Lifestyle as a main criteria in health care prioritization

Leko, Ivona

University of Josip Juraj Strossmayer in Osijek
Faculty of Economics in Osijek
Graduate Study Economic policy and regional development

Ivona Leko

LIFESTYLE AS A MAIN CRITERION IN HEALTH CARE PRIORITIZATION

Master Thesis

Osijek, 2020.

University of Josip Juraj Strossmayer in Osijek
Faculty of Economics in Osijek
Graduate Study Economic policy and regional development

Ivona Leko

LIFESTYLE AS A MAIN CRITERION IN HEALTH CARE PRIORITIZATION

Master Thesis

Kolegij: Econometrics
JMBAG:0010197586
e-mail: ileko1@efos.hr

Mentor:
izv.prof.dr.sc. Josipa Mijoč; University of J.J.Strossmayer, Faculty of Economics in Osijek
Co-mentor:
Micaela Moreira Pinho, PhD, Economics; Portucalense University, Department of Economics and Management (DEG)

Osijek, 2020.

IZJAVA

O AKADEMSKOJ ČESTITOSTI, PRAVU PRIJENOSA INTELEKTUALNOG VLASNIŠTVA, SUGLASNOSTI ZA OBJAVU U INSTITUCIJSKIM REPOZITORIJIMA I ISTOVJETNOSTI DIGITALNE I TISKANE VERZIJE RADA

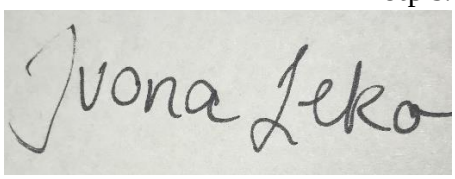
1. Kojom izjavljujem i svojim potpisom potvrđujem da je diplomski rad isključivo rezultat osobnoga rada koji se temelji na mojim istraživanjima i oslanja se na objavljenu literaturu. Potvrđujem poštivanje nepovredivosti autorstva te točno citiranje radova drugih autora i referiranje na njih.
2. Kojom izjavljujem da je Ekonomski fakultet u Osijeku, bez naknade u vremenski i teritorijalno neograničenom opsegu, nositelj svih prava intelektualnoga vlasništva u odnosu na navedeni rad pod licencom Creative Commons Imenovanje – Nekomercijalno – Dijeli pod istim uvjetima 3.0 Hrvatska.
3. Kojom izjavljujem da sam suglasan/suglasna da se trajno pohrani i objavi moj rad u institucijskom digitalnom repozitoriju Ekonomskoga fakulteta u Osijeku, repozitoriju Sveučilišta Josipa Jurja Strossmayera u Osijeku te javno dostupnom repozitoriju Nacionalne i sveučilišne knjižnice u Zagrebu (u skladu s odredbama Zakona o znanstvenoj djelatnosti i visokom obrazovanju, NN br. 123/03, 198/03, 105/04, 174/04, 02/07, 46/07, 45/09, 63/11, 94/13, 139/13, 101/14, 60/15).

Izjavljujem da sam autor/autorica predanog rada i da je sadržaj predane elektroničke datoteke u potpunosti istovjetan sa dovršenom tiskanom verzijom rada predanom u svrhu obrane istog.

Ime i prezime studentice: Ivona Leko
JMBAG: 0010197586
OIB: 06968922918
e-mail za kontakt: leko.ivona@gmail.com
Naziv studija: Economic policy and regional development
Naslov rada: Lifestyle as a main criterion in health care prioritization
Mentorica rada: izv.prof.dr.sc. Josipa Mijoč; University of J.J.Strossmayer, Faculty of Economics in Osijek
Co-mentorica rada: Micaela Moreira Pinho, PhD, Economics; Associate Professor at Portucalense University, Department of Economics and Management (DEG)

U Osijeku, 08.01.2020. godine

Potpis:



ABSTRACT

Rapid growth of health expenditures has fueled discussions about rationalization of the health care. Worldwide, the health care resources are scarce and, therefore, it is necessary to ration them. Large amount of the diseases in developed countries are related to the lifestyle. Therewithal burden on the health-budget is an expanding dilemma. The fact that scarce medical resources are spent on diseases that, could be avoided to some extent through individual lifestyle changes is a paradox of modern medicine. This situation led scientists and politicians to consider whether the principle of personal responsibility for health is relevant and legitimate for prioritizing health care. The main question is whether a claim for health care is less legitimate if the individuals contribute to their illness than if there is no such association established. Academics are just beginning to explore what 'responsibility principle' can mean for health care allocation. This paper researches attitudes of citizens and health care professionals in Croatia regarding differentiation and priority-setting in health care according to lifestyle behaviors. Before presenting the results of the research, a short description of the Croatian health system, reforms and health care rationalization in general are presented.

Key words: Health care rationing, Priority setting, Health resources, Publicly Health system, Patient selection, Personal responsibility, Lifestyle, Risk behaviors.

Table of Contents

List of Figures

List of Tables

1 Introduction

Due to the growing increase in health care demands with direct consequences on rising health care expenses, the need for some form of rationing has become very important topic worldwide. Hence limited resources it is impossible to provide health services to all patients in need for them. Thus, priority setting and rationing have to be applied. However, the question that arises is how to ration health care? The rationing dilemmas are becoming acute due to a combination of three trends: (1) expensive medical technology; (2) transparency and accountability in medicine and (3) older population. Health economists have proposed an economic technical evaluation, known as ACU that uses an index – Quality-related life years (QALY), as a measure to evaluate health outcomes. According to this methodology, patients that have a greater QALY per unit of cost should be prioritized. However, this methodology has not yet had a practical impact because an increasing empirical literature found that societies besides efficiency value other patient's characteristics, namely the contribution of patient to their disease (Pinho and Borges, 2019). The research will devote to this theory division by examining how Croatian heath care professionals and citizens in Croatia appraise the importance of personal-responsibility for decisions in prioritization. This paper also explores the public opinion on whether health care prioritization should be influenced by the role of health-related behaviors and lifestyle of the patient as a main criterion.

2 Theoretical Background and Literature Review

2.1 Croatian Health System and Health Care Rationing Reforms

2.1.1 General Description of the Croatian Health System

The beginnings of the organized provision of health, then social, insurance in the territory of the Republic of Croatia occur in the twenties of the last century and to this day the health insurance holders have undergone many reforms, both in the name and in the organizational structure, but always with one goal: to carry out insurance of the workers and care for insured people. The nineties of the last century were characterized by numerous normative reforms as well as war events, all of which affected health care and health insurance reforms. The Croatian health insurance, known as Croatian Health Insurance Fund was established at 21 August 1993 with the purpose to provide to all insured people the rights and obligations of compulsory health on the principles of reciprocity, solidarity and equality. The mission of the Croatian Health Insurance Fund is to rationally invest the financial means of their insured people in quality and efficient health services and programs that will help prolonging average age of living and healthier life. Croatian Health Insurance Fund today has 4 regional offices one in Zagreb, Osijek, Rijeka and Split with total amount of 2 327 workers (data on 30.11.2016.). Roughly, there are 4 300 000 (99,7%) citizens who have compulsory health insurance and 2 500 000 people who have supplementary health insurance. In Croatia there are 5 Clinical Hospital Centers which are the biggest type of hospital institutions in Republic of Croatia and which unite all diagnostic methods, tests and therapeutic interventions. There are also 3 Clinical Hospitals (smaller than Clinical Hospital Centre), 5 clinics, 22 general hospitals, 24 special hospitals and 49 health centers.

Development of the Croatian health care system, throughout history until today, has taken place in three significant periods: 1918-1945, 1945-1990 and from 1991 until today. The health care system is a strategic part of the economy in many countries, and the primary task of health care is to improve health and protection of individuals in the time of illness. The role of health care in our region has for long been viewed through the principle of humanity as one of the fundamental principles of the social doctrine of modern humanity and the need for economic evaluation in the field of health has been a great unknown. In developed countries, in addition to the stated principle

of humanity, the economic valuation of life and health has been considered much earlier (Kovač, 2015). The interest of economists for health care began in the mid-1960s, and it is coinciding with the increase in health spending and the inability to meet unlimited health needs. From the economic point of view, the central issue is the effectiveness of the allocation of funds and resources for health, which is often the result of political choices. Health care is justifiably considered as one of the most important industries because everything in a person's life becomes less valuable and harder to reach when health is lost. If health is defined as it was done by the World Health Organization, as a state of complete physical, mental and social well-being and not just as the absence of illness and exhaustion, then it is already clear in the definition that ensuring a long-lasting state of health is one of the priorities of every man, his family, community or nation. A healthy person has the full potential for productivity, utilization of his functional work capacity and satisfaction. If this is transposed to a macro level, it can be concluded that a healthy nation has greater potential to be a productive nation (Kovač, 2015).

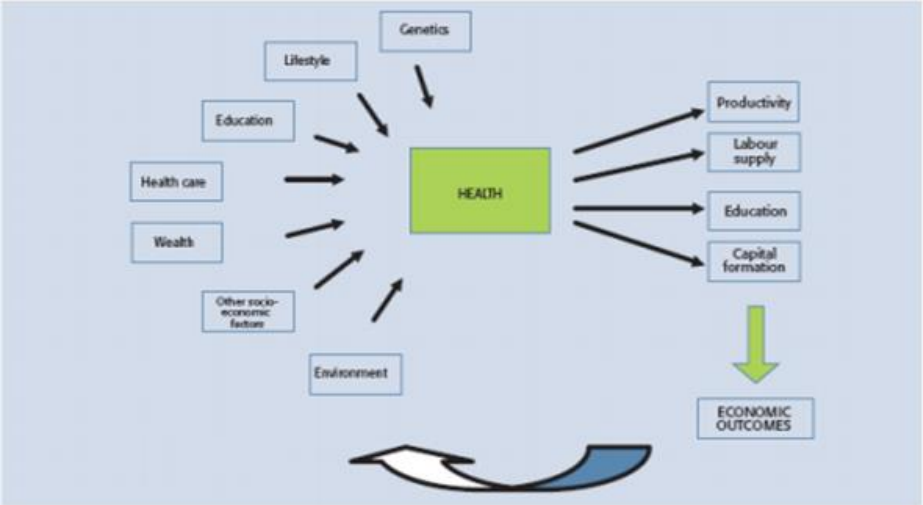


Figure 1: Correlation of health and economy;
Source: Kovač, 2015

According to Smolić (2016), the constituent units of the health care system are users and health care providers, regulatory institutions and entities that raise funds and pay for health services on behalf of the beneficiaries. The health care system is determined by the interrelationships of the aforementioned components. In many countries, the state assumes various roles in financing, regulating and / or providing health services. The most common types of the health care insurances are: Bismarck's model, Beveridge's model, market model and mixed model. The Bismarck's

