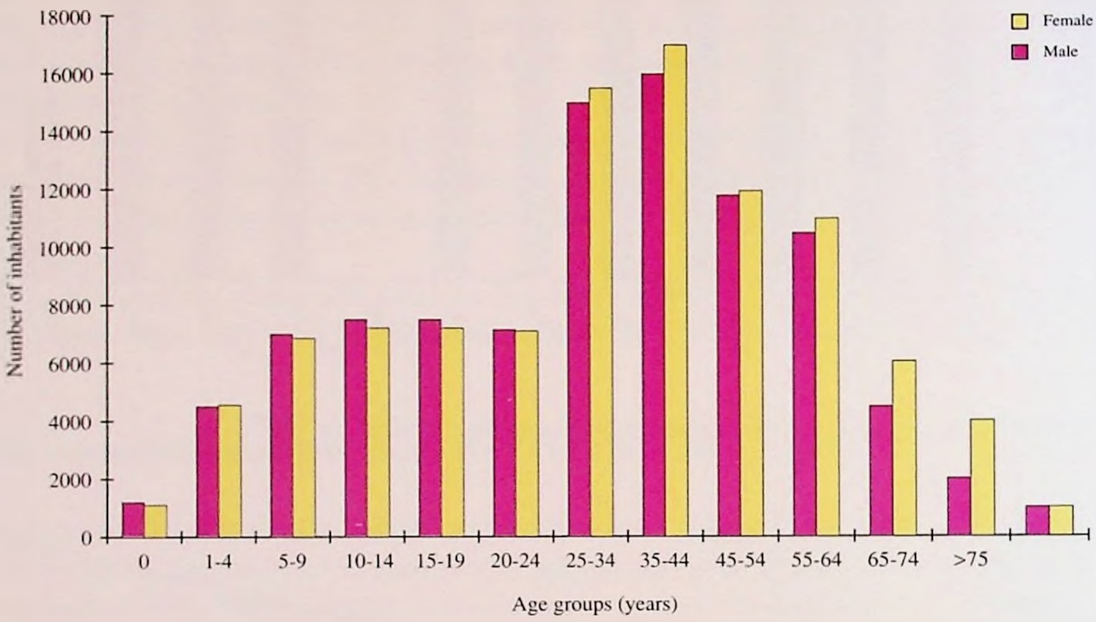


Chart 3. Age and sex distribution of population in Split

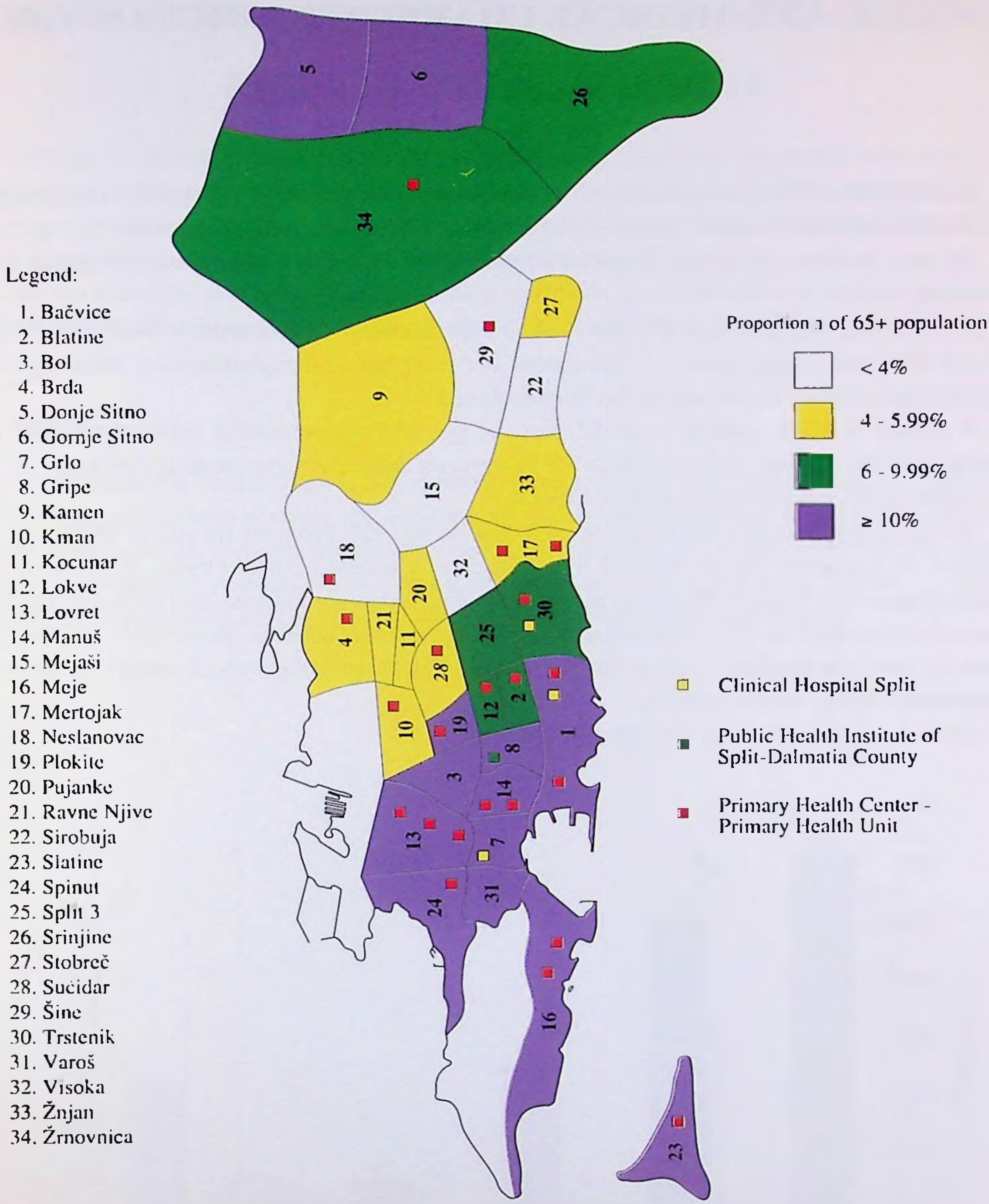


Figure 2. Distribution of 65+ population in total population according to town districts

SOCIAL AND MEDICAL CHARACTERISTICS OF THE ELDERLY - STUDY RESULTS

In this study, methods of descriptive epidemiology and statistics were applied. Demographic, mortality and morbidity reports from official public-health publications have been used.

Surveys on the social and medical characteristics of the 65+ population have been designed and carried out.

Research has been conducted by the Public Health Institute's Department of Social Medicine in Split and Dalmatia County, and its collaborators. For that purpose the questionnaire about social and medical characteristics of old people has been designed.

A sample of 1000 subjects over 65 years of age who are permanent residents of Split were selected from the Croatian Institute of Health Insurance's database using random sampling. The age distribution of the sample is presented in Chart 4.

Research was done during September and October of 1997. From the sample of 1000, 815 were examined. We failed to examine 185 (18.5% of the chosen sample). Among these, 84 (45%) refused to participate, 47 (25 %) died, 18 (10 %) moved to another unknown address, 20 (11%) were not found after several tries and 16 (9%) were unknown at their permanent address. Those who refused to participate or were not available, fell primarily into the 65-69 age group, which should be taken into consideration during results analysis.

Data were analyzed using Epi Info 6.0. software.

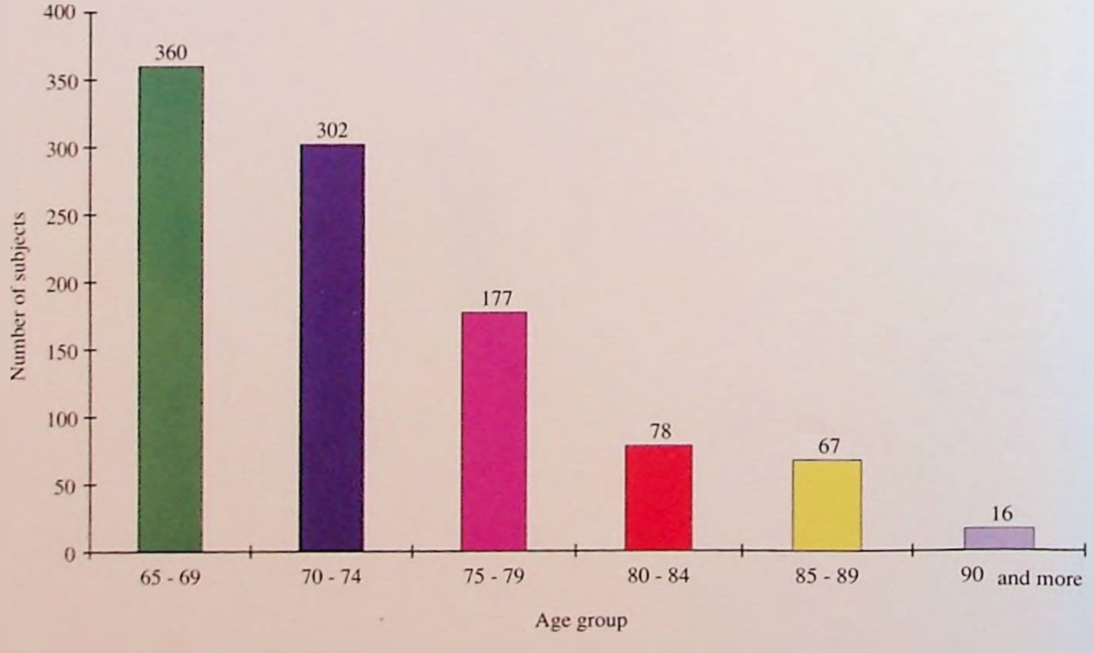


Chart 4. Age distribution of Split 65+ subjects included in sample

SOCIAL CHARACTERISTICS

The social characteristics of elderly people significantly influence their health needs and condition. Factors such as retirement, loss of a spouse and/or friends, chronic degenerative diseases and declining psycho-physical capabilities all significantly weaken the links of elderly people to their social surroundings, and as a result, their lives are less active.

Survey questions concerning family participation in their care, connection to their social environment, living conditions, work attitude etc. are therefore especially important.

Marriage

Being married is an important factor of stability and support in one's life. The loss of a spouse is one of the greatest sources of stress, and significantly influences one's quality of life and health status.

According to the research results, the majority of males in the target population are married (81%). The majority of females, on the other hand, live alone. 53% are widows, 4% are divorced and 4% were never married (Chart 5). The number of elderly living alone is on the rise.

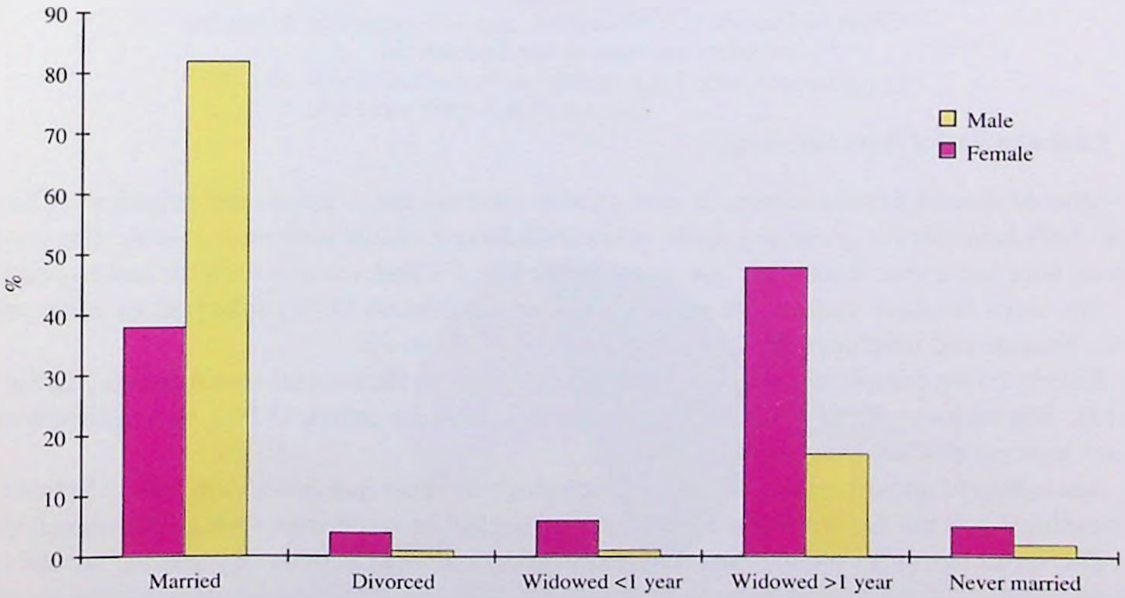


Chart 5. Distribution of subjects age 65+ according to marital status and sex

Number in Household

The structure and composition of the families of the elderly change with age. Children leave home and establish their own family, while others migrate to seek employment. In developed, modern societies, there are more and more elderly people living alone or in small elderly households. In Western Europe and the United States, it has been estimated that 30% of the elderly live alone.

Such trends are found in Split as well. Research results show that 13% of the 65+ population live alone, and 37% live with only one other person in the household, often around their own age (Chart 6).

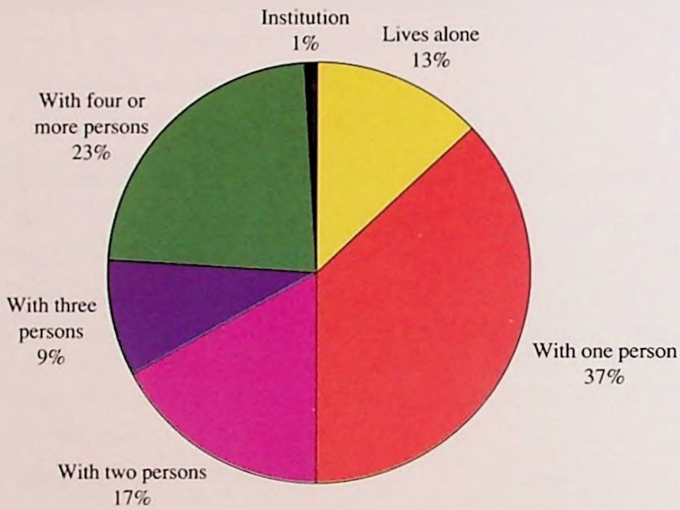


Chart 6. Distribution of subjects age 65+ according to number of other persons in the household

Links to Social Surroundings

Most of our subjects have regular contact with their families, friends and neighbors (Charts 7, 8 and 9). 68% have regular, everyday visits, while 19% have a visit at least once a week. The proportion of those who had a visit during the last month were 6%; 7% had a visit within the last two months.