model is a funding system solely through the mandatory / social security contribution. The Beveridge's model is a health financing system solely from the state's tax revenue. In the market model, private health insurance prevails and mixed models have elements of the previous three models. WHO divides health insurance systems according to funding, governance, decision-making about rights and obligations, population involvement in protection, solidarity and planning of insurance coverage. In the times of income growth, an increasing share of the elderly population and increasingly intense urbanization, the functioning of the health care system is largely determined by the well-being of a society. There is no automatic mechanism for controlling the flow of resources in health care if individuals or health care professionals perceive health needs as unlimited. We can see how important is the attitude towards health care services through preoccupation with framing, implementation and functioning of health insurance, regardless to the combination of public and private equity. Today this can be seen in approach to health care, which in most developed countries has turned to concerns about growth and finding mechanisms to control the growth of health care spending (Stoddart, 1995). The main source of health care financing in Croatia are contributions from compulsory health insurance, which covers about 80% of total health spending. Therefore, we are speaking of Bismarck's model, but Article 53 of the Compulsory Health Insurance Act (NN, 2013) plans for financing from the state budget and budget units of regional (local) government and self-government units, which is why we sometimes refer to a mixed financing model. In addition to the contribution of compulsory health insurance and transfers from the state budgets and local units, part of the costs is covered by the supplementary (voluntary) health insurance through direct and informal payments. Supplementary health insurance provides coverage for part of the costs up to the full cost of health insurance from compulsory health insurance (NN,2006a). Contributions from employees, the self-employed and farmers are the main finance source of health insurance. A contribution of 15% of the gross salary (fully paid by the employer) was paid into the State Treasury account until 1.1.2015. and after that date, it is credited to the Croatian Health Insurance Fund account in Croatian National Bank. A contribution of 0.5% to health insurance at work was introduced on 1.1.2008. and it is monitored separately. In the last few decades, annual growth rates of health spending in European countries have generally been higher than GDP growth (Smolić,2014). A literature review on health care consumption factors identified a positive but not always significant relationship with aggregate income, demographic variables, risk factors, and institutional characteristics of the system. It

turned out that gross domestic product (GDP) is the main driver of overall health spending in a country.

The health care system remains a source of risk for public finances. While the number of contributing individuals is increasing steadily, still only around one third of those entitled to use the public health system pay full premiums, which reflects the low employment rate. Insurance for non-paying individuals (some 42 % of all insured) is covered through state budget transfers, which, however, have been consistently below the levels required for full coverage, adding to accumulation of debt in the health care system.

Expenditure on health care in Croatia remains well below the EU average. In 2016, total health expenditure in the country was 7.2 % of GDP, compared to 9.9 % on average in the EU (European commission report for countries, 2018). When considering only public expenses, the amounts were 5.6 % versus 7.9 % of GDP (European commission report for countries, 2018). In recent years, the decreasing trend in total per-capita spending on health was reversed, but, at EUR 1 307 in 2017, the level remains less than half the EU average according to European country report 2019. According to European Commission's Country Report, health outcomes are generally below average in the EU. At 78.2 years, the life expectancy in Croatia is substantially shorter than the EU average which is 81 years. Healthy life expectancy at the age of 65 is 5 years, which is one of the lowest in the EU. Smoking and alcohol consumption are above the EU average, which is reflected in cardiovascular and cancer mortalities being responsible for around 75 % of all deaths in the country. In access to health care, Croatia fares better than many other EU Member States. In 2017, the proportion of reported unmet medical needs due to waiting times, cost or distance was at the EU average. However, the high proportion of unmet needs only due to distance (much greater than the EU average) remains a concern. The system's structure appears misaligned with the needs of the population. Expenditure on outpatient pharmaceuticals and other medical goods is well above the EU average (25 % vs 19 % of total health expenditure), which contradicts the relatively high number of patients referred to hospitals. By contrast, inpatient care accounts for 25 % of total expenditure, 5 percentage points lower than the EU average, but the number of hospital beds per inhabitant is higher (European Commission, 2018). Some hospitals in the country provide services in excess of the limits set by the Croatian Health Insurance Fund, while some maintain capacities greater than the needs of the population they serve. While the authorities have announced plans to increase the spending limits in hospitals across the board, the system is likely to remain prone to

accumulation of arrears as long as the spending limits are not brought closer in line with types and amounts of services provided in each of the hospitals. The main problems of the system are financial instability and large debts and the main challenges for Croatian health care are demographic aging, labor shortages and technological backwardness. Health care is permeated with economics by the fact that economics studies how scarce resources are used in the production of goods and services and their distribution. The rise in health care costs over the last four decades, i.e. since the beginning of the 1980s and the so-called health care cost explosion since the 1960s, requires rationalization measures in the health care system. However, the question is how to justly ration health care? Economists have contributed to this debate by proposing an evaluation economic technique that pursuit efficiency. According to this algorithm, the patients that maximize health gains, per unit of cost, should be prioritized. However, an increasing empirical literature shows that general population, besides efficiency also pursuit distributional or equity goals. This paper will explore and compare the views of health care professionals (those who ultimately take rationing decision) with those of the general public in (Osijek, Osječko-Baranjska county) concerning the relevance of using health related-behaviors as a criterion to ration health care.

2.1.2 Reforms Undertaken to Cut Health Spending

According to Vehovac (2014), the basic conclusion is that growth in health spending cannot be stopped in the long run, but health financing can and must be made more efficient. Continued development of medical technology contributes to the growth of health care consumption in the long run. If health spending is going to grow anyway in the long term, why should it be curtailed in the short term? Or can this even be achieved at all without reducing the scope and disrupting the quality of health services provided? Financial reforms in health care are necessary because most of health spending is financed from public budgets, and since the outbreak of the global financial crisis, most developed countries have been forced to reduce budget deficits so that public finances do not deepen instability and thus prolong economic stagnation. Of particular importance for Croatia are which reforms have proven successful in financing health care, under what conditions and for how long were the reforms successful or what reforms have not proved

successful and why. Based on such experiences and lessons learned from our own reform efforts and failures, it is also possible to devise appropriate measures in Croatia for more efficient financing of health spending.

2.1.2.1 Main Reforms in the Period 1991-2000

The Health Care Act of 1993 consolidated the health financing system under one public institution - the Croatian Health Insurance Fund. This laid the foundations for the collection of the Compulsory Insurance Revenues, i.e. the main source of health financing in Croatia, which enabled universal coverage of the population. The Croatian Health Insurance system is based on the principles of reciprocity, equality and solidarity. Compulsory health insurance enables all insured persons the rights and obligations arising from compulsory health insurance on the principles of reciprocity, solidarity and equality. Compulsory health insurance entitlements include the right to health care and cash benefits (for example payment during sick days for employees, etc.). The health reform from 1993 centralized control of financial flows, established mechanisms for controlling spending and laying the foundations for the privatization of health - especially primary health care. The initial results of the reform were very favorable, with the Croatian Health Insurance Fund debt reduced in 1994 to 0.2% of GDP as well as the overall cost of health care (Smolić, 2016). Better organization of the system did not reduce the cost. What actually reduced cost is raise of the contribution rate to 15% from January 1st and spending limit (Smolić, 2016). A decrease in consumption was also contributed by the 1994 decision to prohibit the disclosure of the accounting cost of depreciation (Zrinščak, 2007). At the end of 1999, Croatian health care system again ran into problems. The share of public health spending in GDP was at the level of Western countries, but the debt of the Croatian Health Insurance Fund (total arrears) rose at the end of 1998 to 2.7% of GDP (World bank and Ministry of Health of the Republic of Croatia, 2000). Accordingly, a series of reforms followed in the 2000s. Some of the main goals of the 2000 reform were: 1) restrain the increase in expenditure from public sources and reduce the rate of health care contributions, limit benefits and increase participation; 2) increase efficiency and productivity of services through reorganization and rationalization of service delivery system, especially at the hospital level and in specialist services; 3) strengthen the procurement role of the Croatian Health Insurance Fund and its contracting with health care providers, thus, to better align payments with efficiency and quality incentives; 4) transfer to local self-government (counties and the city of

Zagreb) greater responsibility for managing the system of delivery of services in the offices of family doctors and specialist doctors and 5) expand the scope of public health programs focused on health promotion and prevention (World bank, 2004).

2.1.2.2 Main Reforms in the Period 2001-2014

The 2002 reform, like the one in 1993, focused on controlling the growth of costs (cost containment), by reducing the number of free health services. The Health Insurance Act of 2001 entered into force in 2002 and adopted a series of measures to limit the costs covered by the Croatian Health Insurance Fund, but also to increase the income of the Croatian Health Insurance Fund. Also, the aforementioned Act made it possible to introduce a new product in the field of voluntary insurance - supplementary health insurance, which would again fully cover the payment of basic services that required participation (World bank, 2004).

However, the introduction of supplementary health insurance has not reduced excessive health demand. Moreover, Croatian Health Insurance Fund revenues were less than expenditures, and debt continued to increase, therefore with raising contribution rates or financial transfers from the state budget on average every two years were saving the system. The Compulsory Health Insurance Act from 2006 planned a reduction in the scope of the basic package of (free) health care services, primarily through the policy of medicines (drugs) and reduction of the exemption from participation in the costs of health services. At the end of 2008, a comprehensive health reform was launched to coincide with the outbreak of the global financial crisis, with an emphasis on financial stabilization and increasing the efficiency of the system. The 2009 health reform was dubbed "participatory reform" but also "financial reform" with new levies on citizens to save HRK 2.1 billion (Smolić, 2016). Some of the most famous reform measures included the merger of hospitals, computerization, i.e. implementation of eHealth, introduction of a national waiting list, categorization of hospitals, etc. Since 2011, reforms have focused on increasing the cost-effectiveness of the hospital sector and reducing health care debts. In 2013, the most important reform effort was the adoption of the Decision on the financial reorganization of 9 state-owned clinical hospitals with a total cost of HRK 1.9 billion and 25 mainly county hospitals with a total cost of HRK 1.13 billion (Smolić, 2016). Croatia's accession to the European Union in 2013 also marked changes in the health care system primarily through alignment with EU legislation

(Džakula et al., 2014). In conclusion, it can be said that the Croatian health care system successfully underwent a transition in the 1990s, and to this day it continuously provides health care for the entire population. Despite numerous reforms, there are still some risks, particularly regarding the inability to ensure the financial stability of the health system (Smolić, 2016).

Most of the reform measures in 2002 and 2006 were aimed at increasing revenue, while only a few had an impact on reducing expenditure. An analysis from 2008 health reform also showed similar results. Several years before the reform, hospitals were rehabilitated, Croatian Health Insurance Fund generated higher expenditures than revenue and the health system as a whole, was in deficit. The reform of the health care system, namely the increase in revenue, has succeeded in temporarily stabilizing the financial operations of the Croatian Health Insurance Fund. The 2008 health reform has produced both favorable and unfavorable results. With favorable results, financial stabilization of the health system is emphasized. In the first years after the reform, Croatian Health Insurance Fund revenues covered expenditures, and in 2009, the amount of unpaid arrears decreased, while the arrears were paid in 2010. However, the continued increase in costs and accumulation of arrears in the coming years show that the 2008 reform again failed in the long-term financial stabilization of the system. In addition to the initial financial stabilization, a positive result is the diversified sources of revenue, which is the first step towards a wage burden; the growth of certain categories of health care expenditures has been halted; the average length of sick days was decreased and the number of people who took sick days was also decreased, which led to a halt in the increase in sickness benefits and also some organizational improvements have been made (procurement, computerization, payment to diagnostic-therapeutic groups).

On the other hand, new revenues have spilled over into a significant increase in health spending amid the economic crisis, health care institutions continue to generate arrears and, due to the shifting of the burden of financing to citizens, the share of health expenditure in total household expenditure has increased. The reform still did not solve the problem of corruption in health care and efficiency in the operation of health care institutions.

2.1.3 Challenge of Health Care Rationing

Prioritization or rationing of health services is on government agendas across the world. According to Emanuel, Steinmetz and Schmidt (2019), rationing usually has a negative valence. It has strong connections of heartless, mechanistic withholding of desirable goods or services by faceless bureaucrats. This effect can prompt the perception that all prioritizations are inherently bad. Rationing is concerned with problems such as how to distribute strictly limited numbers of beds in hospitals, organs for transplantation, or vaccines in a pandemic. Cases of absolute scarcity entail a situation in which demand for resources outstrips supply, and the supply is inherently limited by nature or by the ability to manufacture product. The central ethical issues in situations of absolute scarcity focus on selecting those people in need who will receive medical interventions when not all people who could benefit from an intervention can have access. As rationing in health care can occur at different levels, it also can have different criteria of rationing. The question that arises is 'What criteria should guide choosing the beneficiaries?' This chapter will try to sum up a different type of rationing and different criteria of rationing suggested and discussed in the literature. Likewise, it will present public involvement in the debate about health care rationing. Rationing choices and resource allocation decisions are as inevitable as they are undeniable. The most likely next step, many now believe, will be some form of systematic rationing. Still whatsoever criteria will be applied to ration health care, they should be fair and transparent. The quality and professional management of state's health facilities is one of the most important requirements of good-working health system. Poor management produces unsuccessful health care institution, unsuccessful health care institution produces poor health service for citizens and dissatisfied physicians.

2.1.4 Types of Rationing

Rationing of health care services is without questioning necessary around the world as the scarce resources are not sufficient for all patients at the moment. "Priority setting, the allocation of

resources between competing demands, occurs in every health system at the macro-level (national, provincial), meso-level (regional, institutional) and micro-level (clinical programs)" (Kapiriri, Norheimb and Martin, 2007). Developed countries are "faced with growing challenges hence aging population, very expensive new medical technology and increased demands, while developing countries face problems with poor resource availability, impoverished capacity and poor infrastructure (Kapiriri, Norheimb and Martin, 2007). There is no health care system in the world that operates under budgetary constraints which can fund all health care technologies (medical equipment, medicine, procedures) and all medical services that exist. Also, health care system can't provide every medical service nor medical technology to every citizen in every moment. "Rationing could occur at macro, meso, and micro levels. The macro-level rationing refers to decisions about how much funding should be allocated to health services altogether. Allocation of resources between particular services and localities occur at the meso-level. Finally, rationing at the micro level deals with decisions on treating individual patients. At the macro-level, politicians and health care authorities, as the stewards of the national resources, plan and direct rationing health care services to establish the fairest possible health system, to make the best possible use of limited resources, and to deliver the best health outcomes. The government and Ministry of Health should regulate and balance rationing at meso and micro-levels to maximize the probability of success in health services rationing. A lack of rationing health care services policy, at the political level, may lead to uncontrolled physician's power of decision-making. Policymakers and authorities at macro-level can use methods such as budget, benefit package, and payment mechanisms to control the behavior of health care managers and providers and restrict providing a broad variety of inappropriate health services. Budget influences the behavior of providers and leads them to reallocate health care resources or even ration some health care services" Klein (1997). "Micro-allocation involves bedside decisions about denying a potentially beneficial treatment to patients on the grounds of scarcity. Although conceptually distinct, both levels of decision are related. Restrictive macro-allocation decisions regarding health care funding create more situations for discriminating patients. In this article, we focus on the micro level of priority setting" (Pinho and Borges, 2017).

2.2 Croatian Lifestyles and Their Relation with Diseases

2.2.1 Smoking

Smoking is a preventable cause of premature death and morbidity worldwide. The World Health Organization (WHO) and the Center for Disease Control and Prevention (CDC - Atlanta, USA) with the help of partners launched the implementation of the Global Tobacco Surveillance System (GTSS) to stimulate countries, on the basis of the data obtained, to develop control programs of tobacco use. According to the results of Croatian Institute of Public Health (2016), 31.1% of population in Croatia are smokers, from which 27.5% are daily smokers and 3.6% occasional smokers.

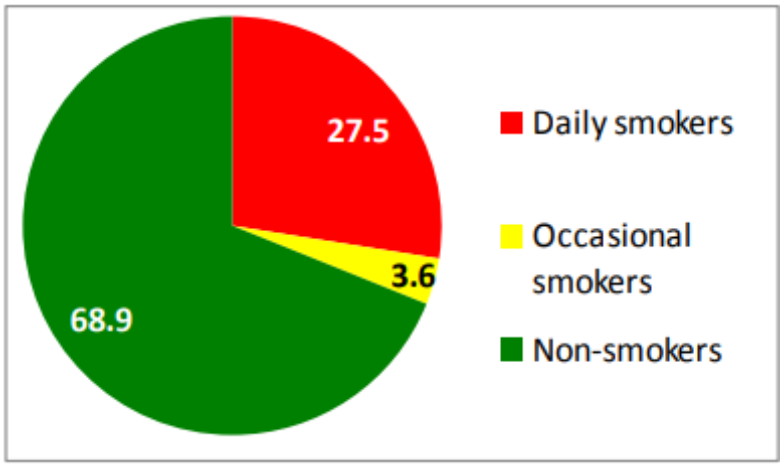


Figure 2: Percentage of smokers in the Republic of Croatia
Source: Global Tobacco Surveillance System, 2015

There are 35.3% smokers among men from which 31.8% are daily smokers and 3.5% occasional smokers. While among women there are 27.1% smokers from which 23.4% are daily smokers and 3.7% occasional smokers.

According to the educational level, share of smokers is the highest among respondents with completed high school or short-term secondary education after primary school (36.4%), followed by respondents with completed primary school or less (26.0%) and respondents with completed college or education higher than that (25.0%).

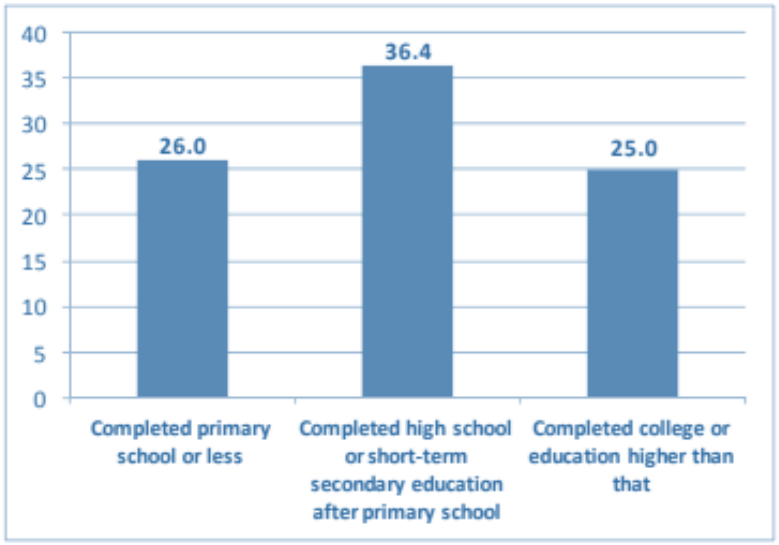


Figure 3: Percentage of smokers according to the educational level
Source: Global Tobacco Surveillance System, 2015

According to the age, the share of smokers is the highest in the age group 25-44 years (38.9%), followed by the age group 45-64 years (36.5%), 15-24 years (30.0%) and 65+ years (11.5%).

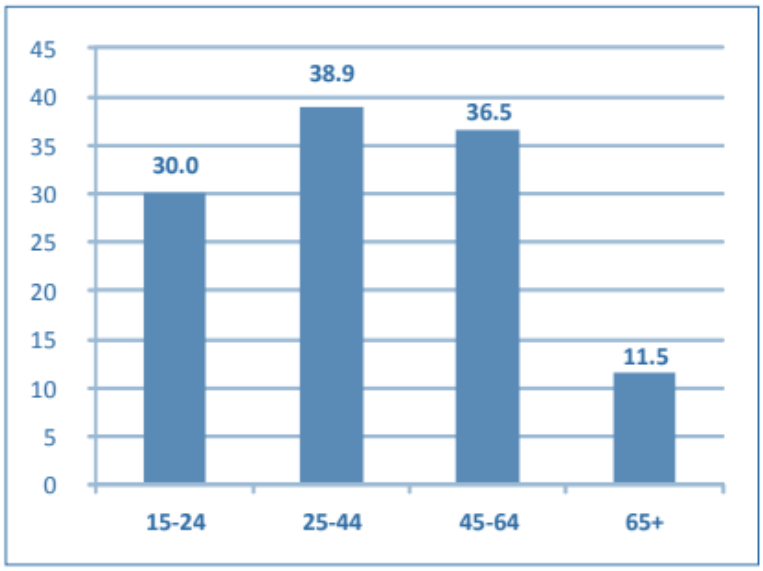


Figure 4: Percentage of smokers according to the age
Source: Global Tobacco Surveillance System, 2015

Figures number 5 and 6 show comparison of share of smokers with other European countries which conducted Global Adult Tobacco Survey in period 2008-2013. From the figures below we can see that Croatia is on the 7th place with share of smokers among men and on the first place with biggest share of smokers among women in the EU.