The most frequent visitors are children and grandchildren (43%) followed by other relatives (24%). Friends and neighbors are less involved (33%).

Elderly living completely alone have the poorest links to their social surroundings (Charts 10, 11 and 12). The majority of the 13% of subjects who live alone are female (81%), have no children (46.6 %) and have no regular, everyday visits (81%).

According to quoted results, it can be concluded that these individuals are poorly linked to their surroundings. It is not known if this is the result of neglect or sometimes their own personal choice.

The social ties of the elderly depend greatly on their level of activity. By seeking out the support of their society and redirecting them to an active life, it is possible to better integrate the elderly into their social environment. For this reason, it becomes necessary to found clubs for the elderly in their own communities, encouraging them to self-organize and socialize through a variety of activities.

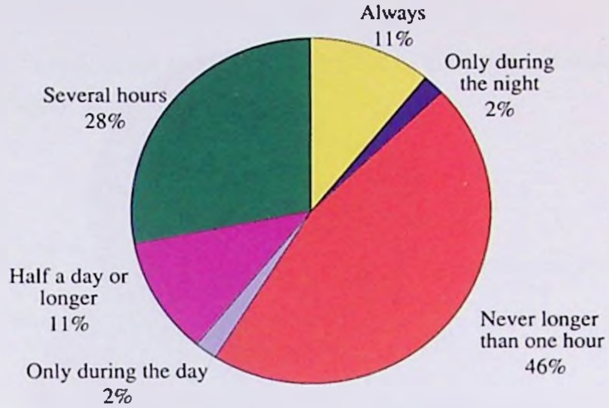


Chart 7. Distribution of subjects age 65+ according to time they spend alone

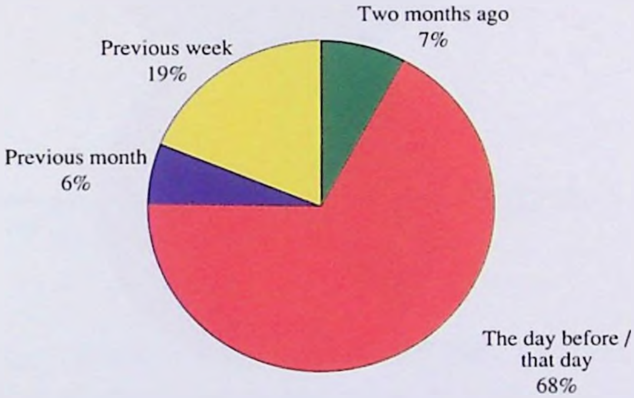


Chart 8. Distribution of subjects age 65+ according to the time they had last visit

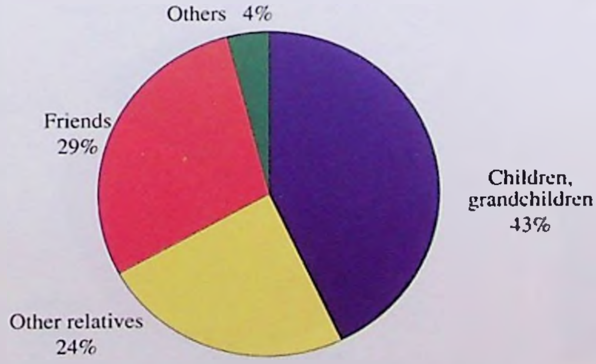


Chart 9. Distribution of subjects age 65+ according to their last visitors

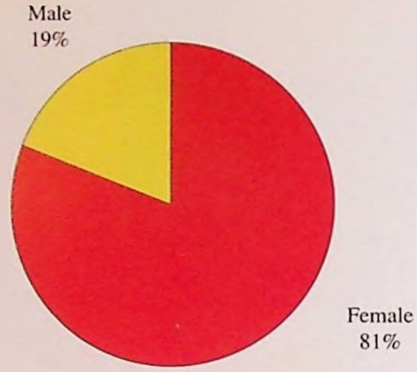


Chart 10. Distribution of subjects age 65+ living alone according to sex

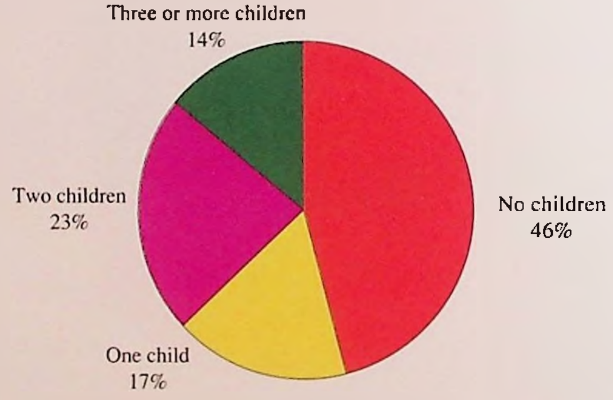


Chart 11. Distribution of subjects age 65+ living alone according to number of children they have

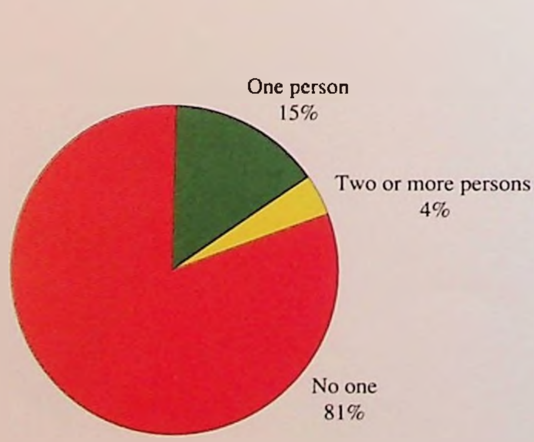


Chart 12. Distribution of subjects age 65+ living alone according to number of everyday visitors

Level of Education

The distribution of subjects' education level is presented in Chart 13. Most of them have completed secondary (26%) or vocational school (14%).

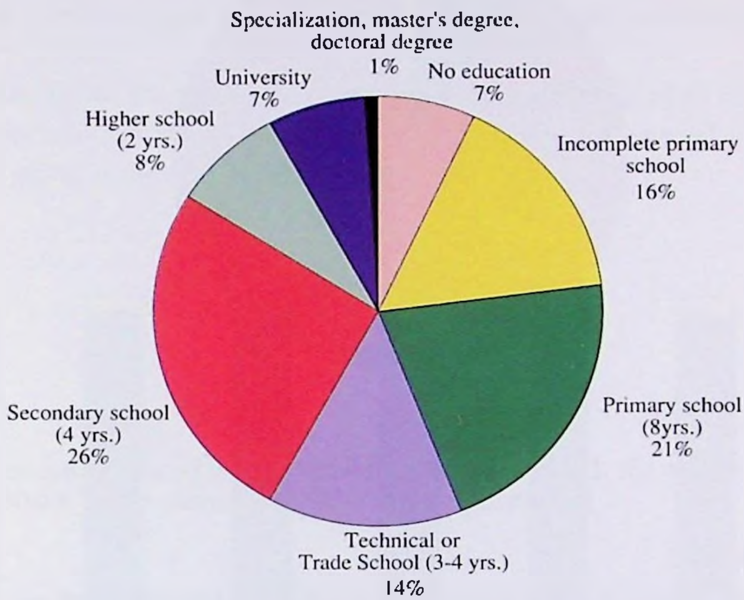


Chart 13. Distribution of subjects age 65+ according to the level of education

Employment Status

Research results show that 71% of 65+ subjects are retired. Only 2% are employed occasionally or permanently (Chart 15). 27% of subjects never worked, all of them female. Most of the subjects (90%) would not accept any job opportunity at all.

Chart 14. Employment status of 65+ population in Split

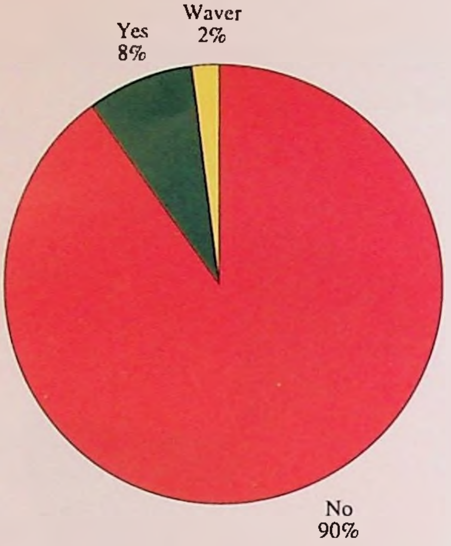


Chart 15. Distribution of subjects age 65+ according to possibility of continuing with their work

Living Conditions

Standard of living, and living conditions greatly influence the quality of one's life. The majority of our subjects (85%) own the apartment or house they live in. Most others live in their children's apartments or are in the process of buying the apartment in which they live.

Most of the subjects have enough space to live comfortably; 60% have more then 21 square meters per person, 34% have between 11 and 20 square meters per person and 6% have less than 10 square meters per person (Chart 16).

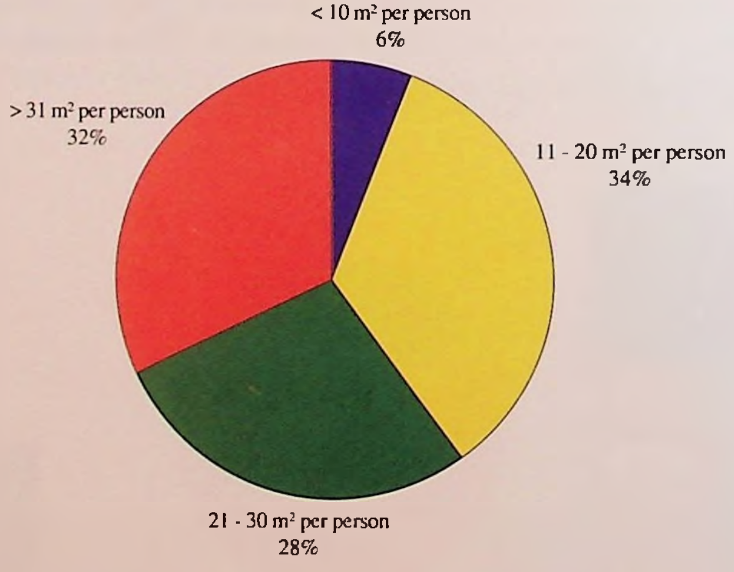


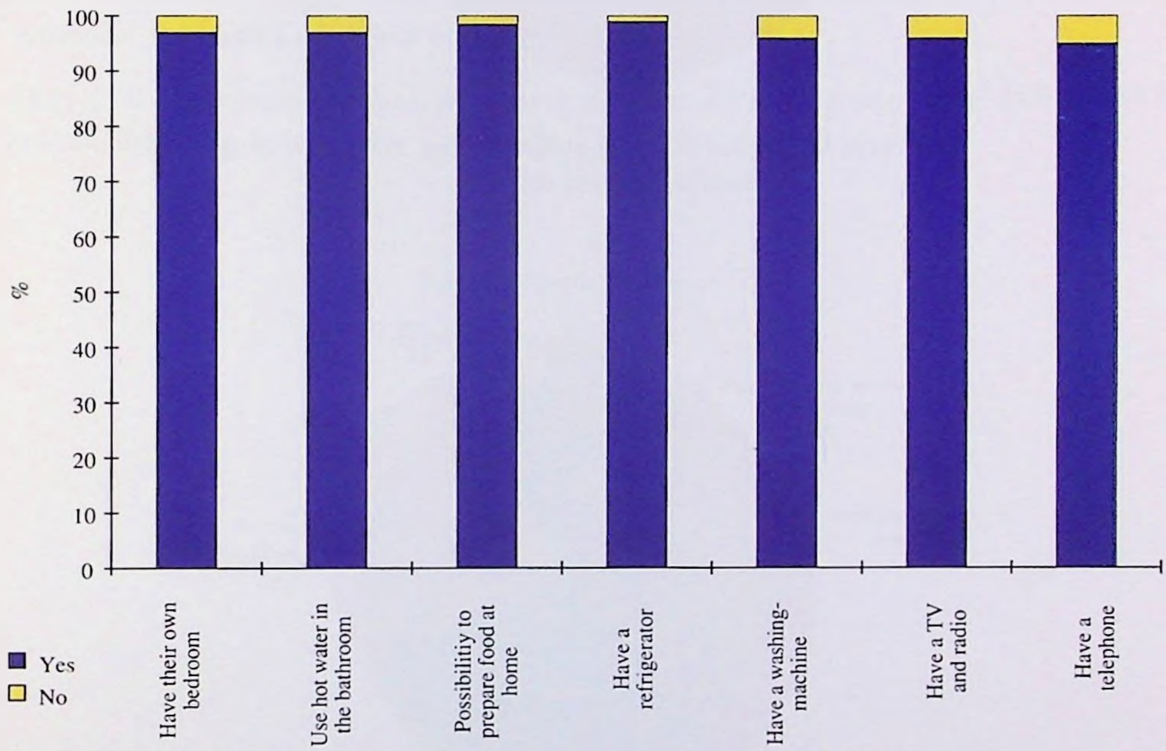
Chart 16. Distribution of subjects age 65+ according to average household area (in m²) per person

More than 90% of subjects have basic appliances in their apartments (Chart 17). Almost all of them have their own bedroom, the ability to prepare meals, a refrigerator, bathrooms with running and warm water, a washing machine, television, radio and telephone.

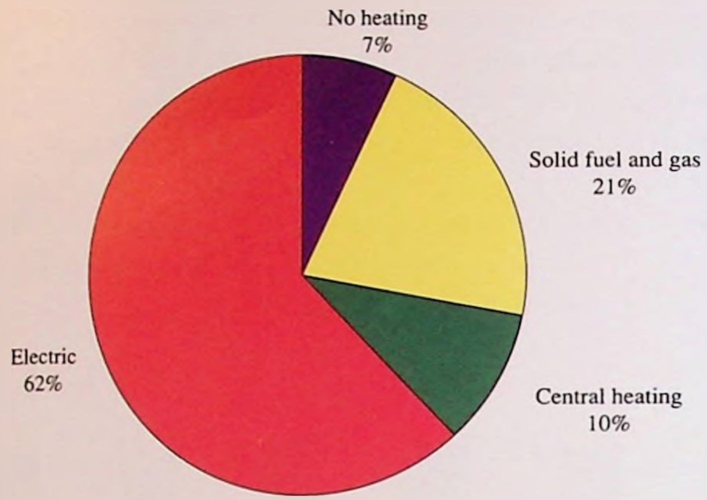
Electric heat is the most common for elderly households. It is the most convenient, as there is no need to bring in gas or wood.