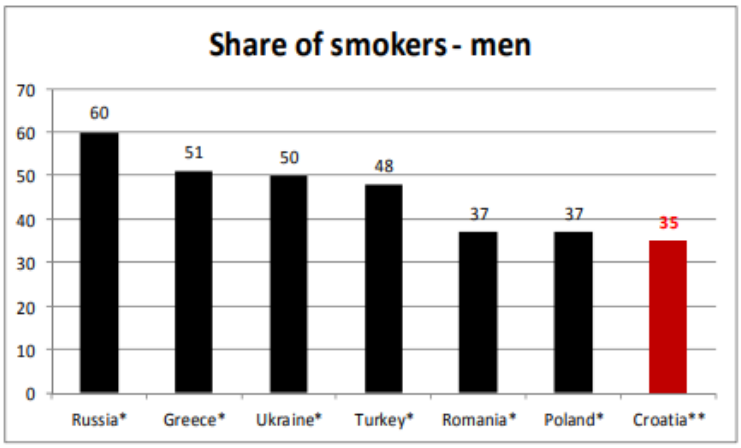


Figure 5: Share of men smokers in Croatia compared with other European countries
Source: Global Adult Tobacco Survey Atlas, 2015

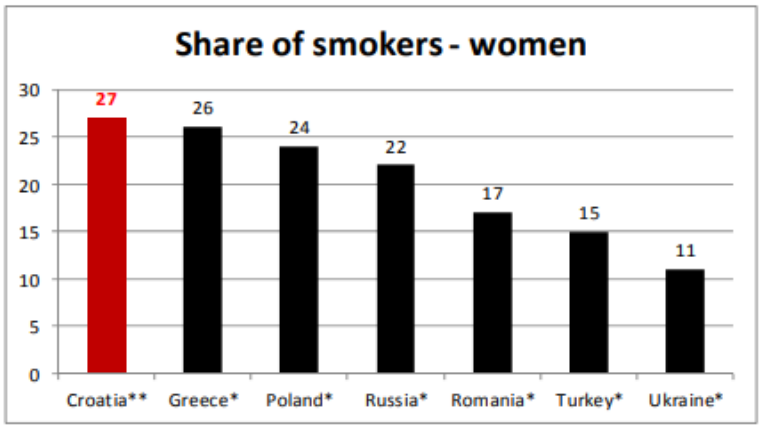


Figure 6: Share of women smokers in Croatia compared with other European countries
Source: Global Adult Tobacco Survey Atlas, 2015

In Croatia, every third person smokes, which puts Croatia at the very top in terms of cigarette consumption. Every other Croatian smoker smoke on an average of 15-24 cigarettes a day and around 95% of deaths from lung cancer are smokers according to Croatian Institute for Public Health. The most effective measure to improve lung health is to reduce the use of tobacco and tobacco products and to reduce exposure to environmental tobacco smoke. Despite strong evidence for the harmfulness of smoking for lung health, the potential to control the use of tobacco and tobacco products to improve lung health still remains underestimated. Croatia should respond to the tobacco epidemic through the full implementation of the WHO FCTC and the adoption of the highest level of MPOWER measures, which include development and implementation of the most effective smoking control policies aimed at reducing tobacco demand. Croatian Institute for Public

Health carried out research among high school students where they wanted to find out how easy is for juveniles to purchase tobacco products. They took sample of 33 grammar schools, 62 four-year schools and 39 three-year schools. 72.5% students under age of 18 from the sample said that is rather easy or very easy to purchase tobacco products and only 6.2% said that is rather hard or very hard to purchase tobacco products. This research indicates that for Croatian juveniles is rather easy to purchase cigarettes and that Croatia should tighten policy of tobacco use especially for young people to prevent use of tobacco from the early age as one of the measures to reduce smoking. Parents and other members of the community should also take action to promote their own and their children's health, protecting them from the harm caused by tobacco.

2.2.2 Obesity/Overweight

In modern times obesity is one of the major health problems, which has taken on a global epidemic. According to the World Health Organization (WHO), 1.5 billion people are overweight, of which more than 500 million are considered obese, with an increase in prevalence in the coming years. Croatia does not lag behind, neither. The causes of obesity can be multiple. Fasting lifestyles, availability of fast and unhealthy food, unhealthy eating habits, and sedentary lifestyles are considered to be leading risk factors for the development of overweight and obesity. Fat accumulation, especially visceral, has been proven to be associated with chronic changes and diseases of multiple organ systems. Anthropometric measurements are used in the diagnosis of obesity to determine body mass index (BMI), waist circumference, and waist to hip ratio, which gives an insight into the type of obesity to which the patient belongs and to which health risk is exposed. “Creating well-structured prevention programs is one of the great challenges for public health to raise awareness in the population that obesity is a preventable disease through proper nutrition and appropriate physical activity” (Medanić and Pucarin-Cvetković, 2012).

According to Croatian Institute for Public Health, 63% of men and 54% of women in Croatia are overweight while 20% of women and men are obese. In the adult population of Croatia among people with positive history of stroke 66% of men and 75% of women are overweight, among people with high blood pressure 78% of men and 74% of women are overweight and among people with type 2 diabetes overweight are 79% of men and 84% of women. However, in Europe obesity

mortality rates of 10-13% have been reported. According to the data provided by the Croatian Institute for Public Health for 2015/2016 overweight is registered in 12.85% of students in primary school, in 12.85% of students in secondary school and in 16.21% of college students. Obese are 17.74% of primary school students, 12.87% of high school students and 5.54% of college students. This creates a risk of many obesity-related diseases at an early age, and one of a major problem is also the abuse by other children, which has serious psychological consequences.

2.2.3 Heavy Drinking

Per capita alcohol consumption in the WHO European Region, including the European Union (EU), is the highest in the world, which results in proportionally higher levels of burden of disease attributable to alcohol use compared to other regions. The risk of accidents and violence is more prevalent among young people, while the health risks are more common in older age groups. The annual consumption of alcoholic beverages in Europe is estimated at 12.5 liters of pure alcohol per adult or 27 grams or three alcoholic beverages per day. In Croatia, the estimated consumption of alcohol per capita in 2009 was 12.76 liters, of which unregistered alcohol consumption was 2.5 liters. According to Croatian Institute for Public Health (2017), 78.1% of respondents in the Republic of Croatia stated that they had been drinking alcohol in the last 12 months, from which 85.3% of men and 71.0% of women. 21.9% of respondents in the Republic of Croatia stated that they did not drink alcohol in the last 12 months, of which 13.9% did not drink alcohol in their lifetime and 8% of respondents have been drinking alcohol beverages in lifetime but did not drink in last 12 months. 11.1% of respondents said that in last 12 months they have been binge drinking (heavy drinking- drinking 60 g of pure alcohol for men or 40 g of pure alcohol for women in one occasion) at least once a month. Regarding the type of alcohol beverages 66.2% of respondents in Republic of Croatia drank beer, 58.2% drank wine and 45.4% drunk strong drinks. In 2011, alcohol-related mental disorders were one of the leading causes of hospitalizations in the group of mental illnesses and disorders in Croatia. From 2000 to 2011, the number of hospitalizations for mental illness and disorders in total, as well as those related to alcohol, ranged between 7.972 hospitalizations (2000) and 10.787 hospitalizations in 2008. According to the ESPAD survey,

Croatian adolescents (15-16 years old) drink more often than the European average. Boys continue to drink more, but there is an indicative increase in the frequency of drinking in girls. In Croatia, as in most ESPAD countries, almost every student (93.5%) has consumed alcohol at least once in their lives. Frequent drinking (40 or more times in life) was common in 41.9% of boys and 23.4% of girls, and drinking 6 or more times in the last month was common in 60.9% of boys and 48.2% of girls. The fact that almost every other student (30.7%) in the last 30 days bought beer for himself/herself and every fourth student (24.3%) bought wine speaks of the availability of alcohol in Croatia, but also about the observance of the Law. Explanation of this data is not simple but part of the reason is certainly our society's very tolerant attitude towards alcohol in general, and young people in particular. Legislation is generally not respected and enforced, and alcohol availability to young people is very high which refers that Croatia should better regulate alcohol policies in future.

3 Methodology

This paper analyzes Croatian citizens (non-health care professionals) and health care professionals' attitudes towards personal responsibility for the disease. Nationally representative data is examined to answer the following:

1. Do Croatian respondents find personal responsibility for the disease relevant to co-paying health treatments?
2. Which types of risk behavior do the respondents find most relevant to prioritize by?
3. What attitudes regarding financing treatments of the diseases can be connected to the lifestyle of the patient?
4. Are health care professionals attitudes different from those of general public regarding prioritization of health-related behaviors?
5. How do attitudes about personal responsibility for the disease and lifestyle correlate with socio-demographic characteristics of the respondents?

Primary and secondary data sources were used in the preparation of the thesis. In the theoretical part of the thesis scientific papers, professional researches and dissertations were used hence the relevance and timeliness of the information. The research methods used in theoretical postulates of this paper include description method; description of existing knowledge, the method of classification and compilation method through structuring the results of numerous authors on this subject.

The research process required the creation of a highly structured questionnaire. Two methods were used in data collection: 1. Self-administered questionnaire and 2. Online data collection using the SurveyGizmo online data collection platform. The sample frame was composed by health care professionals-doctors and nurses (HP) and citizens from the general population without expertise in medicine, hereafter designated as non-health professionals (NHP) from Eastern part of Croatia (Pannonian region)[1] from age range of 18–65 years. Health care professionals are experts in this research and the conduct of the research required the permission of the ethical committee of the only clinical center in the region, Clinical Hospital Centre Osijek (attachment x). Data collection was initiated after the approval of the committee. The research leader forwarded the printed

[1] Sisačko-moslavačka, Karlovačka, Bjelovarsko-bilogorska, Virovitičko-podravska, Požeško-slavonska, Brodsko-posavska, Osječko-baranjska and Vukovarsko-srijemska county

questionnaires to the heads of the Clinical Hospital Centre Osijek department and 160 questionnaires were collected from Health care professionals (doctors and nurses). The control group of the survey was related to the users of medical services (citizens) who were addressed by the research leader through social networks with a link to an online questionnaire, and this sample group contained 54 respondents from NHP group. The study for both groups was conducted within the February and November 2019. In total there are 214 questionnaires from all respondents.
Appropriate statistical procedures were used through SPSS (version IBM SPSS Statistics 20) for the hypotheses, depending on the type of variable measurement. The testing of the hypothesis performed using the following statistical tests: descriptive statistical analysis, t-test of independent samples, One-Way ANOVA, correlation analysis and exploratory factor analysis (Horvat and Mijoč, 2019).

3.1 Questionnaire

The questionnaire was anonymous and was preceded by a sheet explaining the scope of the study and the requested permission to use the data obtained. The questionnaire included four mandatory sections with questions developed and used elsewhere (Feiring and Brigedal, 2014; Lund et al., 2015). Both groups of respondents (HP and NHP) answered the same questionnaire.
The first section of the questionnaire comprises nine questions related to respondent's attitudes concerning co-payment, priority giving to the patients according to their contribution to the disease and beliefs about lifestyle contribution to the disease and health expenditures. Lifestyle of the patient that could contribute to the development of the disease was tapped by the statement: "Health care priority should depend on the patients personal responsibility for his disease, namely, if he/she: Smokes and needs lung treatment; Health care priority should depend on the patients personal responsibility for his disease, namely, if he/she: Drinks alcohol beverages in excess and needs a treatment to the liver; Health care priority should depend on the patients personal responsibility for his disease, namely, if he/she: Uses illegal drugs and needs a treatment for heart infection (endocarditis); Health care priority should depend on the patients personal responsibility for his disease, namely, if he/she: Follows an unhealthy diet and, simultaneously, does not practice physical exercise and needs treatment for obesity. In this first set of questions respondents had to

reveal their level of agreement in a Likert scale ranging from 1 (completely disagree) to 5 (completely agree).

The second section of the questionnaire had two groups of questions related to public or private financing of: 1) specific diseases that could be connected to the lifestyle of the patient and 2) treatments for reducing certain risk behaviors. In the first groups of questions participants' attitudes were collected about the funding of four treatments: Chronic obstructive pulmonary disease, hepatic cirrhosis (liver disease), heart infection (endocarditic) and weight loss surgery. The second group of questions collected participants attitudes concerning the funding of the following treatments: Psychological therapy, inpatient/outpatient rehab (for illegal drugs and/or drug abuse), dietary counseling (for obesity/overweight) and nicotine replacement therapy (for smokers), which are all connected to the previously mentioned diseases.