A troubling finding is the 7% of subjects who cannot afford to heat at all (Chart 18).

Only 39% of subjects live on the ground or first floors. 61% live on second or higher floors which can make coming and going somewhat difficult (Chart 19).



Grafikon 17. Distribution of subjects age 65+ according to their living standard



Grafikon 18. Distribution of subjects age 65+ according to heating system they use

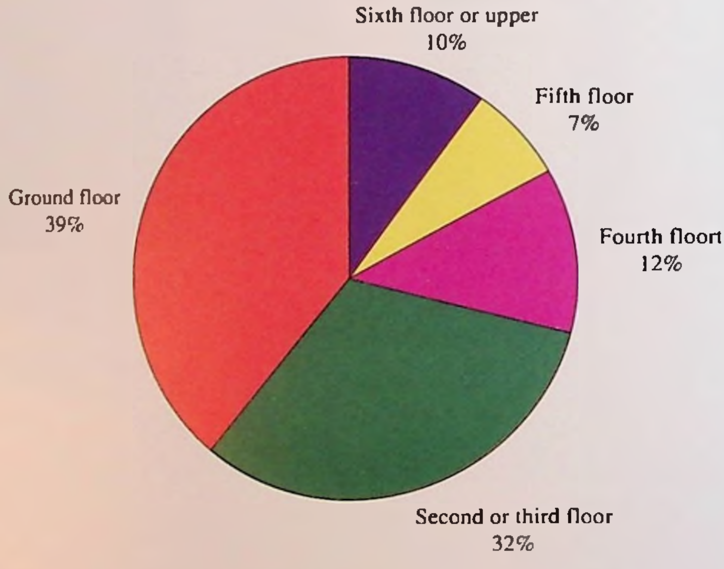


Chart 19. Distribution of subjects age 65+ according to the floor they live on

Economic Status

Pensions are the primary source of income for most subjects. Although they were asked to list the average income per member of their household, most of them refused to answer. These data, therefore, could not be presented here.

Subjects were also asked to estimate their economic status. More than half of them (58%) placed themselves lower than average (Chart 20).

58.56% of subjects do not provide any assistance to their children or relatives.

63% of them, however, do receive such help from their children (Charts 21 and 22).

Attitude Towards Living in a Nursing Home

Only 15% of subjects want to live in nursing homes. Of those living alone, 18% would like to live in a nursing home.

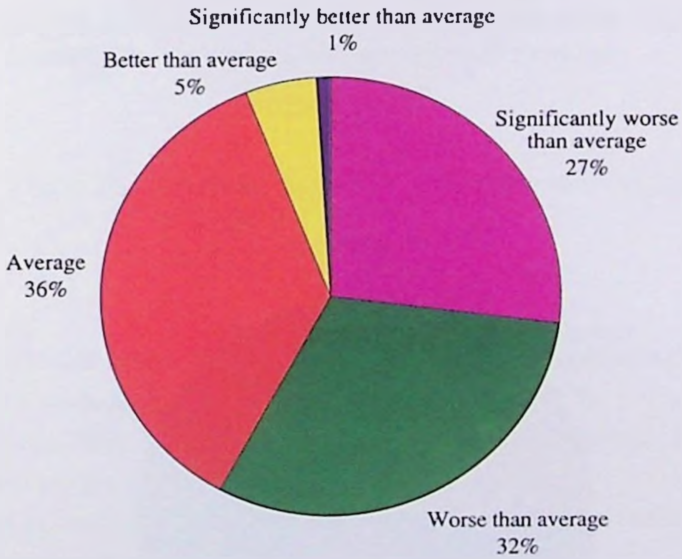


Chart 20. Distribution of subjects age 65+ according to their personal estimation of their economic status

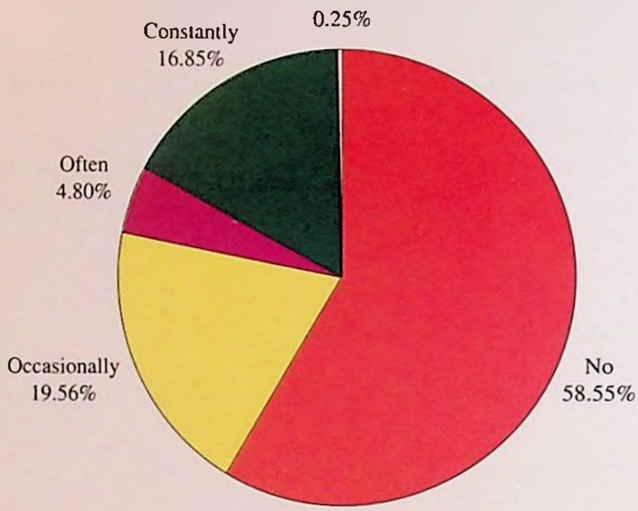


Chart 21. Distribution of subjects age 65+ according to support they give to their children or relatives

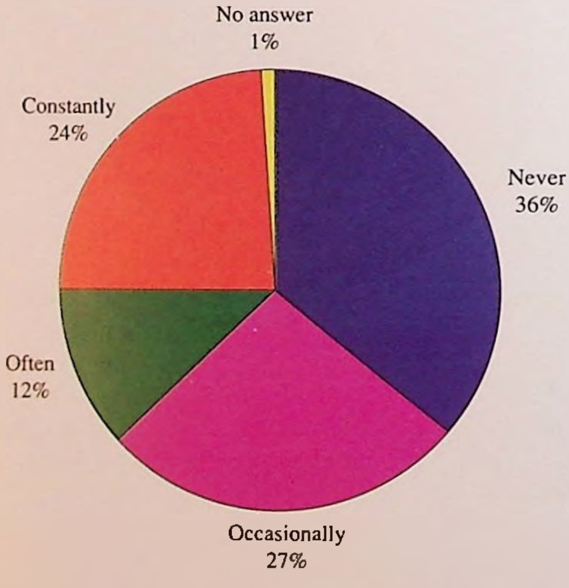


Chart 22. Distribution of subjects age 65+ according to support they get from their children

ACTIVITIES OF DAILY LIVING (ADL)

Chronic degenerative processes are characteristic of aging, and lead to loss of functional abilities. Elderly people become less mobile, and therefore spend more and more time inside the home. Most of our subjects reported participating in activities outside the home regularly or occasionally. Only 12% had not left the house in the past year, while 4% reported doing so once a month (Chart 23).

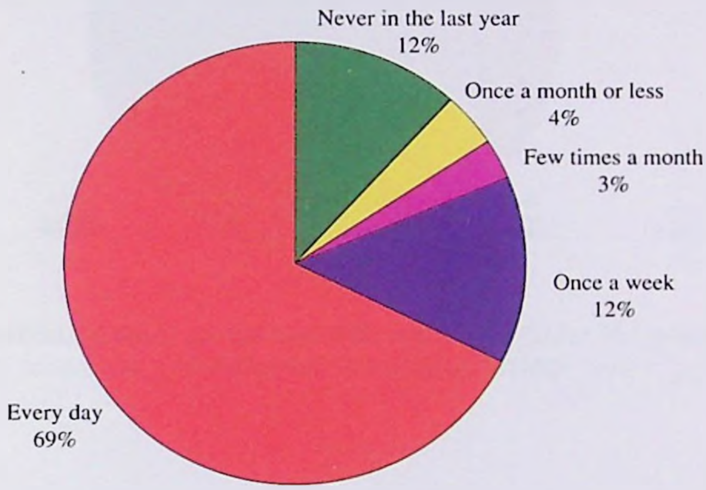


Chart 23. Subjects age 65+ according to activities out of home

When going outside the home, 30% of subjects feel fearful or insecure (Chart 24). In 82% of these cases, the cause of such feelings is health problems (Chart 25).

Basic, daily activities have been broken down into three categories:

1. basic functions (personal hygiene, dressing, eating, etc.)
2. daily activities at home (preparing meals, washing clothes, cleaning, etc.)
3. doing activities outside the home (walking, shopping, etc.)

The majority of subjects (90.4%) are able to take care of their basic functions (including getting up in the morning, dressing, eating, personal hygiene, using the toilet and controlling urination and defecation) (Chart 26). Needing help in one of the activities (most frequently, bathing) was reported by 4.6% of subjects. Only 1.2% were completely dependent on others for all categories of activity.

Needing help in some of the daily activities at home (food preparation, laundry, cleaning, etc.) is reported by 14.6% of subjects (Chart 27). Help with more strenuous activities (moving furniture, cleaning windows and floors, etc.) is needed for 33% of subjects.

More subjects need help with activities outside the home. A slightly higher number of subjects is unable to perform such activities - 20% are unable to independently, partially or completely, leave the home, go shopping, or use public transportation (Chart 28).

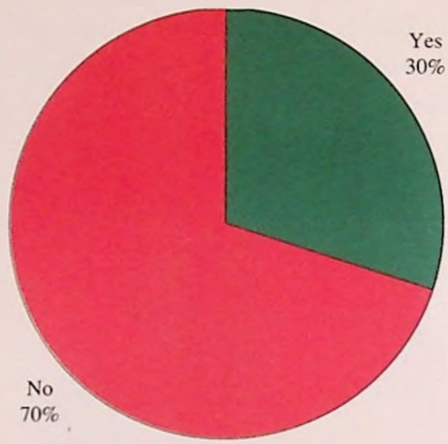


Chart 24. Subjects age 65+ according to sense of fear / insecurity when leaving home

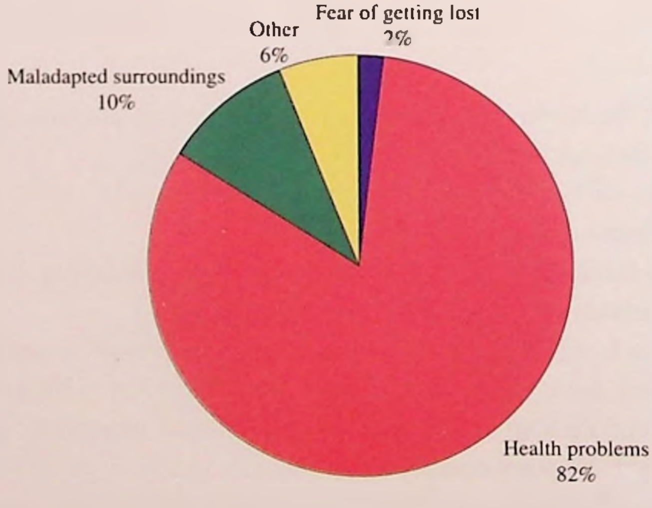


Chart 25. Distribution of subjects age 65+ according to causes of fear / insecurity when leaving home

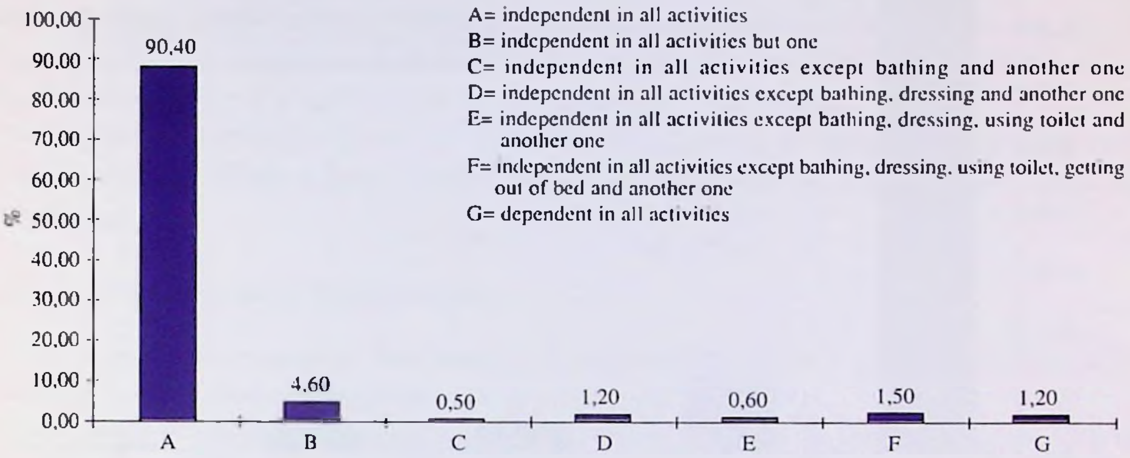


Chart 26. Distribution of subjects age 65+ according to basic daily activities (bathing, dressing, urination and defecation control, using toilet, getting out of bed, eating)

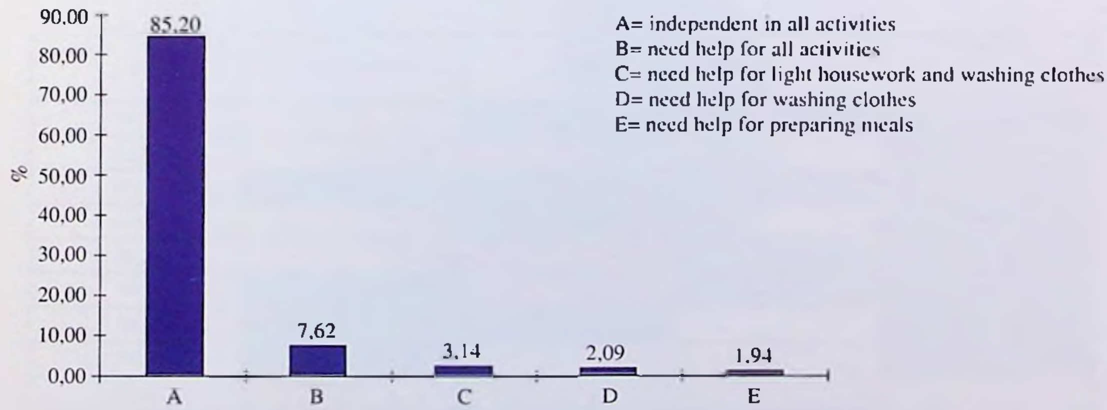


Chart 27. Distribution of subjects age 65+ according to daily activities at home (light housework, washing clothes (using washing-machine), preparing meals)

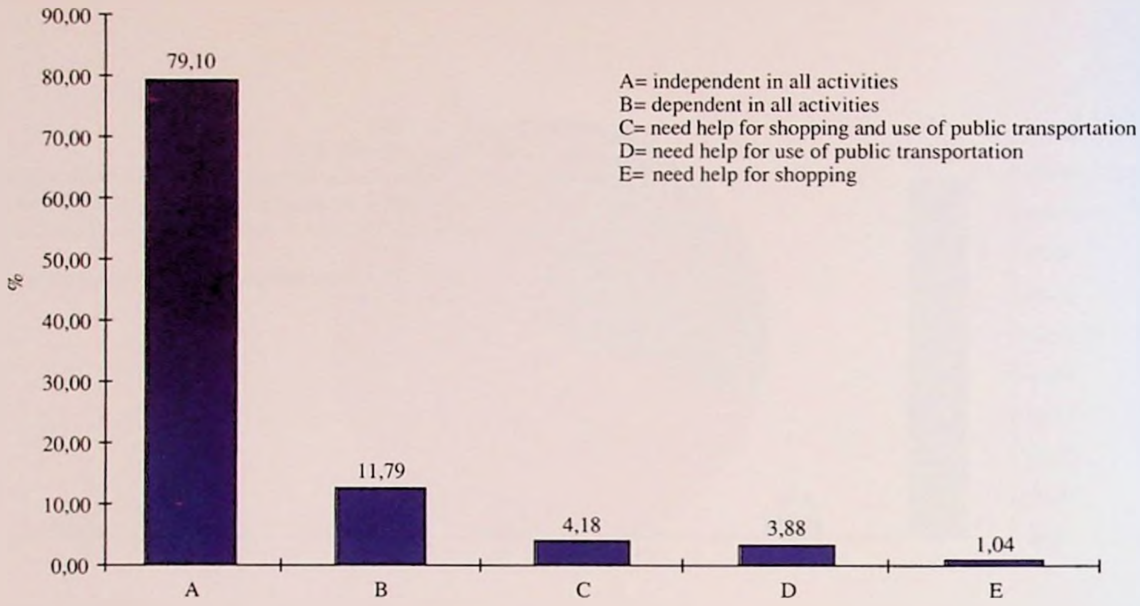


Chart 28. Distribution of subjects age 65+ according to daily activities out of home (going out of home, shopping, use of public transportation)

Table 1 shows some of the activities and hobbies of our subjects. Most of them regularly visit relatives and friends, go for walks, watch television, listen to the radio and read the paper. 1.49% of subjects do none of the above, while 15.47% only watch television, listen to the radio or read the paper. Only 19% of subjects still do some kind of physical exercise.