The third section of the questionnaire explores respondents believes regarding the statement that is easy to get money and services from the state without investing too much personal effort. It consists of six questions that may justify people's lifestyles. Five kind of justifications were presented: : (i) External environment – beliefs about the availability of unhealthy food and the social environment itself were explored through the following two sentences, respectively: There are too many unhealthy products available in society' and 'Modern life puts a lot of pressure on people (source of stress, pressure at work, lack of time for family and friends); (ii) genetic disposition through the sentences: 'People are genetically predisposed to develop the diseases'; (iii) individual lack of willpower through the sentence: 'People do not have the willpower to stop their undesirable behavior'; (iv) cond. Lack of personal responsibility through the statement: 'Many people take too little responsibility for their lives and welfare' and (v) Lack of social responsibility, through the sentence: 'people do not want to know about the impact that their actions have on the well-being of others, namely, by spending public resources in the treatments of their resources (self-inflicted) that could be used elsewhere (in treating illness not self-inflicted)'. Respondents should express their level of agreement in a Likert scale ranging from 1 ('completely disagree') to 5 ('completely agree').

The fourth and last section of questions refers to socio-demographic characteristics of respondents where first six questions were general information of respondents and following nine questions refer to health habits, lifestyle, life satisfaction and health satisfaction of respondents from which we could examine if the answers of respondents, who are / aren't engaged in dangerous behaviors

that could lead to diseases (such as smoking or binge drinking) are linked and affected to their lifestyle (i.e. smokers are more inclined to support publicly funded treatment of COPD).

3.2 Sample description

The questionnaire was administered during 2019 to a sample of 160 health professionals (Croatian physicians and nurses) and 54 non-health care professionals (Croatian citizens).
The majority of respondents (77.1%) were female. This high level of female participants has to do with the fact that the nursing class, in traditional country like Croatia, is dominated by women.

Table 1: Display of variable 'gender'

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	49	22.9	22.9	22.9
Female	165	77.1	77.1	100.0
Total	**214**	**100.0**	**100.0**	

When it comes to dividing respondents by study level, the highest percentage of respondents have finished secondary studies (44.9%), while only a minority (0.5%) stayed with elementary studies. Post graduate education was completed by 32.2% of the respondents and 22.4% of respondents completed the first level of university degree. The highest level of respondents with completed secondary studies also can be explained with the highest level of nurse-respondents for which, in Croatia, you need to finish Medical High School.

Table 2: Display of variable 'highest level of education'

	Frequency	Percent	Valid Percent	Cumulative Percent
Elementary studies	1	0.5	0.5	0.5
Secondary studies	96	44.9	44.9	45.3
University/college first degree completed	48	22.4	22.4	67.8
Postgraduate (Master / PhD) completed	69	32.2	32.2	100.0
Total	**214**	**100.0**	**100.0**	

The highest level of respondents who have a degree, are in the field of medicine and health studies 70.3%. 20.3% of respondents have a degree in the field of economics and 4.2% of respondents

have a degree in the field of other social sciences. Detailed description of the structure according to specific field of the degree can be found in the Table 3.

Table 3: Display of the variable 'subject of the degree'

	Frequency	Percent	Valid Percent	Cumulative Percent
Medicine and Health Studies	83	38.8	70.3	70.3
Engineering, Mathematics and Physics	1	0.5	0.8	71.2
Natural Sciences	1	0.5	0.8	72.0
Biotechnical Studies	3	1.4	2.5	74.6
Economics	24	11.2	20.3	94.9
Other Social Studies	5	2.3	4.2	99.2
Human Sciences	1	0.5	0.8	100.0
Sub Total	**118**	**55.1**	**100.0**	
Missing System	96	44.9		
Total	**214**	**100.0**		

Among all the respondents, the majority (73.8%) are health professionals (working in the medical sector) and 14.5% are non-health professionals.

.

Table 4: Display of the variable 'health professionals'

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	158	73.8	83.6	83.6
	No	31	14.5	16.4	100.0
	Total	189	88.3	100.0	
Missing	**System**	25	11.7		
Total		**214**	**100.0**		

Variable 'current employment status' shows a highest proportion of respondents (37.9%) are employed with the contract for indefinite term while lowest, very small, proportion of respondents

(0.5%) are homemaker or retired. The detailed structure of current employment status is represented in Table 5.

Table 5: Display of the variable 'Current employment status'

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Self-employed	6	2.8	2.8	2.8
	Employed	75	35.0	35.0	37.9
	Employed with an indefinite term contract	81	37.9	37.9	75.7
	Employed with a fixed term contract	16	7.5	7.5	83.2
	Student	29	13.6	13.6	96.7
	Unemployed	6	2.8	2.8	99.5
	Homemaker or Retired	1	0.5	0.5	100.0
	Total	**214**	**100.0**	**100.0**	

For variables 'age' and 'health professional since' (i.e. number of years of work experience in the field of health care) descriptive analyze was used. Average age of respondents is M_1=34.69 (SD_1=12.246) and average number of years working in the field of health care is M_2=17.83 (SD_2=10.434).

Table 6: Display of the variables 'age' and 'years of work experience in the field of health care'

	Number of respondents	Minimum	Maximum	Mean	Standard Deviation
Age	213	16	70	34.69	12.246
Health professional since (Years of work experience)	152	1	45	17.83	10.434
Valid N (listwise)	152				

4 Research Results

4.1 Respondent's Lifestyle

After the socio-demographic questions, the fourth section of the questionnaire also contains questions related to respondent's lifestyle habits. These questions intend to explore whether different attitudes about priority-setting correlate with their own lifestyle's habits, a matter that will be discussed later.

Table 7 demonstrates how satisfied respondents were with their life. Table 7 shows that majority of the respondents (85.1%) considered themselves satisfied or completely satisfied with life, while only 3.8% of respondents declared to be dissatisfied or completely dissatisfied.

Table 7: Satisfaction with life

	How satisfied are you with your life?	
	Frequency	**Percent**
Completely satisfied	53	24.8
Satisfied	129	60.3
Nor satisfied nor dissatisfied	24	11.2
Dissatisfied	7	3.3
Completely dissatisfied	1	0.5

Regarding the question 'how would you rate your own health', the majority of participants (92.9%) rated their health as good or very good, which means only 7.1% of the respondents think that their health is not so good. The results are shown in the table 8.

Table 8: Satisfaction with health

	How would you rate your own health?	
	Frequency	**Percent**
Really Good	72	33.6
Good	127	59.3
Not so Good	15	7.1

As the Table 9 shows 77.1% of respondents said that they are always or often trying to maintain healthy life habits while only a minority of respondents (22.9%) maintain healthy life habits on the seldom base.

Table 9: Maintaining healthy life habits

	Trying to maintain healthy life habits is one of your concerns?	
	Frequency	**Percent**
Always	32	15.0
Often	133	62.1
Seldom	49	22.9

According to the results of the questionnaire regarding the smoking habits, 36.4% of respondents smoke on every day basis which is similar to the results presented by the Croatian Institute for Public Health (2016), where 31.1% of Croatian were smokers. This is significantly high percentage of the people in Croatia that smoke compared to other developed countries in the EU. Figure 7 demonstrates the answers of the respondents. Regarding alcohol consumption as we can see in Figure 15, 0.50% of the respondents drink alcohol on a daily base, 6.5% drink alcohol one or two times a week, 7% drink alcohol every weekend, 36.4% of the respondents drink alcohol one or two times per month and the most of the respondents drink alcohol rarely or not at all, 49.5%. From the Figure 8 we can conclude that more than 50% (50.5%) of respondent's drink alcohol at some amount per month. These results are also similar to ones Croatian Institute for Public Health provided in 2016 and are also concerning hence alcohol is major avoidable risk factor for neuropsychiatric disorders, cardiovascular diseases, cirrhosis of the liver and cancer.

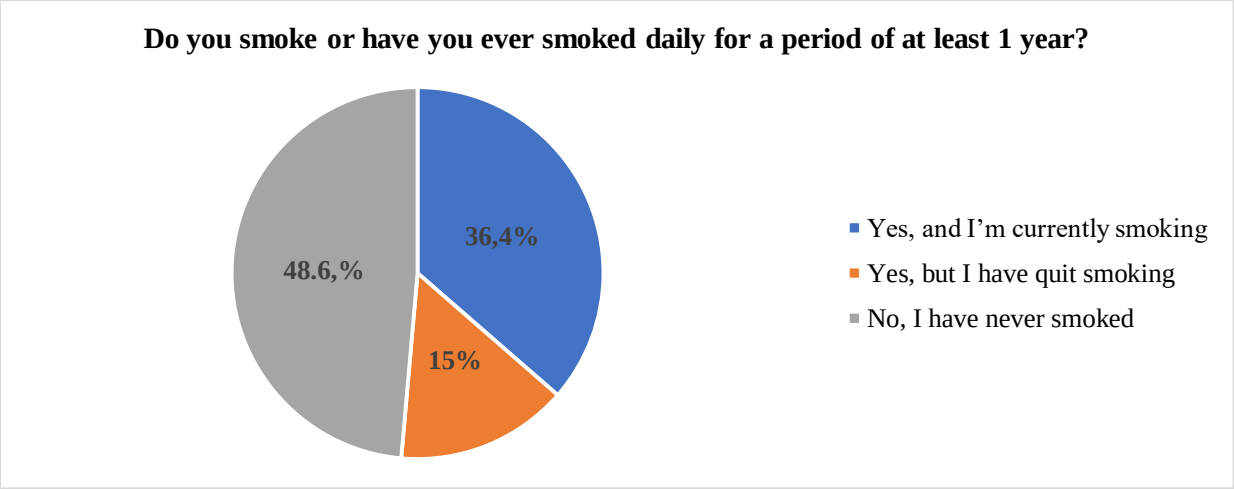


Figure 7: Percentage of smoking among respondents

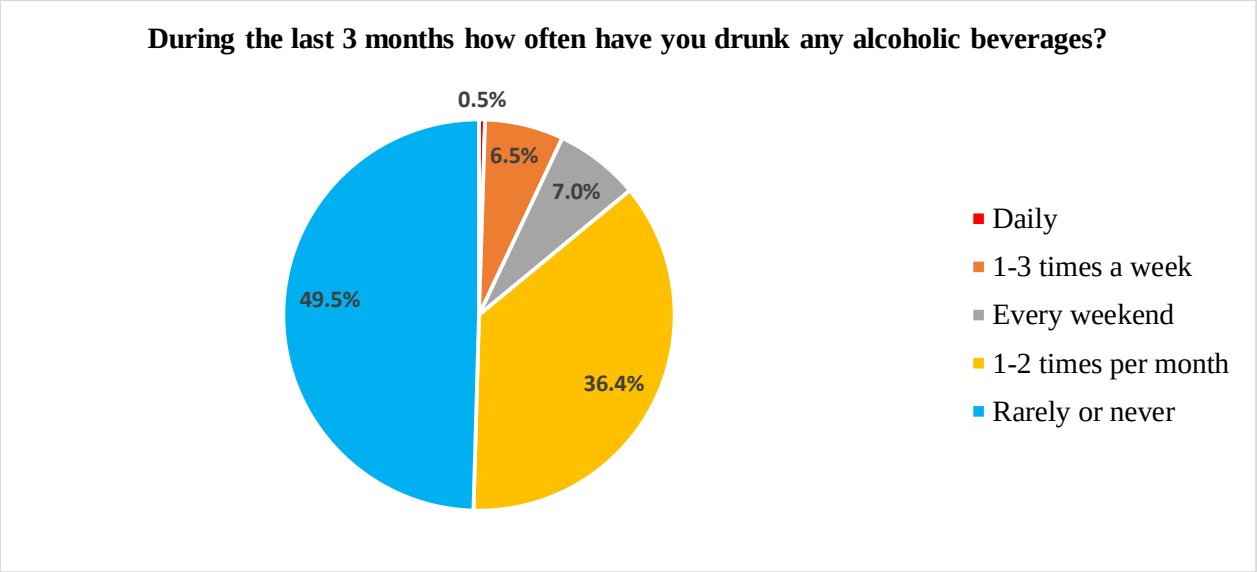


Figure 8: Percentage of alcohol consumption among respondents

Among all respondents, most of them exercise 2-3 times per week which in percentage would be 44.4% of respondents and the lowest rate for question "How often do you engage in vigorous exercise?" were for answer never, which recorded 15% of respondent's answers. This is very nice statistics for physical activity among respondents hence 85% of respondents exercise in some amount, which can lower rates for obesity or overweight.