Watching TV, listening to the radio, reading the newspapers	Walks	Visits	Exercises	%
x	x	x	-	40.47
x	-	-	-	15.47
x	x	x	x	13,86
x	-	x	-	12.13
x	x	-	-	10.40
x	x	-	x	1,86
x	-	x	x	1,86
x	-	-	x	1,49
-	-	-	-	1,49
-	x	-	-	0.37
-	-	x	-	0.37
-	x	x	-	0.25
Total				100,00

Table 1. Distribution of subjects age 65+ according to some free activities

MEDICAL CHARACTERISTICS

Chronic degenerative processes become a more common source of illness as we age. Such decline in psychological and physical abilities result in varying levels of impairment. Morbidity rates significantly influence one's health needs, as well as the use of health care.

In an effort to learn more about the morbidity of the elderly in Split, we asked them several questions concerning health disorders in the prior week, chronic diseases and their own estimation of their health status.

Personal Estimation of Health Status

Most of the subjects consider their health to be satisfactory (37%) or good (26%). Only 25% of the 65+ population consider themselves to be in poor health (Chart 29).

When asked to compare their health status with that of others in the same age group, 42% think that they are in better condition than others (Chart 30).

When asked to compare their health status with the previous year, 47% of subjects estimate their health worse (Chart 31).

Chart 29. Distribution of subjects age 65+ according to their personal estimation of their health

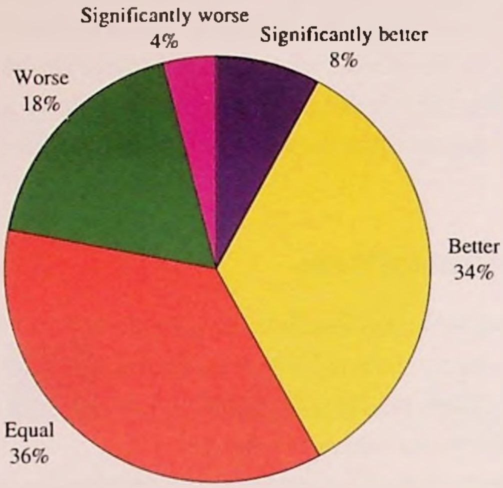


Chart 30. Distribution of subjects age 65+ according to their personal comparison of their health to the health of other persons of the same age

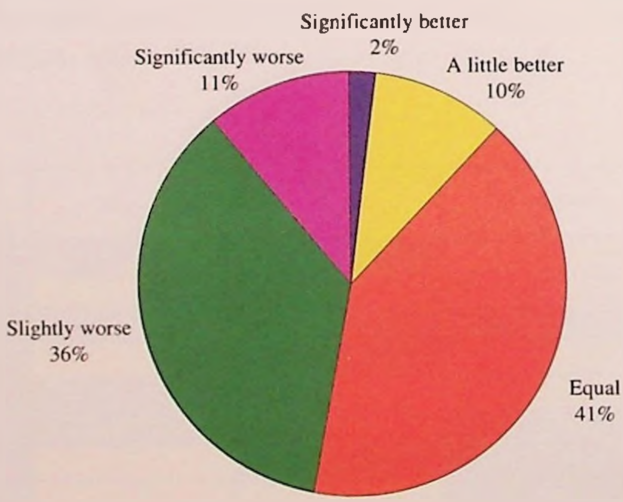


Chart 31. Distribution of subjects age 65+ according to their own estimation of their health in comparison to last year

Health Disorders

In the week preceding our research, more than half of subjects (64%) complained about tension and nervousness. 59% of them had pain in their joints and back. Less frequent complaints were general weakness (41%), headaches (37%), palpitations (35%) and abdominal pains (27%). Respiratory and dysuric problems were reported by 20% of subjects, chest pain by 22%, transitory loss of consciousness 20% and lack of appetite 17%. Injuries were reported in only 5% (Chart 32).

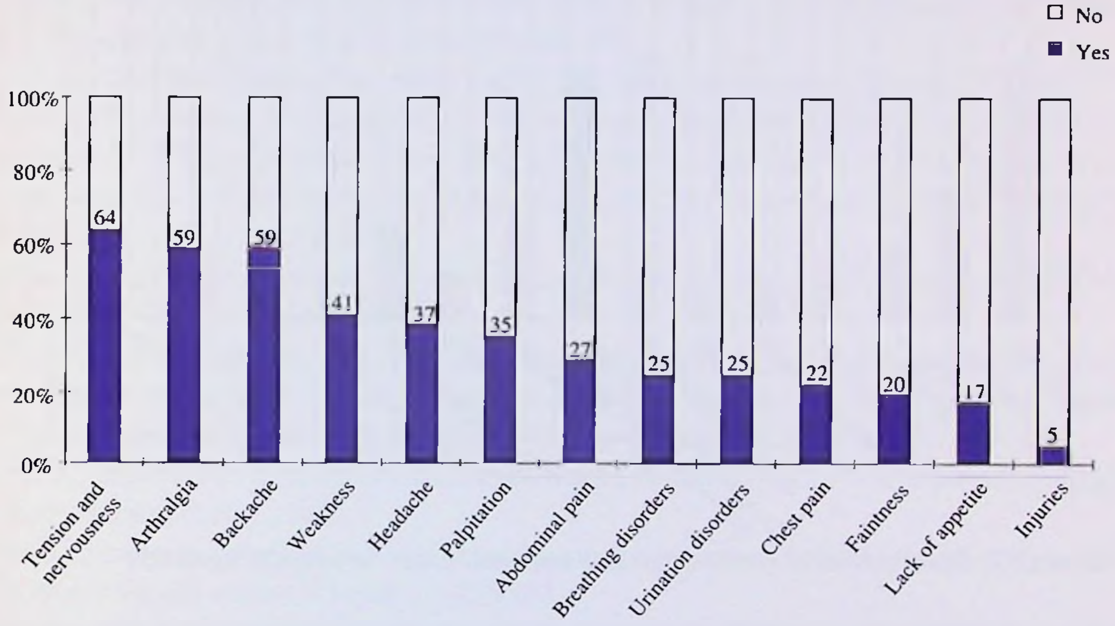


Chart 32. Health disorders distribution of 65+ subjects in the week preceding the research

Morbidity

It is common for elderly populations to suffer from several chronic degenerative diseases at the same time.

However, there are more and more elderly people who continue to feel healthy, and who have not developed chronic diseases. 6% of subjects deny any chronic disease at all (this group is distributed across age groups). In younger age groups, more males fell into this category, while in older groups, females dominated.

Among those with chronic diseases, 50% of subjects had three or more, 22% had two and 28% had only one.

The most frequent chronic diseases and impairments have been presented in Chart 33.

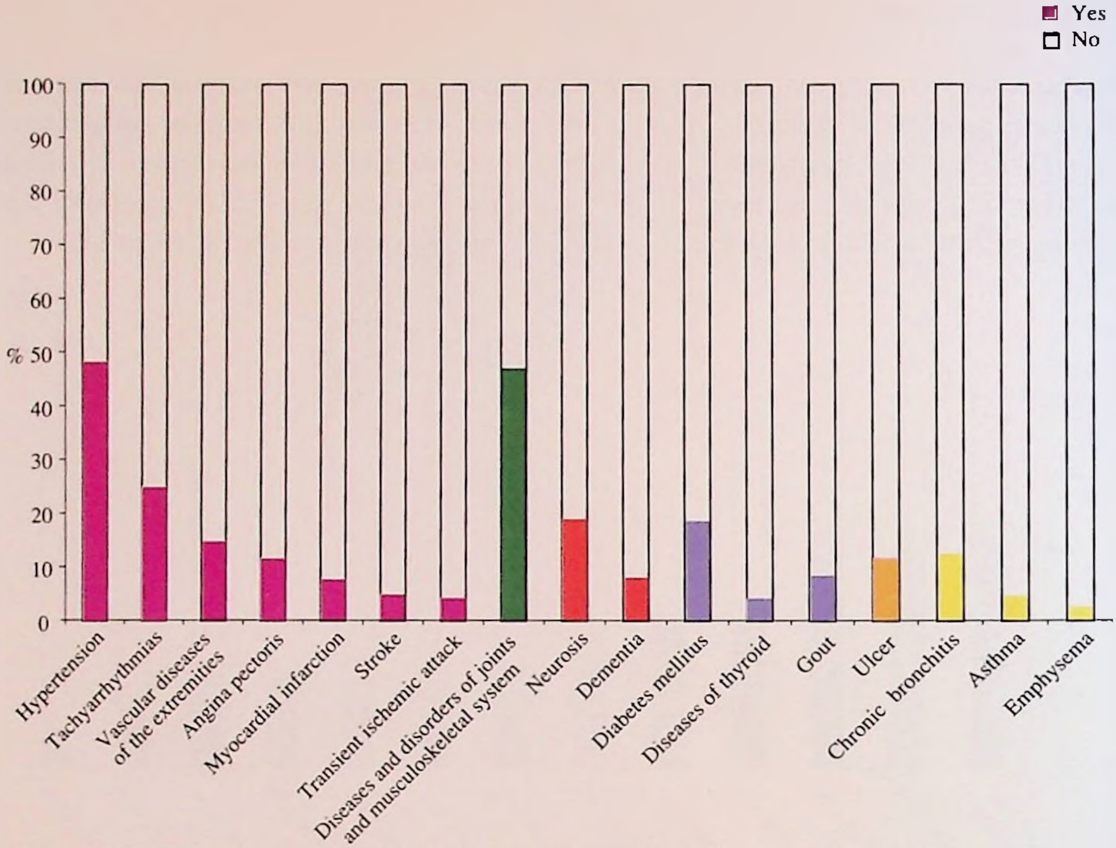


Chart 33. Distribution of chronic diseases and conditions in subjects aged 65+

Cardiovascular disorders dominate morbidity. Among all subjects, 48% of them have hypertension, 25% have tachyarrhythmias, 15% have vascular disease of the extremities and 11% have angina pectoris. Myocardial infarction was found in 7% of subjects, strokes in 5% and transient ischemic attacks in 4%.

Joint and musculoskeletal disorders were the second most common. There are 45% of subjects with these types of disorders.

A great proportion of elderly people suffer from mental diseases and/or disorders. The most frequent among our sample were neurotic disorders (15%) and dementia (7%).

Among endocrinologic diseases, diabetes mellitus (15%) and diseases of the thyroid (5%) were most frequent .

Among respiratory diseases, chronic bronchitis (13%), asthma (5%) and emphysema (3%) were found most often.

Hypertensive Vascular Disease

Hypertension is the most frequent cardiovascular disease in most countries of the world. According to the literature, the prevalence of hypertension is 10 to 15% of the total population of the Republic of Croatia. In the 65+ population, it is more than 35%.

In more than 95% of hypertension cases, the cause of elevated arterial pressure is unknown (primary hypertension).

Salt intake, age, sex, smoking, weight, physical inactivity and stress can all influence the course of the disease.

Survey results showed that 48% of the 65+ population have arterial hypertension, although it is more common among females (F: 55.5 %, M: 37.8 %; Odds Ratio — hereafter, OR — = 2.03). There are no significant differences among age groups. In those 65 to 69, 46.2% have arterial hypertension, 51.3 % in the 70 to 74 group, 48.2 % in those 75 to 79, 49.2 % among the 80 to 84 group, 35.7 % in the age group 85 to 89 and 53.8 % in those over 90 years old.

Overall, 26.3% of subjects are obese (defined as body mass index more then 27 kg/m2). The proportion of obese subjects ranges from 7.7 % in the 90+ age group to 30.4 % in those 65 to 69. Among female, 27% of subjects are obese, while in the male group, there is a 25.3% finding of obesity. Obesity is more prevalent in the group of hypertonics (59.3%) than non-hypertonics (43.8%) (OR = 1.87; chi-square = 14.65; p = 0.0001).

Those who do not exercise are more frequently found in the group of hypertonics (83.2%) than among non-hypertonics (79%) (OR = 1.31).

The majority of patients with hypertension have no symptoms referable to their blood pressure and are identified only in the course of a physical examination. Patients with hypertension die prematurely; the most common causes of death are heart disease, stroke and renal failure.

5.9% of subjects who have hypertension experienced strokes. Only 3.1% of those without hypertension had a strokes (OR = 1.98).

Transient ischemic attack is also more frequent among hypertonics (6.7%) than non-hypertonics (1.7%) (OR = 4.26; chi-square = 11.89; p = 0.0005).

Hypertension is also one of the risk factors for myocardial infarction. According to survey results, the proportion of those who had myocardial infarction is greater among hypertonics (7.5 %) than non-hypertonics (5.7 %) (OR = 1.34).