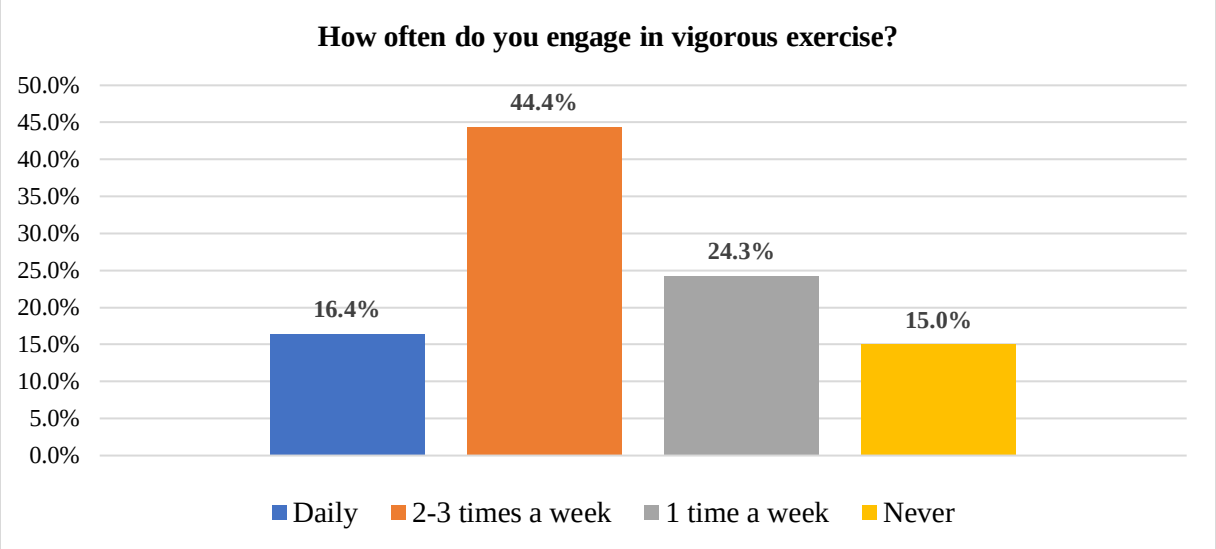


Figure 9: Percentage of vigorous exercising among respondents

Figure 10 demonstrates all the answers regarding amount of fruit/vegetables that respondents consume and as we can see from the Figure 10, 55.2% of respondents eat fruit or/and vegetables on a daily basis while only 1.9% of respondents don't eat fruits or vegetables at all.

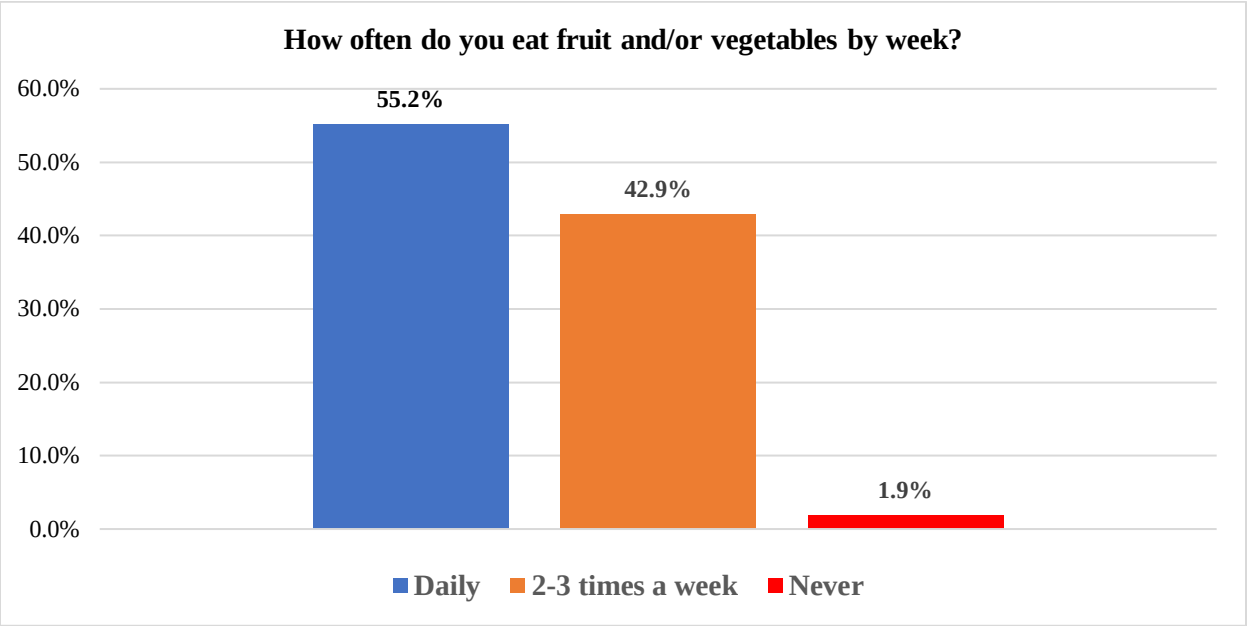


Figure 10: Percentage of eating habits (fruit/vegetable) among respondents

4.2 Results Analysis

4.2.1 Testing Preconditions for Using Parametric Procedures

In order to verify the justification for using parametric statistical procedures in data processing, the normality of the distributions of the variables included in the research was checked. The Kolmogorov-Smirnov test was used to test the normality of the distribution, which established a statistically significant deviation of the distribution of the results from the normal one on all further interpreted variables. The normality of the distribution was also verified by analyzing skewness and kurtosis (Horvat and Mijoč, 2012). As Table 10 shows both parameters of distribution normality are within appropriate intervals (< 1).

4.2.2 Do respondents find personal responsibility for disease relevant to co-paying health treatments?

Table 10: Statistics of the variable 'A patient who is responsible for his disease should pay additional co-payments when needing treatments'

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
A patient who is responsible for his disease should pay additional co-payments when needing treatments.	214	1	5	3.25	1.297	-.375	.166	-.872	.331

From the Table 10 it can be seen that M= 3.25, SD= 1.297 which indicates that respondents don't have strong opinion on whether the patient who is responsible for his disease should pay additional co-payments when needing treatments.

For the statement we wanted to check if the answers from health care professionals (in later text: HP) and citizens (in later text: NHP-non-health care professionals) differ. T-test for independent samples tested the significance of the difference between Croatian HP and NHP attitude examined by Particle 1 'A patient who is responsible for his disease should pay additional co-payments when needing treatments', obtained t (187) = 0.727; p> 0.05) which means that there is no statistically

significant difference in the attitudes of health care professionals and non-health care professionals towards the patient's involvement in the co-financing of diseases for which they could be personally responsible.

4.2.3 Which types of risk behavior respondents find most relevant to prioritize by?

Table 11: Degree of agreement with the statements about health-care priority

Health care priority should depend on the patient's personal responsibility for his/her disease, if he/she:	Completely disagree	Disagree	Neutral	Agree	Completely agree
Smokes and needs lung treatment	13.21%	23.58%	25.94%	27.84%	9.43%
Drinks alcohol beverages in excess and needs liver treatment	11.79%	25%	20.76%	30.66%	11.79%
Uses illegal drugs and needs a treatment for heart infection (endocarditis)	14.15%	22.64%	22.17%	25.47%	15.57%
Follows an unhealthy diet and, simultaneously does not practice physical exercise and needs treatment for obesity	11.79%	27.83%	21.23%	26.89%	12.26%

As it can be seen from the Table 11, obtained percentages are similar for all the specified diseases. But it can be said that risk behavior that respondents find most relevant to prioritize by is drinking alcohol beverages and needing liver treatment with total level of agreement (partly or completely) 42.45%. This means that respondents think that if person drinks alcohol beverages should be the last in prioritization for liver treatment, a higher degree of agreement with the statement means that respondents penalize this behavior more. The risk behavior that respondents find least relevant to prioritize by is 'Health care priority should depend on the patient's personal responsibility for his/her disease, if he/she: Follows an unhealthy diet and, simultaneously does not practice physical exercise and needs treatment for obesity' with total level of disagreement (partly or completely) 39.62%.

On the other hand, Table 12 demonstrates that respondents don't have a strong attitude regarding priority-setting based on the patient's personal responsibility for neither of specified treatments.

For all the specified treatments mean is around 3 (ranging from 2.97 to 3.06) which indicates that respondents don't have strong opinion about it.

Table 12: Mean for the statements about priority setting

Health care priority should depend on the patient's personal responsibility for his disease, namely if he/she:	N	Mean	Std. Deviation
Uses illegal drugs and needs a treatment for heart infection (endocarditis)	212	3.06	1.294
Drinks alcohol beverages in excess and needs a treatment to the liver	212	3.06	1.226
Follows an unhealthy diet and, simultaneously, does not practice physical exercise and needs treatment for obesity.	212	3.00	1.231
Smokes and needs lung treatment	212	2.97	1.194

4.2.4 What are the attitudes regarding financing treatments of the diseases that can be connected to the lifestyle of the patient?