Well-regulated hypertension is a prerequisite for a quality life absent of complications in later years. Treatment for arterial hypertension should consist primarily of regulating one's diet, body weight and life style, including reduced caloric and NaCl intakes. This should be supplemented by anti-hypertensive medications in dosages adjusted appropriately for each individual. Elevated arterial pressure is probably the most common public health problem, and very often asymptomatic. It is easily treated and prevented by relatively simple measures when patient compliance is good. In this study however, 10% of subjects with hypertension did not take any medications, despite knowing that they suffered from hypertension.

Musculoskeletal Disorders

Joint disease and musculoskeletal disorders have far reaching effects in the population's morbidity. These are a group of various diseases having different etiologies, often unexplained, and resulting in damage to the locomotive system. Pain and limited function are the main characteristics.

There are four main groups of locomotive diseases and disorders: inflammatory rheumatism, degenerative osteoarthropathy, metabolic osteoarthropathy and out-joint rheumatism. Rheumatic diseases are the most prevalent. Unfortunately, there is not much available data on incidence and prevalence.

The most frequent joint disease is arthrosis. Previous research in Croatia found that 32.8% of subjects had degenerative disorders of the joints, in any localization. The proportion is even greater in rural, economically underdeveloped areas, especially among the elderly. In our research, 41.4 % of subjects had some sort of locomotive disorder. Among them, most frequent are cervical spondylosis (67 %), arthrosis (20 %) and prolapsus of intervertebral disc (13 %).

Significant differences have been noticed in prevalence between females and males. The proportion of females with the disease is 46.5%, 34.8% for males (OR = 1.63; chi-square = 10.76; p = 0.001).

There are no significant differences between age groups (30.98% in those over 90 to 47.4% in the 85 to 89 age group).

Joint diseases and musculoskeletal disorders significantly influence one's quality of life. It is observed that 35.7 % of diseased subjects do not leave the home daily as opposed to 27.1 % subjects who do not have such diseases (OR = 0.67; chi- square = 6.52; p = 0.01).

Diabetes Mellitus

Diabetes mellitus is the most common serious metabolic disease. It can be defined as a syndrome of chronic hyperglycemia and carbohydrate, fat and protein disorders. It can be classified as insulin-dependent diabetes (type 1) or non-insulin dependent diabetes (type 2). Non-insulin dependent diabetes can be observed in 85% of all diabetics.

It is a chronic and incurable disease, long lasting with many complications. It results in early impairment, high medical costs and mortality.

The prevalence of non-insulin dependent diabetes in the white population is 1 to 3%. In Croatia, prevalence in 1993 was found to be 2.4% in total population. Actual numbers are probably higher, however, due to non-reporting in the long, asymptomatic period.

Etiology and pathogenesis in most cases are unknown. Risk factors for type II diabetes are obesity, physical inactivity and age.

In our research, diabetes mellitus was found in 15% of the 65+ individuals. Among them 26 % are insulin dependent.

Great differences between age and sex groups are not observed. Among females, 15.6% are diabetics, compared to 14.1% of the males. 8.9% of subjects age 85 to 89 were diabetic, compared to 16.9% of those 75 to 79 years old.

Of those with diabetes, 29% are obese as opposed to a 26% obesity finding among non-diabetics (OR = 1.16).

Among those who do not exercise, there is a higher frequency of diabetes mellitus (16.1%) than among subjects who exercise regularly (9.2%) (OR = 1.91; chi-square = 4.22; P = 0.03).

More than half of diabetics (64 %) have arterial hypertension, which increases their risk of cardiac complications. More diabetics have angina pectoris (17.4%) than non-diabetics (10.2%) (OR = 1.86; chi square = 4.65; p = 0.03). More diabetics also had myocardial infarction (10.7%) than non-diabetics (5.8%) (OR = 1.95).

Malignant Neoplasm

Malignant neoplasms are a serious public health problem. They are the second highest cause of death, and incidence rates increase constantly. In our research, 4% of subjects were found to have some malignant neoplasm.

Among 18 females, 8 had breast cancer, 3 had malignant neoplasm of the colon, 2 had neoplasm of the lung, 1 had carcinoma of the ovary, 1 had bladder carcinoma, 1 had non-Hodgkin lymphoma, and 2 had neoplasm of unknown site.

Among 17 males, 2 had neoplasm of the lung, 3 had carcinoma of the prostate, 3 had malignant neoplasm of the colon, 2 had bladder carcinoma, 1 had gastric cancer, 1 had laryngeal cancer, 1 had carcinoma of the bone, 1 had malignant melanoma, 1 had mesothelioma, 1 had malignant neoplasm of the brain and 1 had non-Hodgkin lymphoma.

Due to the low numbers of these cases, conclusions regarding the prevalence of malignant diseases in Split could not be determined.

More reliable data come from the Croatian Cancer Registry of the Croatian Public Health Institute.

The distribution of all new cases of malignant disease (all sites) in Split from 1987 to 1991 are presented in Chart 34.

The greatest increase is in the 65+ age group.

Rates of new cases per 100,000 females 65+ increased from 491.4 in 1987 to 843.8 in 1991.

Chart 34. New cases of all malignant diseases in Split population according to age and sex in period from 1987 to 1991

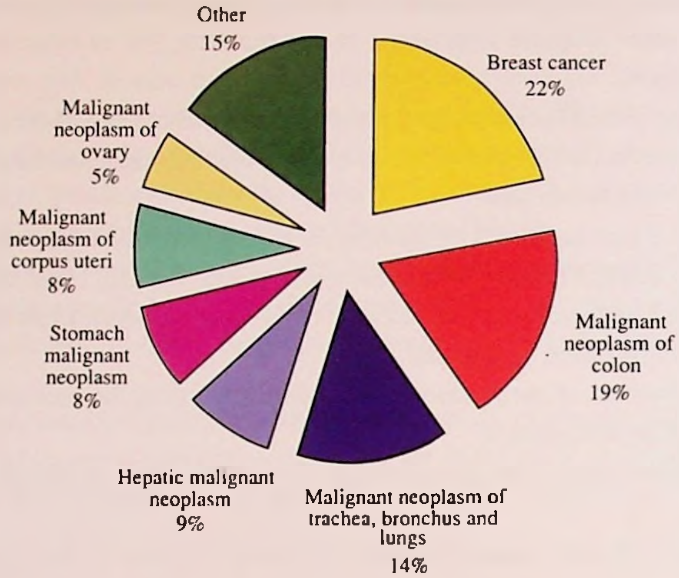


Chart 35. New cases of malignant diseases in female population age 65+ in Split, 1991

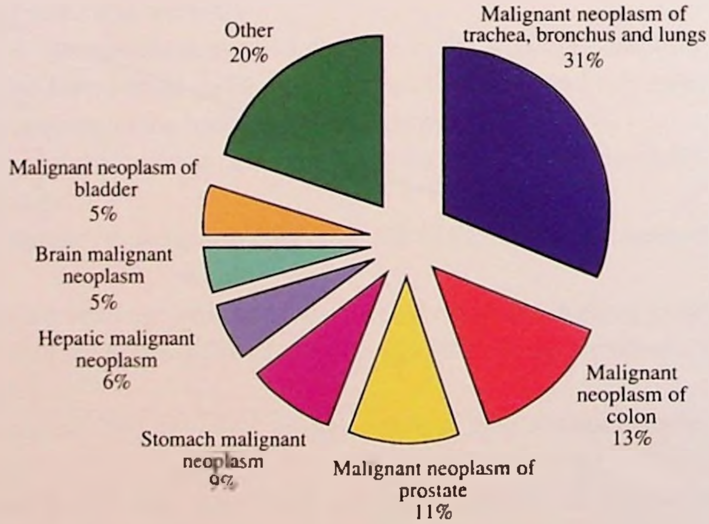


Chart 36. New cases of malignant diseases in male population age 65+ in Split, 1991

Rates of new cases per 100,000 males 65+ increased from 881.5 in 1987 to 1722.3 in 1991. Males, therefore, have had the largest increase.

Among the females in Split 65+ population, carcinoma of the breast was most frequent (22%), followed by malignant neoplasm of the colon (19%), and finally, malignant neoplasm of the lung (14%) (Chart 35).

Among males, most frequent was malignant neoplasm of lung (31%), followed by malignant neoplasm of the colon (13%) and finally, carcinoma of the prostate (11%) (Chart 36).

Osteoporosis

Osteoporosis is the term used for diseases of diverse etiology characterized by a reduction in bone mass per unit volume to a level below that required for mechanical support function. It is the most common of the metabolic bone diseases, and is important cause of morbidity among the elderly.

Although osteoporosis is a generalized disorder of the skeleton, its major clinical manifestations are fractures of the vertebrae, wrist, hip, humerus and tibia. So-called type I osteoporosis is found in a relatively small subset of post-menopausal females between 51 and 65 years of age.

So-called type 2 osteoporosis is found in a large proportion of females and males over the age of 75. Nutrition, life style, hormones, genetics and mechanical factors cause the loss of bone substance.

Osteoporosis was found in 9.1 subjects. It is more evident among females (13.4%) than in males (3.5 %) (OR = 4.32; chi-square = 22.39; $p < 0.01$).

Among those who have osteoporosis, there were more cases of fractures (19.8%) than in subjects without this ailment (7.6%) (OR = 2.99; chi-square = 14.38; $p < 0.01$). It is important to stress the necessity of early diagnosis of osteoporosis, as well as prevention. Regular exercise, nutrition, estrogens (transdermal or peroral) and peroral therapy with calcitonin or biphosphonats can help to prevent osteoporosis.

Mortality

Changes in life styles, employment, nutritional habits and other factors over the last several decades have influenced patterns of morbidity and mortality.

Croatia's population has seen decreases in mortality rates due to infectious diseases, while experiencing increased mortality rates caused by chronic, non-infectious diseases. This latter type accounts for the majority of deaths among the elderly in Split.

According to the Croatian Institute of State Statistical Reports, cardiovascular diseases (50% of all causes) and malignant diseases (20%) are the most common causes of death in Croatia at the present time.

Among the 65+ females, the most frequent cause of death was cardiovascular disease (65%). Malignant neoplasms were next at 16%. Diseases of the gastrointestinal system accounted for 3%, while injuries, poisoning, and other external causes accounted for another 3% (Chart 37).

Among 65+ males, the primary cause of death was also cardiovascular disease (57%). Malignant diseases were the cause 26% of the time, and diseases of the respiratory system accounted for 4% (Chart 38).

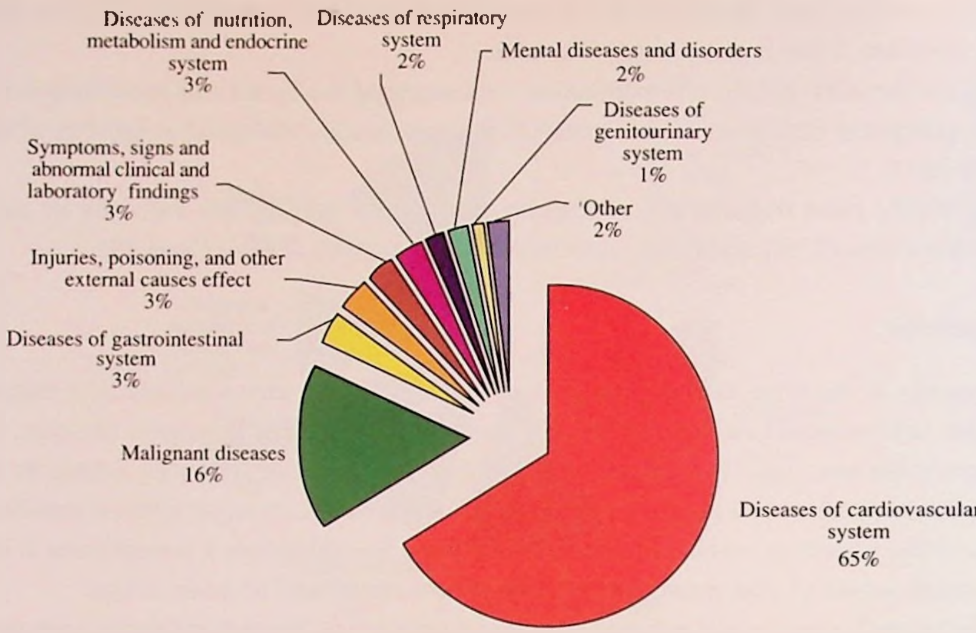


Chart 37. Death causes according to ICD-10 main groups of diseases of Split female population age 65+ in 1995

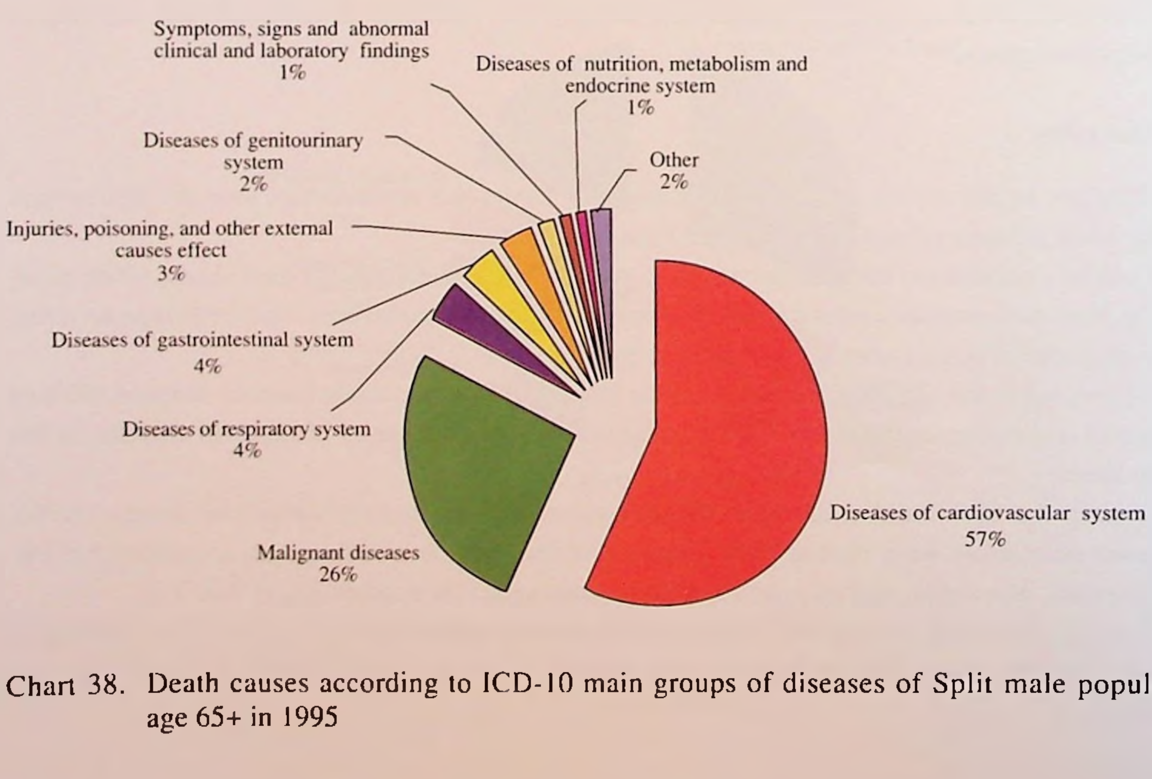


Chart 38. Death causes according to ICD-10 main groups of diseases of Split male population age 65+ in 1995

Charts 39 and 40 show the distribution of causes of death by particular diagnoses accounting for more than 2% of all causes. As stated, cardiovascular diagnoses are the highest for both males and females. Among females, atherosclerosis was first, cerebrovascular diseases second and chronic cardiac ischemic disease third. In males, myocardial infarction was first, followed by cerebrovascular diseases and atherosclerosis.