Table 13 presents results for lifestyles disease financing. Regarding the first stated disease chronic obstructive pulmonary disease known as 'smokers' lung', 57% of respondents answered that it should be publicly funded, 24.3% think that it should be individually funded while 18.2% of respondents don't know. For the second disease, cirrhosis, known as alcohol abuser's disease, 48.1% of the respondents think that it should be publicly funded, 37.9% answered that it should be individually funded, while 14% of the respondents don't know. Regarding heart infection (endocarditic) 48.6% of the respondents answered that it should be publicly funded, 34.6% answered that it should be individually funded and 16.8% of the respondents don't know. Regarding weight loss surgery due to an unhealthy diet and lack of physical exercise, 31.8% of the respondents answered that it should be publicly funded, 57.5% thinks that it should be funded individually and 10.7% of the respondents don't know. Support and disapproval rates of publicly funded treatments, from Table 18 it can be seen that the majority of respondents supported public funding for all the diseases except weight-loss surgery. Regarding weight-loss surgery, the majority of respondents (57.5%) answered that it should be individually funded.

Table 13: Types of funding for the specified diseases connected to the lifestyle

How should the following treatments be funded	Public funding		Individual funding		Don't know	
	n	%	n	%	n	%
Chronic obstructive pulmonary disease known as 'smokers' lung'	123	57.5	52	24.3	39	18.2
Cirrhosis, known as alcohol abuser's disease	103	48.1	81	37.9	30	14.0
Heart Infection (endocarditic) common among drug addicts	104	48.6	74	34.6	36	16.8
Wight loss surgery due to an unhealthy diet and lack of physical exercise	68	31.8	123	57.5	23	10.7

Legend: n = number of responses

Reducing certain risk behaviors that could lead to development of the chronic diseases is one of the government's agendas across the world and in the research. Therefore, opinions about how should treatments, that could reduce those risks, be financed were examined. The majority of the respondents considered that psychological therapy (53.5%), inpatient/outpatient rehab (44.6%) and dietary consulting (53.5%) should be publicly funded, while nicotine replacement therapy should be individually funded (47.9%). Table 14 presents all the results regarding financing the treatments to reduce certain risk behaviors.

Table 14: Types of funding for specified treatments to reduce certain risk behaviors

To reduce certain risk behaviors, following treatments should be financed	Total	Public funding		Individual funding		Don't know	
		n	%	n	%	n	%
Psychological Therapy	213	114	53.5	67	31.5	32	15.0
Inpatient/Outpatient Rehab	213	95	44.6	84	39.4	34	16.0
Dietary Counseling	213	114	53.5	84	39.4	15	7.0
Nicotine Replacement Therapy	213	92	43.2	102	47.9	19	8.9

Legend: n = number of responses

Regarding the statement 1 in Table 15 'Diseases caused by lifestyles are a major source of health systems expenditures' it can be said that respondents tend to agree with the statement (M_1=3.63; SD_1=1.096). For the other two statements from the Table 15 respondents don't have strong attitude hence statement 2 'Lifestyles (self-inflicted diseases) are a matter of social responsibility because

resources are spent that could be avoided' M_3=3.41; SD_3=1.100 and statement 3 'In our societies it is too easy to receive money and services from the state without making a personal effort' M_4=2,93 with SD_4=1,315.

Table 15: Mean for statements about lifestyle and expenditures

	N	Minimum	Maximum	Mean	Std. Deviation
Diseases caused by lifestyles are a major source of health systems expenditures.	212	1	5	3.63	1.096
Lifestyles (self-inflicted diseases) are a matter of social responsibility because resources are spent that could be avoided.	212	1	5	3.41	1.100
In our societies it is too easy to receive money and services from the state without making a personal effort	212	1	5	2.93	1.315

4.2.5 Are health care professionals' views different from those of general public regarding prioritization of health-related behaviors?

The significance of the difference was tested by T-test for independent samples HP and NHP in attitudes toward prioritizing all four diseases that could be caused by risk behavior.

There is no statistical significance according to health care professionals (HP) and non-health care professionals (NHP) for the particle 1 'Health care priority should depend on the patient's personal responsibility for his disease, namely, if he/she: Smokes and needs lung treatment', particle 2 'Health care priority should depend on the patient's personal responsibility for his disease, namely, if he/she: Drinks alcohol beverages in excess and needs a treatment to the liver, particle 3 'Health care priority should depend on the patient's personal responsibility for his disease, namely, if he/she: Uses illegal drugs and needs a treatment for heart infection (endocarditis) and particle 4 'Health care priority should depend on the patient's personal responsibility for his disease, namely, if he/she: Follows an unhealthy diet and, simultaneously, does not practice physical exercise and needs treatment for obesity, which means that HP and NHP do not differ in attitudes toward prioritizing all four diseases that could be caused by risk behavior.

The results of the t-test are presented in Table 16.

Table 16: Statistical tests for variables regarding priority setting

Health care priority should depend on the patient's personal responsibility for his disease, namely, if he/she:		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Smokes and needs lung treatment.	Equal variances assumed	4.828	.029	-.217	185	.828	-.052	.242	-.529	.424
	Equal variances not assumed			-.190	36.805	.851	-.052	.277	-.613	.508
Drinks alcohol beverages in excess and needs a treatment to the liver.	Equal variances assumed	2.193	.140	-.024	185	.981	-.006	.246	-.492	.480
	Equal variances not assumed			-.022	37.914	.983	-.006	.270	-.553	.541
Uses illegal drugs and needs a treatment for heart infection (endocarditis).	Equal variances assumed	2.284	.132	-.048	185	.962	-.012	.259	-.523	.498
	Equal variances not assumed			-.044	38.254	.965	-.012	.280	-.580	.555
Follows an unhealthy diet and, simultaneously, does not practice physical exercise and needs treatment for obesity.	Equal variances assumed	1.924	.167	.072	185	.943	.018	.245	-.465	.500
	Equal variances not assumed			.064	37.059	.950	.018	.277	-.544	.579

4.2.6 How do attitudes about personal responsibility for the disease and lifestyle correlate with socio-demographic characteristics of the respondents?

Table 17: Correlation analysis of lifestyle and specified diseases that could be related to the personal responsibility

Health care priority should depend on the patient's personal responsibility for his disease, namely, if he/she:		(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Smokes and needs lung treatment	r_s	1.000						
	p	.						
	n	212						
(2) Drinks alcohol beverages in excess and needs a treatment to the liver.	r_s	.788**	1.000					
	p	.000	.					
	n	212	212					
(3) Uses illegal drugs and needs a treatment for heart infection (endocarditis).	r_s	.709**	.814**	1.000				
	p	.000	.000	.				
	n	212	212	212				
(4) Follows an unhealthy diet and, simultaneously, does not practice physical exercise and needs treatment for obesity.	r_s	.649**	.705**	.693**	1.000			
	p	.000	.000	.000	.			
	n	212	212	212	212			
(5) How would you rate your own health?	r_s	.074	-.001	.036	.106	1.000		
	p	.281	.992	.605	.124	.		
	n	212	212	212	212	214		
(6) Trying to maintain healthy life habits is one of your concerns?	r_s	-,073	-,139*	-,108	-,070	,264**	1,000	
	p	,290	,043	,117	,310	,000	.	
	n	212	212	212	212	214	214	
(7) dem13 How many cigarettes on average by day?	r_s	-,437**	-,338*	-,298*	-,241	-,098	-,001	1,000
	p	,001	,012	,028	,080	,472	,996	.
	n	54	54	54	54	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
r_s = Spearman's correlation coefficient, p = significance level

Table 17 demonstrates the correlation of lifestyle with specified diseases that could be related to the personal responsibility of patient. Regarding the results, the more cigarettes respondents smoke on a daily basis, they have lenient view for the priority setting for all the treatments for diseases except for obesity. It can also be concluded that what respondents think about their health is unrelated to correlation, while their behavior (the more they smoke) is correlated.

From the results presented in Table 18 we can conclude that the first belief 'Some people do not want to know about the impact that their actions have on the well-being of others, namely, by spending public resources in the treatments of their resources (self-inflicted) that could be used elsewhere (in treating illness not self-inflicted)' is not correlated with all four statements about

health care priority regarding personal responsibility for disease. It can also be seen that all four statements about health care priority regarding personal responsibility for disease are correlated with each other (mutually) and that correlation is positive. This means that respondents who agreed with, for example, that health care priority should depend on patient's personal responsibility for the disease if he/she smokes and needs lung treatment, concerning positive correlation, also agree that health care priority should depend on patient's personal responsibility for the disease if he/she drinks alcohol beverages in excess and needs treatment for the liver.

Table 18: Correlation analysis of statement about personal responsibility and specified diseases that could be connected to the lifestyle

Spearman's rho		(1)	(2)	(3)	(4)	(5)
(1) Some people do not want to know about the impact that their actions have on the well-being of others, namely, by spending public resources in the treatments of their resources (self-inflicted) that could be used elsewhere (in treating illness not self-inflicted)	Correlation Coefficient	1.000	.150*	.155*	.177**	.140*
	Sig. (2-tailed)	.	.029	.024	.010	.041
	N	214	212	212	212	212
(2) Health care priority depend Smokes and needs lung treatment	Correlation Coefficient	.150*	1.000	.788**	.709**	.649**
	Sig. (2-tailed)	.029	.	.000	.000	.000
	N	212	212	212	212	212
(3) Health care priority depend Drinks alcohol beverages in excess and needs a treatment to the liver	Correlation Coefficient	.155*	.788**	1.000	.814**	.705**
	Sig. (2-tailed)	.024	.000	.	.000	.000
	N	212	212	212	212	212
(4) Health care priority depend Uses illegal drugs and needs a treatment for heart infection (endocarditis)	Correlation Coefficient	.177**	.709**	.814**	1.000	.693**
	Sig. (2-tailed)	.010	.000	.000	.	.000
	N	212	212	212	212	212
(5) Health care priority depend Follows an unhealthy diet and, simultaneously, does not practice physical exercise and needs treatment for obesity.	Correlation Coefficient	.140*	.649**	.705**	.693**	1.000
	Sig. (2-tailed)	.041	.000	.000	.000	.
	N	212	212	212	212	212

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

5 Conclusion

According to Wikler (2002), at the population level, it is increasingly clear that individual choices and 'healthy lifestyles' are at least as significant in achieving good health outcomes as costly medical interventions. Placing responsibility on the individual could mean holding people accountable for what they do and don't do to remain healthy. This study examined the role of lifestyle and personal responsibility that could be connected to the development of the disease and attitudes of Croatian general public and health care professionals. This study found that Croatian health care professionals and citizens don't have clear view regarding priority setting in health care. This conclusion is in line with the results of a previous study (Pinho and Borges, 2018) showing that Croats are the most undecided on issues involving patient prioritization decisions. This can be explained with the fact that this is the first study to open this subject in Croatia and most people are still not familiar with priority setting in the terms of health care. The risk behavior that respondents find the most relevant to penalize is heavy drinking. In fact, 42.45% of the respondents think that if person drinks alcohol beverages should be the last in prioritization for liver treatment. Even though respondents don't have a strong view regarding priority setting, this is still high percentage of agreement compared to level of disagreement (36.79%). In the analysis of respondent's attitudes regarding the financing treatments of the diseases that can be connected to the lifestyle, this study revealed that more than half (57.5%) of the respondents think that weight loss surgery due to unhealthy diet and lack of physical exercise should be individually funded. However, the views regarding other self-inflicted diseases were the opposite with the majority of respondents defending its public funding. These research findings are consistent with the results obtained in Denmark (Lund, Sandøe and Lassen, 2015), where publicly funded obesity treatment had much less support among Danish public compared with publicly funded pulmonary disease treatment. Explanation for these results can be that respondents believe obesity may be more readily perceived as a condition that can be reversed by changed lifestyle, entailing that medical or surgical treatment is unnecessary. The other explanation cites widespread negative attitudes to obese people. Furthermore, largest share of respondents (47.9%), think that nicotine replacement therapy should be funded individually. According to Lund, Nielsen and Sandoe (2015), this can also be explained that there are negative attitudes to smokers but compared to obesity, levels of disgust are lower in favor for smokers. Contrary to the study results where views of health care

professionals didn't differ from the views of non-health care professionals regarding prioritization of health-related behaviors, research results conducted by Pinho and Borges in Portugal (2017) identified different opinions between health and non-health professionals on whether personal responsibility for disease is relevant in priority decisions. The only socio-demographic characteristic that is correlated to the statements about priority setting and personal responsibility in health care is "How many cigarettes do you smoke on average by day?" According to the study results, the more cigarettes respondents smoke on a daily basis, they have lenient view for the priority setting for all the treatments for diseases except for obesity.