These results raise the question of the reliability of cause of death diagnoses. The high percentage of aterosclerosis could be explained by random choice. It could also be the case that the elderly in question had inadequate diagnostic procedures during life and therefore proper death causes could not be established.

Elderly people who died for unknown reasons, due to the absence of significant health problems, are also in this group. How to define the proper cause of death in this population group warrants further discussion.

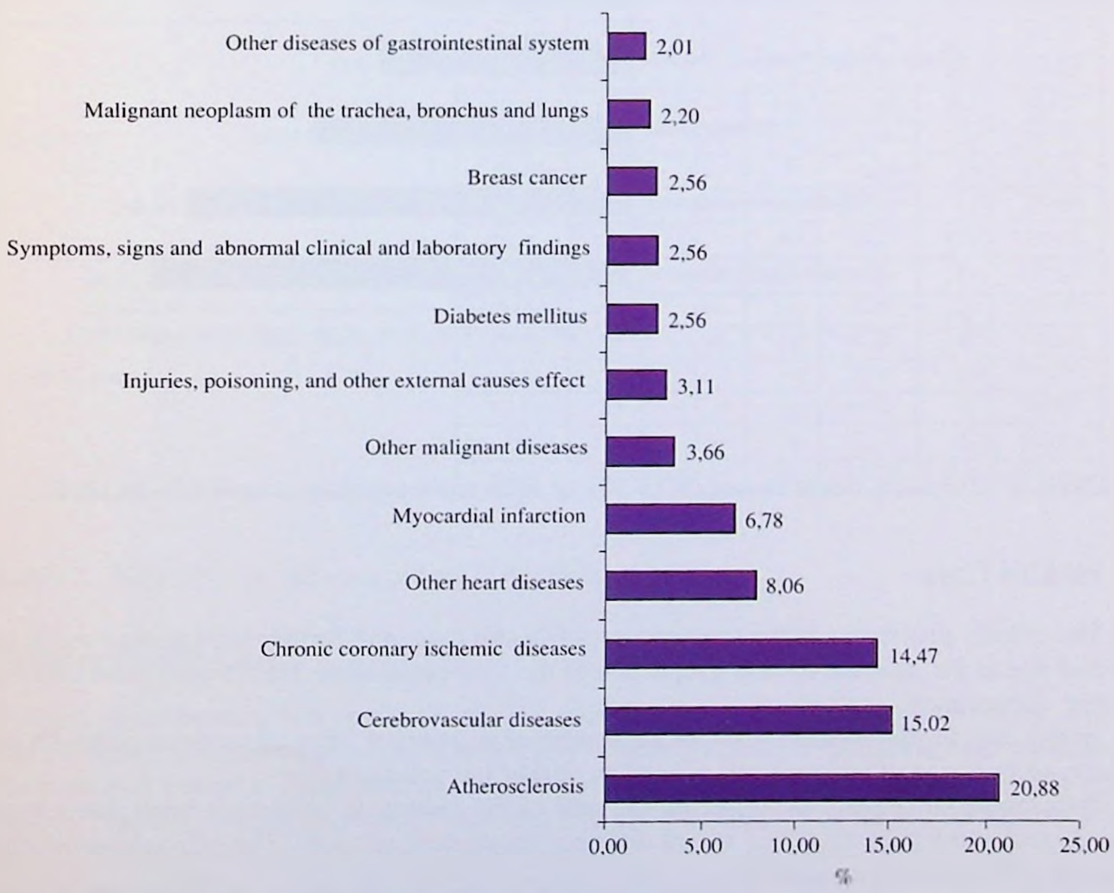


Chart 39. Detailed death causes (ICD-10) of Split female population age 65+ in 1995

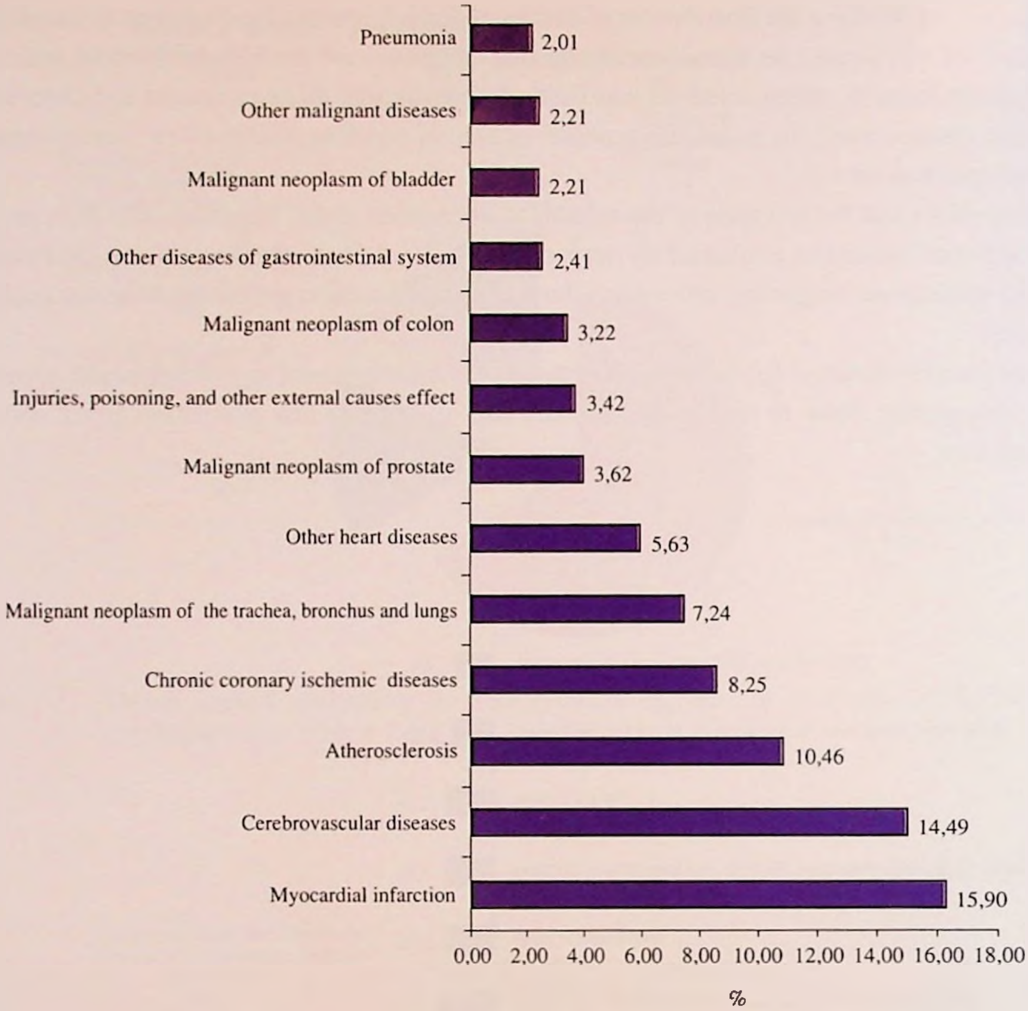


Chart 40. Detailed death causes (ICD-10) of Split male population aged 65+ in 1995

Health Care

The elderly population is the greatest user of health care, and further increases in usage can be expected due to the increase in their proportion of the total population. Health care must therefore be adjusted accordingly.

Health care for the elderly should be implemented as a part of integral program of health care on primary, secondary and tertiary level, based on equity and solidarity.

Estimations of health-care usage on the part of the elderly in Split have been made based on subjects' responses regarding their use of different health-care services. The official health statistics report for 1996 was also consulted.

All subjects surveyed are insured by the Croatian Health Insurance Institute, which covers almost 100 % of the population. They regularly, and in high proportions, use different types of health-care services (Table 2).

Did you use health care services during last year?	Age group (year)	Answer				Total	
		Yes		No			
		Number	%	Number	%	Number	%
primary health care	65-69	210	84.68	38	15.32	248	100.00
	70-74	236	88.39	31	11.61	267	100.00
	75-79	147	88.02	20	11.98	167	100.00
	80-84	50	79.37	13	20.63	63	100.00
	85-89	49	85.96	8	14.04	57	100.00
	90 and more	7	53.85	6	46.15	13	100.00
	Total	699	85.77	116	14.23	815	100.00
secondary health care	65-69	142	57.26	106	42.74	248	100.00
	70-74	141	52.81	126	47.19	267	100.00
	75-79	93	55.69	74	44.31	167	100.00
	80-84	24	38.10	39	61.90	63	100.00
	85-89	25	43.86	32	56.14	57	100.00
	90 and more	5	38.46	8	61.54	13	100.00
	Total	430	52.76	385	47.24	815	100.00
dental care	65-69	57	22.98	191	77.02	248	100.00
	70-74	50	18.73	217	81.27	267	100.00
	75-79	31	18.56	136	81.44	167	100.00
	80-84	11	17.46	52	82.54	63	100.00
	85-89	4	7.02	53	92.98	57	100.00
	90 and more	0	0.00	13	100.00	13	100.00
	Total	153	18.77	662	81.23	815	100.00
hospital care	65-69	42	16.94	206	83.06	248	100.00
	70-74	32	11.99	235	88.01	267	100.00
	75-79	31	18.56	136	81.44	167	100.00
	80-84	6	9.52	57	90.48	63	100.00
	85-89	9	15.79	48	84.21	57	100.00
	90 and more	1	7.69	12	92.31	13	100.00
	Total	121	14.85	694	85.15	815	100.00

Table 2. Subjects age 65+ according to health care use

Primary Health Care

General practitioners, who provide primary health care for the Croatian population, are well aware of the health problems and needs of the elderly. Teams provide health care in their units, as well as in the homes of patients. These practitioners are the cornerstone of the primary health- care system in Croatia. People in Croatia, including those who live in Split, are able to choose their general practitioner, and if they are not satisfied with the service they receive, they are free to choose another.

According to official health statistical reports for 1996, primary health care in Split was provided by 86 general practitioners from the Primary Health Center in Split, 4 general practitioners from the Primary Health Center "Brodosplit", 2 general practitioners from the Primary Health Center Unit Željezničari, and 1 general practitioner from the Primary Health Center of Trogir in Slatine.

In the same year, 3 private general practitioners contracted with Croatian Health Insurance to provide primary health care.

Primary health care institutions and private doctors' units had 164,489 insured persons in their records. Among them, 81% used some kind of care at least once a year. Of those, 30,811 (19 %) were age 65 and over, 97% of whom used some kind of care at least once a year.

There was an average of 1,695 patients (of all ages) per general practitioner. Of those patients, an average of 317 were 65 and over (Table 3).

Average number:	Age group				All ages
	0-6	7-19	20-64	>65	
visits per person	1.1	1.2	4.9	6.9	5.1
examinations per person	0.9	0.9	3.7	5.2	3.9
persons per medical doctor	13.2	55.1	1309.8	317.6	1695.8

Table 3. Average number of visits and examinations per person and average number of persons per primary health care medical doctor according to age groups in Primary Health Centers in Split, 1996

According to 1996 annual reports of primary health care centers and private doctors' units, there were 843,279 patient visits and 630,127 medical examinations. Of those, 210,664 patient visits (25%) and 157,932 medical examinations (25%) were from patients age 65 and over. General practitioners and members of their teams made 3,731 visits and 3,592 medical examinations in patients homes. Of those, 2,514 visits (67%) and 2,428 examinations (67%) were of elderly patients.

On average, the adult population in Split accounted for 5.1 visits and 3.9 medical examinations per person. Those in the target population had 6.9 visits and 5.2 medical examinations per person.

Distribution by main groups of diagnoses (according to ICD-10) for elderly patients in the primary health center units during 1996 is presented in Chart 41. First place was shared by cardiovascular and respiratory system diseases, each representing 16% of the total registered diagnosis groups. Next

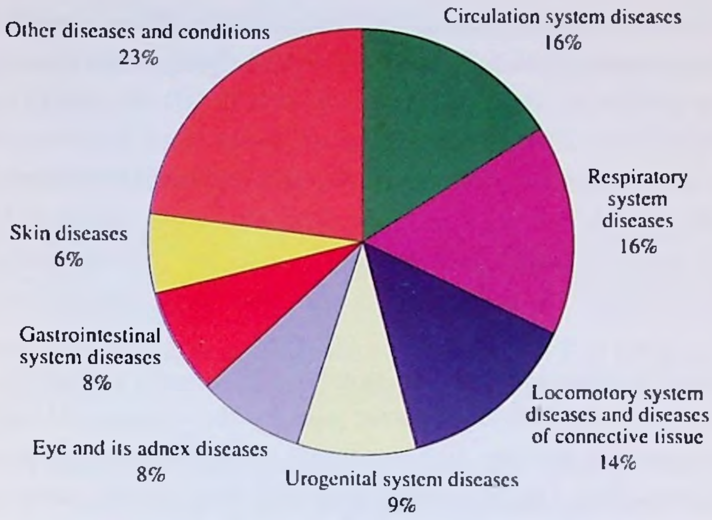


Chart 41. Main groups of diseases and conditions of 65+ population in Split registered in primary health care units

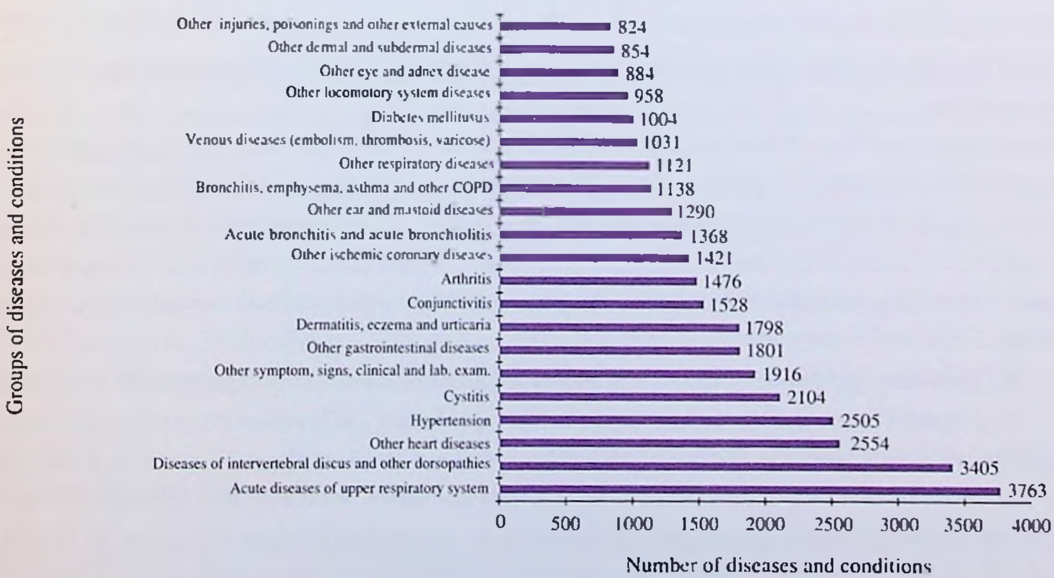


Chart 42. Distribution of the most frequent diseases and conditions of 65+ population in Split registered in primary health care units

were diseases of the joints and musculoskeletal system (14%). These were followed by diseases of the genital and urinary systems (9%). Other diseases had significantly lower proportions.

Distribution by particular diagnosis (according to ICD 10) for elderly patients is presented in Chart 42. Infectious diseases of the upper respiratory system were highest. Disorders of intervertebral disks and other dorsopapathies were next, followed by arterial hypertension

The Community-Health Nursing Unit of the Primary Health Center in Split had 41 registered senior nurses. They provided health care services in patients' homes under the supervision of a general practitioner. During 1996, they made 15,742 visits to chronic patients most of whom were elderly.

Nursing and rehabilitation at home was provided by several private health care and nursing institutions. For insured patients, services were paid by the Croatian Health Insurance Institute. They employed two medical doctors, five registered senior nurses, thirty-one registered nurses, fifteen senior physiotherapists, four physiotherapists and three nurses. At the moment, their official reports do not distinguish the elderly from other patients, so participation in this type of care is not known.

During 1996, primary health care for women was provided in Split's Primary Health Center by six specialists of gynecology. 69,182 females were registered, 6,213 (9%) of whom were over fifty years of age. Within this fifty and over group, 384 preventive examinations were given (0.06 per woman), as well as 2,874 palpations of the breast (0.46 per woman) and 2,869 PAPA-tests (0.46 per woman). According to 1991 Census data, 10,785 females over the age of 65 lived in Split. It is obvious that a significant proportion of these women did not choose a gynecologist in primary health care, nor did they go for periodic preventive examinations.

The results of our survey regarding the use of health-care services in Split by the elderly differs slightly from official health statistical reports. This study shows that 86% of subjects used primary health care. During the year preceding this research, subjects visited their general practitioners 8.72 times on average.

There is no significant difference in the use of primary health care between age and sex groups. The exception is the group of patients over 90 years old. This group had the lowest proportion of those who visited general practitioners (53.85 %) (Table 2). Final conclusions regarding these figures cannot be drawn since the population of subjects is so small in that age group (only 13). It is presumed that they reached old age due to good health, and therefore have the lowest need for health care.

During the one-year survey period, 80% of subjects received prescriptions for medication. On average, they used 19 prescriptions per person. A significant difference regarding the number of prescriptions used was noticed. 52% of subjects accounted for less than 12 prescriptions, 46% accounted for 13 to 59 prescriptions and 2% accounted for more than 60 prescriptions.

Primary health care for the elderly population is good. Such an assessment is based on the development of the health institution's network, the number of primary health care teams and the number and types of medical services provided to the elderly population in Split. Increasing numbers of elderly who live alone, or in elderly families, are making clear the importance of developing examination, treatment, nursing and rehabilitation services in the patient's home. This enables the elderly to remain in their own social environment. It is also important to persist in encouraging the elderly to participate in preventive programs through health education and media promotion.

Polyclinic and Specialized Health Care

Polyclinic and specialized health care for the elderly are mostly provided by outpatient polyclinics in Split's Clinical Hospital. Although different types of specialized private doctors exist, at this time they are rarely used by the elderly.

Survey results show that specialist services were used by 52.76% of subjects. The proportion of males who used such services was 59%. This was significantly higher than that of females (49%) (chi-square = 5.87; P = 0.01).

The tendency to utilize these service decreases with age. The greatest proportion was noticed in the 65 to 69 age group (57%), while the lowest proportion was noticed in the 90+ age group (38%). Subjects visited specialists, on average, 3.51 times.

Services of private specialists, who had no contract with the Croatian Health Insurance Institute (and where patients therefore had to pay for their own visits), were used by 20% of subjects. They visited them, on average, 2.3 times per year.

There was a great number of elderly who could not use public transportation. This significantly reduces the possibility of using polyclinic and specialized health care services. In cases where it is not possible to provide health care in the patients' homes, it is necessary to have enough resources to provide transportation for them to the health care institutions.

Dental Health Care

During 1996, there were 92 stomatological teams in Split: 81 at the Primary Health Center, 2 at the Primary Health Center of Brodosplit and 9 private dental units who had contracts with the Croatian Health Insurance Institute.

These teams had 15,392 insured patients age 65 and over in their registries in 1996. 41% of that population used dental services at least once a year. The total annual visits for all ages were 234,280. Total visits for the elderly accounted for 20,596 (9%).

Dental work can be further categorized by type. A sample of 13,034 dental visits revealed the following breakdown: 33% fillings, 33% extractions, 8% prosthodontics work and 26% treatment of periodontals. A large proportion of subjects (60%) used some sort of dental prosthesis.

Hospital Health Care

Hospital care for the elderly in Split is provided in existing Clinical Hospital Split (an organizational scheme of this hospital's clinics and departments is presented in Table 4). A small proportion of the population goes to other Croatian towns for hospital treatment. Insured people are directed to hospital treatment by their general practitioner, and all expenses are paid by the Croatian Health Insurance Institute.

Clinic / Department Clinical hospital Split	Number of beds	University				Higher school		Secondary school		Others
		Medical doctors			Others	Total	Registered nurses	Total	Registered nurses	
		Total	Residents	Specialists						
Surgery Clinic	412	81	13	68		54	54	197	196	3
Gynecology Clinic	187	27	7	20		23	23	106	106	
Ophthalmology Department	60	17		17		10	10	26	26	
Otolaryngology Department	66	17	1	16		15	15	31	31	
Oncology Department	42	11		11	1	20	10	22	19	
Intensive Care Department	20	43	9	34		14	14	44	44	
Internal Clinic	295	45	2	43		36	36	124	119	
Department for Nuclear Medicine	8	7	1	6		2		19	5	
Pedriatrics Department	120	22	5	17		14	12	67	60	1
Dermatology Department	33	7		7		5	5	11	11	
Neurology Department	76	14	3	11		8	8	38	37	
Psychiatry Department	93	25	7	18		7	7	35	35	
Department for Pulmonary Diseases	116	15	1	14		10	10	43	39	
Department for Infectious Diseases	68	6		6		5	5	22	22	
Department for Physical Medicine and Rehabilitation	95	11		11	1	43	5	40	20	

Table 4. Medical staff of Clinical Hospital Split according to Clinics and Departments in 1996

Official health statistics, based on hospital discharge records, enabled us to gain insight into hospital care. A hospital discharge record contains general patient data (name, address, sex, age, etc.) as well as treatment data (admitting and discharge dates, primary diagnose and outcomes).

During 1996, Split Clinical Hospital accounted for 16,369 discharges of permanent residents of Split. Among them, 4,057 (25%) of those discharged were 65 or older. There were more discharges of 65+ males (2,048) than females (2,009) (Table 5).

The most frequent discharges of 65+ patients were from the Internal Clinic (34.41%), followed by the Surgery Clinic (25.51%), the Clinic for Eye Diseases (9.81%) and the Department for Pulmonary Diseases (8.38%) (Table 6).

The duration of hospitalization is broken down as follows: 35% of 65+ patients had been treated between one and seven days, 31% eight to fourteen days, 26% fifteen to twenty-eight days and 8% twenty-nine days or more. The longest average duration of treatment, 31.16 days, was at the Department of Physical Medicine Rehabilitation and Rheumatology, as could be expected. Unfortunately, detailed results regarding that department were not available at the time of this study.

Clinic / Department Clinical hospital Split	Hospital discharges according to age				All ages	
	0 - 64		65 +			
	Number	% of discharges for all ages	Number	% of discharges for all ages	Number	%
Surgery Clinic	1356	49,27	1396	50,73	2752	100,00
Gynecology Clinic	2788	72,93	1035	27,07	3823	100,00
Ophthalmology Department	3675	98,21	67	1,79	3742	100,00
Otolaryngology Department	615	100,00	-	-	615	100,00
Oncology Department	469	84,50	86	15,50	551	100,00
Intensive Care Department	321	48,56	340	51,44	661	100,00
Internal Clinic	275	48,50	292	51,50	567	100,00
Department for Nuclear Medicine	946	91,22	91	8,78	1037	100,00
Pediatrics Department	288	41,98	398	58,02	686	100,00
Dermatology Department	1170	91,76	105	8,24	1275	100,00
Neurology Department	120	66,30	61	33,70	181	100,00
Psychiatry Department	56	86,15	9	13,85	65	100,00
Department for Pulmonary Diseases	133	67,86	63	32,14	196	100,00
Department for Infectious Diseases	71	42,01	98	57,99	169	100,00
Department for Physical Medicine and Rehabilitation	29	64,44	16	35,56	45	100,00
Total	12312	75,22	4057	24,78	16369	100,00

Table 5. Hospital discharges of Split residents from Clinical Hospital Split according to age, Clinics and Departments in 1996

According to statistics from the Internal Clinic, the Department of Pulmonary Diseases, the Department of Neurology, the Department of Eye Diseases and the Department of Physical Medicine and Rehabilitation, the proportion of discharges of 65+ patients, as compared to the total number of discharges, is higher than 50%.

In a group of 65+ patients, the most frequent discharge diagnoses were diseases of the cardiovascular system (24%), followed by malignant neoplasm (17%), diseases of the gastrointestinal system (13.67 %) and diseases of the eye and eye adnexa (9.92 %) (Chart 43).

The most frequent particular discharge diagnoses in the same age group were senile cataract and other lense disorders (305 discharges). Malignant neoplasm of the bronchus and lungs followed with 168 discharges, strokes had 162 and heart insufficiency had 147 (Chart 44).

Death in the hospital have been recorded for 438 persons age 65 and over (10.8% of all discharged). During 1996, 1,043 elderly persons died in Split. The proportion of those who died in

Clinic / Department Clinical hospital Split	Number of discharges	%	Days of hospitalization	Average duration of hospitalization
Internal Clinic	1396	34,41	18067	12,94
Surgery Clinic	1035	25,51	14626	14,13
Pediatrics Department	-	-	-	-
Gynecology Clinic	67	1,65	823	12,28
Department for Infectious Diseases	86	2,12	1198	13,93
Department for Pulmonary Diseases	340	8,38	4477	13,16
Neurology Department	292	7,20	4168	14,27
Psychiatry Department	91	2,24	1765	19,39
Ophthalmology Department	398	9,81	3709	9,31
Otolaryngology Department	105	2,59	706	6,72
Oncology Department	61	1,50	926	15,18
Department for Nuclear Medicine	9	0,22	64	7,11
Dermatology Department	63	1,55	1568	24,88
Department for Physical Medicine and Rehabilitation	98	2,42	3054	31,16
Intensive Care Department	16	0,39	109	6,81
Total	4057	100,00	55260	13,62

Table 6. Number of hospital discharges, days of hospitalization and average duration of hospitalization of Split residents age 65+ according to Clinics and Departments, in 1996

hospitals was 41%. It can be concluded then, that the majority of elderly people die in their homes.

Also according to survey results, 15% of subjects had been treated in the hospital. The proportion of males treated in a hospital (59%) was significantly higher than the proportion of females (49%) (chi-square = 5.34; p = 0.02).

It can be concluded that hospital care is available for the elderly residing in Split. Among all discharged patients, 25% were 65 and older. We can also conclude that they are the largest group of hospital-care users.