Bearing in mind the Croatian respondents lifestyles, where 36.4% of respondents are smokers and more than 50% (50.5%) of respondents' drink alcohol beverages at some amount per month (According to the Croatian Institute for Public Health, 11.1% of respondents acknowledged binge drinking in last 12 months.), it is necessary for policy makers to do some changes since these lifestyles can be connected to future development of the diseases and, consequently, further increase health spending. This study also found that it is easy for juveniles (younger than 18) in Croatia to get cigarettes and/or alcohol which implicates that Croatia should tighten policy of tobacco use and alcohol consumption especially for young people to prevent use of tobacco and alcohol from the early age as one of the measures to reduce smoking and drinking.

In conclusion, proposals for policy makers in Croatia are the following:

1. Change people's behavior patterns that are related to health to avoid future development of the disease and achieve healthier years of life, thus reduce inappropriate spending;
2. Adopt social policies that will ensure an environment able to promote health, and:
3. Tighten the policies regarding cigarettes usage and alcohol consumption especially for juveniles.

This study could serve as important starting point for opening this subject in the Republic of Croatia. The implications for further researches on this topic are larger sample of respondents, larger share of non-health care professionals in the sample and more detailed questionnaire.

Reference

1. Aaron, H. and Schwartz, W.B. (1990) Rationing health care: the choice before us, Science, Rationing health care: the choice before us, Vol. 247, Issue 4941, pp. 418-422, doi: 10.1126/science.2300804.
2. Benjamin, M. and Cohen, C. (1991); Alcoholics and liver transplantation, JAMA, Vol 265 No 10:1299-130, doi:10.1001/jama.1991.03460100101033.
3. Bringedal, B. and Feiring, E. (2011) On the relevance of personal responsibility in priority setting: a cross-sectional survey among Norwegian medical doctors, BMJ Group, Journal of Medical Ethics, Vol 37 No 6:357-61, doi:10.1136/jme.2010.038844.
4. Clark, S. and Weale, A. (2012) Social values in health priority setting: a conceptual framework; Journal of Health Organization and Management, Vol. 26, Issue 3, pp. 293-316.
5. Croatian Institute of Public Health; Available at: https://www.hzjz.hr/en/directorate/croatian-institute-of-public-health/, [consulted at: 15.2.2019.]
6. Emanuel, E., Schmidt, H. and Steinmetz, A. (2019); Rationing and resource allocation in healthcare: essential readings; Oxford University Press, Oxford.
7. European commission report for countries, (2018); European Commission; Available at: https://ec.europa.eu/info/publications/2018-european-semester-country-reports_en, [consulted at: 20.4.2019.]
8. European Monitoring Center for Drugs and Drug Addiction; Available at: http://www.emcdda.europa.eu/, [consulted at: 20.8.2019.]
9. Eurostat; Available at: https://ec.europa.eu/eurostat, [consulted: 20.3.2019.]
10. Feiring, E. (2008); Lifestyle, responsibility and justice, Journal of Medical Ethics 34:33–36, doi:10.1136/jme.2006.019067, bmj group.
11. Global health risks: Mortality and burden of disease attributable to selected major risks, World Health Organization, 2009.
12. Global Tobacco Surveillance System; Available at: https://www.cdc.gov/tobacco/global/gtss/gtssdata/index.html, [consulted at: 15.8.2019.]
13. Horvat, J. and Mijoč, J. (2012). Osnove statistike. Naklada Ljevak, Zagreb.
14. Horvat, J. and Mijoč, J. (2019). Istraživački SPaSS. Naklada Ljevak, Zagreb
15. Kapiriri L., Norheim, O.F. and Martin, D.K. (2007); Priority setting at the micro-, meso- and macro-levels in Canada, Norway and Uganda, Vol. 82, Issue 1:78-94.
16. Keliddar I., Mosadeghrad A.M. and Jafari –Sirizi M (2017); Rationing in health systems: A critical review; Medical Journal of the Islamic Republic of Iran (MJIRI), https://doi.org/10.14196/mjiri.31.47
17. Kovač, N. (2015); The health care in Croatia relationship between public and private health care; doctoral dissertation, University of J.J.Strossmayer, Faculty of economics in Osijek
18. Lund, T.B., Sandøe, P. and Lassen, J. (2011); Attitudes to Publicly Funded Obesity Treatment and Prevention; Nature publishing group; articles Behavior and Psychology, Obesity (2011) Volume19, Issue8, pp. 1580-1585 doi:10.1038/oby.2011.84

19. Lund, T.B., Nielsen, M.E.J. and Sandøe, P. (2015); In a class of their own: the Danish public considers obesity less deserving of treatment compared with smoking-related diseases; European Journal of Clinical Nutrition (2015) 69, 514–518; doi:10.1038/ejcn.2014.185.
20. Medanić, D. and Pucarin-Cvetković, J. (2012); Acta medica Croatica, Vol. 66 No. 5, 2012. Pp. 347-354
21. Moss, A.H., and Siegler, M. (1991); Should alcoholics compete equally for liver transplantation?; JAMA The Journal of the American Medical Association, JAMA. 1991; Vol 265(10), pp.1295-1298. doi:10.1001/jama.1991.03460100097032
22. Nagy, K., Barabás, K. and Nyári, T. (2004); Attitudes of Hungarian healthcare professional students to tobacco and alcohol; European journal of dental education, Volume8, Issues4; pp. 32-35, https://doi.org/10.1111/j.1399-5863.2004.00320.x
23. Norwegian Ministry of Health and Care Services; Available at: https://www.regjeringen.no/en/dep/hod/id421/, [consulted at: 10.7.2019.]
24. Owen-Smith, A., Donovan, J. and Coast, J. (2009); How clinical rationing works in practice: A case study of morbid obesity surgery; Elsevier Ltd, Social Science & Medicine 147 (2015) pp. 288-295, https://doi.org/10.1016/j.socscimed.2015.11.008
25. Persad, G., Wertheimer, A. and Emanuel, E.J. (2009); Principles for allocation of scarce medical interventions; Department of Ethics, The Lancet Volume 373, Issue 9661, pp. 423-431
26. Persad, G., Wertheimer, A. and Emanuel, E.J. (2009); Ethical criteria for allocating health-care resources; The Lancet Volume 373, Issue 9673, pp.1424-1425, https://doi.org/10.1016/S0140-6736(09)60818-7
27. Pinho M. and Borges A. (2017) Relative Importance Assigned to Health Care Rationing Principles at the Bedside Evidence From a Portuguese and Bulgarian Survey. Health Care Manager, Vol. 36 No 4, pp. 334-341
28. Pinho M. and Borges A. (2018) A three-country survey of public attitudes towards the use of rationing criteria to set healthcare priorities between patients. International Journal of Ethics and Systems, Vol. 34 No. 4, pp. 472-492
29. Pinho M. and Borges A. (2019) Holding individuals accountable for engaging in harmful health behaviours when managing scarce resources: Yes or not really? International Journal of Health Governance, Vol. 24 No. 3, pp. 206-221.
30. Pinho M. and Borges A. (2019) The Views of Health Care Professionals and Laypersons Concerning the Relevance of Health-Related Behaviors in Prioritizing Patients. Health Education & Behavior, Vol. 46, No 5, pp. 728-736.
31. Relman, A.S., Todd, J.S., Schramm, C. J., Seidman B., Bromberg, M.D., Rosenberg N. and Brunton R.S. (1990); Reforming the health care system; University of Texas at Dallas, Issues in Science and Technology, Vol. 7, No. 1, pp. 6-8, 10-11
32. Sharkey, K. and Gillam, L. (2010); Should patients with self-inflicted illness receive lower priority in access to healthcare resources? Mapping out the debate; The Journal of Medical Ethics. 2010; Vol 36 Issue 11,pp.661-5 (ISSN: 1473-4257), BMJ group, doi:10.1136/jme.2009.032102

33. Smolić, Š. (2016); Gospodarstvo hrvatske, Zagreb: Ekonomski fakultet Sveučilišta u Zagrebu, 2016, pp.471-504
34. Stegeman, I., Willems, D.L., Dekker, E. and Bossuyt, P.M. (2008); Individual responsibility, solidarity and differentiation in healthcare; BMJ Group, The Journal of Medical Ethics 2014;40: pp.770–773. doi:10.1136/medethics-2013-101388,
35. Stoddart, G.L., Evans, R.G. and Barer, M.L. (1995); User fees for health care: why a bad idea keeps coming back (or, what's health got to do with it?); Cambridge University, Canadian Journal on Aging / La Revue canadienne du vieillissement, Volume 14 Issue 2, pp. 360-390, https://doi.org/10.1017/S0714980800011880
36. Strech, D. and Danis, M. (2014); How can bedside rationing be justified despite coexisting inefficiency? The need for 'benchmarks of efficiency; BMJ Group, The Journal of Medical Ethics, Volume 40, Issue 2
37. Sturm, R., An, R., Maroba, J. and Patel, D. (2013); The effects of obesity, smoking, and excessive alcohol intake on healthcare expenditure in a comprehensive medical scheme; The South African Medical Journal 2013, Vol 103, No 11, DOI:10.7196/SAMJ.7260
38. Vehovac, M. (2014); O zdravstvu iz ekonomske perspektive; Ekonomski institut Zagreb
39. Wikler, D. (2002); Personal and social responsibility for health; Cambridge University, Ethics and International Affairs, Vol 16, No 2, pp. 47-55, doi: 10.1111/j.1747-7093.2002.tb00396.x
40. World bank; Available at: https://www.worldbank.org/ [consulted at: 10.6.2019.]
41. World Health Organization; Available at: https://www.who.int/ [consulted at: 5.4.2019.]
42. Zrinščak, S. and Šućur, Z. (2007); Differences that hurt: self-perceived health inequalities in Croatia and European Union; Croatian Medical Journal. 2007 Oct; Vol 48 No5: pp.653–666.