At the moment, in Split's Clinical Hospital, there is no Geriatric Unit specializing in treatment and rehabilitation for the elderly. Hospital morbidity (dominant, chronic, degenerative disorders) was apparent in high proportions among those who were treated for more than 14 days (34%). This points to a clear need to establish gerontology units. Such units should include enough beds for an average stay of one month, as well as prolonged stays of more than one month. Patients should be elderly people who do not need intensive hospital treatment, or those who, due to temporary or permanent

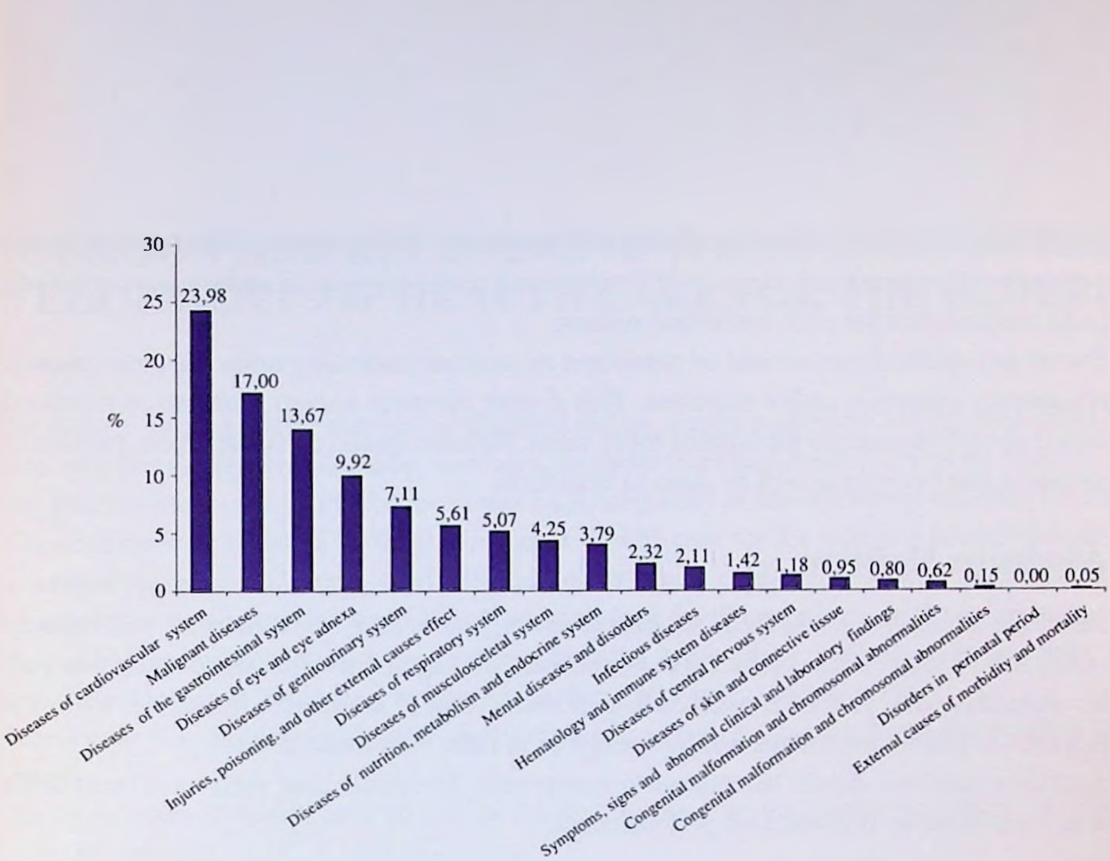


Chart 43. Distribution of discharges from Clinical Hospital Split according to main groups of diagnoses (ICD-10) of permanent residents of Split age 65+ in 1996

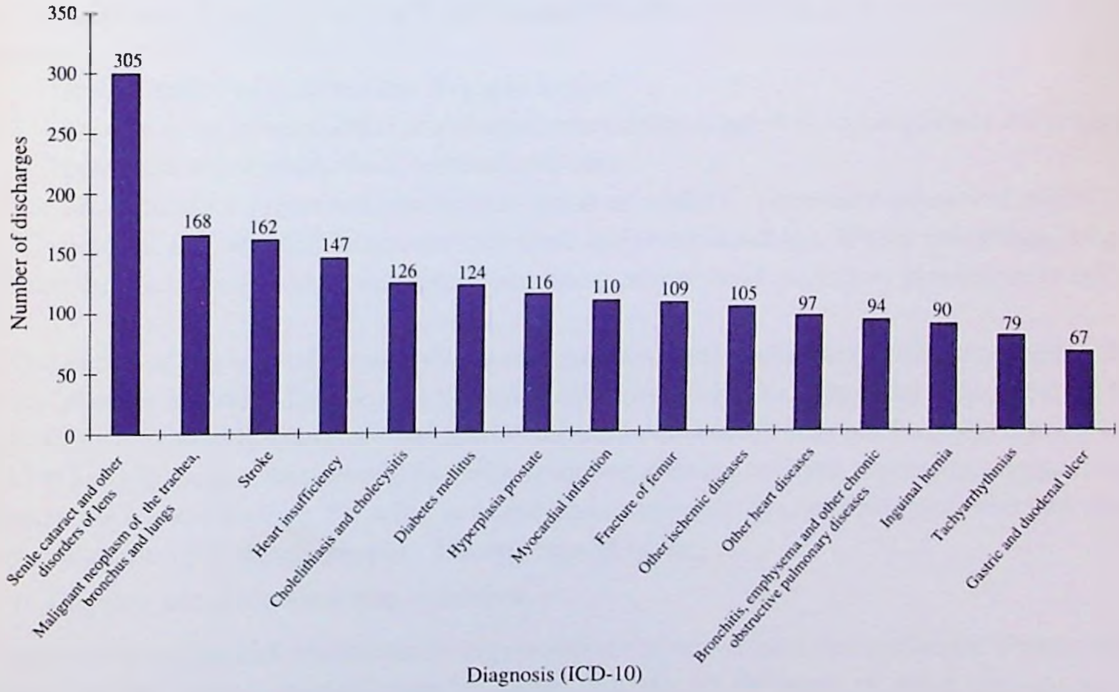


Chart 44. Most frequent discharge diagnoses (ICD-10) from Clinical Hospital Split of permanent residents of Split age 65+ in 1996

psycho-physical inabilities, are unable to live independently. This unit should be a place for rehabilitation and should integrate participation of families and social services in order to determine the best social and medical care for each individual patient.

Social and medical care should be organized in separate stationary units for those patients who are permanently immobile and/or impaired. This is very complex human problem as human dignity and respect should be retained throughout these years. Patients should not suffer from pain and should feel confident that everything will be done to help them.

Alternative Medicine

Although alternative medicine is not part of the regular health-care system, it will be mentioned here. Only 4% of subjects used alternative treatments, and significant differences between males and females were observed. Among females, 6% used some form of alternative treatment, while only 3% of males did so. Herbal treatments and bioenergy were most frequently used.

Such low numbers should be cautiously interpreted. The result may well have been different if the survey was done by non-medical professionals.

DISCUSSION AND RECOMMENDATIONS FOR FURTHER DEVELOPMENT OF HEALTH CARE FOR THE ELDERLY

The elderly should not be considered disabled and/or simply waiting to die. Most of them function quite well physically and mentally, and have the same fears and desires as anyone else.

The goals of elder care should be to maintain a good quality of life, including enabling the elderly to remain with their families for as long as possible. Health care for the elderly has an important role at the community level, but alone, does not address all issues confronting elderly populations. The primary source of well-being for the elderly should be their family members. In these families, social support should be constantly present, and sensitive to the needs of the individual. In this way, independence is prolonged as the elderly are encouraged to "take care of themselves."

Health care for the elderly must be comprehensive and well integrated into the existing health care system.

The foundation of health care should be family doctors who coordinate and carry out primary health care measures.

Analyzing study results, the conclusion could be drawn that elderly populations residing in Split have access to developed networks of health care institutions with sufficient medical staff. Elderly people regularly used health care service.

Those who evaluate the health and social needs of the elderly should keep in mind that they are not a homogeneous group. According to their characteristics and needs, they can be divided into three categories:

1. Those capable of independent living at home
2. Those in need of occasional or constant community support to continue their life at home
3. Those in need of continuous, institutional care

The first category represents the largest group of elderly. They have preserved physical and mental functions, and are well integrated into their social surroundings. Within this group, measures of primary health care should include aforementioned primary and secondary prevention programs.

The needs of the second group, not capable of completely independent life, are greater. Those who live alone or in elderly families are the worst off. This group should be integrated into their social surroundings and should receive occasional to constant community support. Organized programs of support (cleaning, help with personal hygiene, living conditions, cooking, shopping, adequate public transportation) could prolong their life at home. It is important to constantly improve and develop systems of support for elderly people. The aim should be to:

1. Improve and maintain living conditions

According to research results, the living conditions of our subjects are sufficient. Problems arise for those who live alone, in multi-story buildings (without an elevator), or those who do not have enough money to pay household expenses (heating, etc.). A possible solution could be moving from one apartment to another, hopefully more appropriate for their age and health considerations.

2. Provide assistance at home

Many private agencies offer different forms of help at home, but it is inaccessible for the majority of elderly people. Quality of living could be significantly improved if they could attain such support at home.

3. Provide assistance with alimentation

The delivery of food and supplies is the most beneficial way to provide help. Such a service helps poorer or physically weaker persons who cannot shop and prepare meals.

4. Improve communications

Today, besides the use of social clubs and associations, there are new technical options to improve communications with and among the elderly. Development of telemedicine information systems supported by computer networks could bring health care providers and others closer to their patients. One such systems is the Community Alarm Network. In cases of emergency, alarms are sent to health care providers using telephone and computer systems. These systems could also be used for other purposes. Health care providers can improve control and observation of treatment and recovery processes of the elderly in their homes (regularly reminding them to take a pill or checking on their condition).

Internet developments offer even more possibilities. Today, all over the world, there are many web sites containing solutions to many of the problems of the elderly. Topics such as common geriatric diseases and disorders, and their prevention and treatment, can be found. Large gerontology centers can be contacted by E-mail. It offers the opportunity for elderly people to ask questions about their medical, social and legal problems.

So far, the computer industry is in English, and found primarily in the United States and developed European countries. Hopefully, we can expect the development of such systems all over the world.

Health care should also be as close as possible to the homes of elderly patients. For this reason, general practitioners (family doctors) and community-health nurses are faced with special requests. Under the supervision of medical doctors, community health nurses can carry out primary and secondary preventive procedures in patient homes. They serve as effective liaisons between medical doctors and families of the elderly. Training should be provided to these nurses to further their education in gerontology.

Cases of temporary incapacitation should be handled in organized geriatric care units (in hospitals or nursing homes) where the elderly can receive treatment and care throughout their recovery.

Permanent care should be organized in institutions for the 5% of elderly patients in need of such care. Nursing homes provide this type of care for the elderly whose families are unable to do so.

In Split, there are two nursing homes. The largest, Split Nursing Home, has capacity for 779 persons, according to annual reports for 1995. The number of residents in apartment and intensive care units was 511 on 31 December 1995, at which time many of the spaces were being used for refugees. At the end of that year, the number of those on the waiting list for accommodations in a nursing home was 761.

Nursing Home Lovret has capacity for 127 persons. At the present time, 355 persons are waiting to be accepted. Six elderly women unable to move are living in Convent Brda.

It is clear then that the existing facilities are not enough.

Nursing institutions in Split also organize care for the elderly in their family homes. Such types of support should be developed more fully in the future.

Daily home visits to the elderly help to maintain both personal hygiene and cleanliness of the home itself. Providing assistance in just these two areas can help to allow the elderly to retain semi-independent life styles in the comfort of their own homes.

Although health care services are more accessible than other community services, desired results are not always achieved. Solutions to the social and medical problems of the elderly are sometimes not fully worked through.

The health condition and needs of the elderly should be constantly surveyed. This should be one of the dominant activities of Geriatric centers, which need to be established. They would evaluate and coordinate health care services for the elderly and provide information for the planning of health programs and resources.

Such centers should be placed in Public Health Institutes whose functions include surveillance of the health status of the population as a whole, as well as analysis of health data, demographic statistical reports and research.

IMPROVED QUALITY OF ELDER LIFE THROUGH PREVENTION

The main goal of health care for the elderly is not to add more years, but to add to the quality of those remaining. Steps toward reaching this goal should begin in childhood, implementing measures of primary, secondary and tertiary prevention which slow down the progress of degenerative processes.

While it is true that results are better when preventive measures are started earlier, this should not imply that such measures should stopped as one ages.

Prevention of all diseases and disorders should be viewed realistically. No society has enough resources for such a comprehensive approach. It is necessary to assess which preventive measures contribute most to the quality of elder life. In looking at prevention's contribution to quality of life, two groups of diseases were defined:

1. Chronic and degenerative diseases with death outcome - by preventing these, life could be prolonged, but with decreased life quality
2. Other chronic and degenerative diseases - by preventing these, life quality in elder age could be improved.

In the second group, foot deformities, diseases of the eye, hearing impairments, senile dementia, depression, urinary tract infections, anemia, diabetes mellitus and arterial hypertension are included. By preventing them in middle age, life quality and the possibility of independent life in elder age can be improved.

Primary Prevention

General measures of primary prevention include safe, comfortable conditions, both at home and in the workplace. This includes adequate nutrition and living conditions, rest, recreation, fresh and clear air, safe drinking water, etc.

Special attention should be paid to the prevention of accidents in the home (falling down, fire, etc.), the adaptability of living conditions for elderly residents and the presence of security alarms (smoke detectors, etc.).

Specific primary prevention programs address the influence of known risk factors for chronic degenerative disease development. Many of these are related to life style: smoking, alcohol abuse, physical inactivity, intake of fatty foods (especially saturated fats), exposure to sun, etc.

In one's later years, preventive programs should be implemented. Emphasis should be placed on health education and counseling related to a healthy life style (proper diet, physical exercise, the negative effects of different types of addiction — alcohol, smoking, drugs, etc.).

The elderly should also be encouraged to receive vaccinations against those infectious diseases for which complications can be serious and even lethal.

Vaccination against influenza should be recommended for the elderly, especially those with chronic diseases. Vaccinations should be repeated annually.

For the elderly living in nursing homes, vaccinations against pneumococcal infections should be administered.

Women with a high risk of osteoporosis (an early menopause, pre-menopausal hysterectomy, low calcium diet, etc.) should consider substitute estrogen therapy, keeping in mind of course possible contraindications (hormone dependent malignant neoplasm, active hepatic disease, coagulation disorders, etc.).

For those at risk of developing myocardial infarction (smokers, high cholesterol levels, diabetes mellitus, family history of myocardial infarction at a young age, etc.) therapy with low doses of acetilsalicil acid should be considered.

Secondary Prevention

The basic aim of secondary prevention is to discover the disease in its early stage, in the absence of clinical manifestations.

For the elderly, screening methods for early detection of diseases is an important type of prevention.

One of the most important screening methods is monitoring blood pressure, in an effort to prevent arterial hypertension. This should be done at every contact with medical staff since hypertension is a wide-spread disease with a very high prevalence among the elderly. It is important to discover and treat hypertension early, when chronic complications are not yet present.

In secondary prevention of breast cancer, regular examinations by palpation should be given, along with a mammogram if possible. After the age of 50, according to some sources, a mammogram should be given once a year.

Regular gynecological examinations with PAPA-tests are of great importance in secondary prevention of carcinoma of the cervix uteri. Regular screenings every three years in ages 25 to 64 can provide as much as 90% protection.

For early detection of colon cancer, even persons with average risk, and without symptoms of disease, should be tested. For those over 40 years of age, digital rectal examinations should be conducted once a year. For those over 50, stool should be tested for occult bleeding. For those with high risk, a sigmoidoscopy is recommended every few years.

Those at high risk for stroke (smokers, hypertension, atrial fibrillation, diabetes mellitus, etc.) or neurological disorders like transient ischemic attack, should have all murmurs above carotid arteria checked.

For those exposed to the sun for long periods of time (during work or recreation) or with a positive family history of malignant neoplasm of the skin, careful skin examinations should be done.

New inventions and further development of medical technology continue to provide new possibilities for secondary prevention of chronic, degenerative diseases.

Ultrasound examinations have great potential for early detection of diseases.

Implementation of molecular biology methods in detecting genetic markers will enable detection of high risk population groups prone to the development of different types of diseases.

Tertiary Prevention

The goal of tertiary prevention is to maintain the physical and psychological functions of the elderly so that they can remain integrated for as long as possible into their social surroundings. It is composed of physiotherapeutic and rehabilitative measures.

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