RĪGAS STRADIŅA UNIVERSITĀTE

Ieva Salmane-Kuļikovska

THE USE OF NON-PRESCRIPTION MEDICINES, VITAMINS AND NUTRITIONAL SUPPLEMENTS IN LATVIA

Summary of the Doctoral Thesis
to obtain doctoral degree in social sciences
Speciality – Sociology

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INTRODUCTION

The problem and characteristics of the research topic

Medicines can be regarded as pharmacological entities as well as social phenomena – the life-cycle of medicines involves a wide range of social actors, including users of medicines, healthcare policy-makers, physicians, patients and the pharmaceutical industry. There are some differences between prescription and non-prescription medicines - the choice and use of prescription drugs is to a larger extent influenced by the physician's advice (Geest and Whyte 1989, 347), but non-prescription medicines and products are more and more stepping out of the "experts' area", and use of them is influenced by a wide range of different factors (Cohen, et al. 2001, 442).

The current Thesis focuses on non-prescription products: vitamins, minerals, a number of medical devices, prefabricated homeopathic preparations and nutritional supplements, within the limits of the present study being referred to as **non-prescription medicines and products**. The study aims at characterising factors having impact or associated with the individual's choice and use of non-prescription medicines and products.

The topicality of the theme is closely related to the current situation in Latvia. Pharmacies and also stores offer a wide range of non-prescription medicines and products, and users of these products do not often consult physicians. Self-medication tendency is being advocated worldwide because of several economic benefits and increased patient's autonomy; however it also includes a number of different risks associated with the inappropriate and wrong use of non-prescription medicines and pharmaceutical products. The wide availability of non-prescription medicines and products and possibility to use them without physician's advice encourages a false perception that the use of these products does not involve any risk.

There are no systematic studies on the use of non-prescription medicines and products in Latvia; however information in mass media suggests that certain problems persist in this field (Ozolina 2012). The studies (Pudule, et al. 2008, 12) and the statistic data (State Agency of Medicines 2014) show that the medicines' market is steadily growing. The total share of non-prescription medicines in the market volume amounts to 18% (State Agency of Medicines 2012, 13) – this amount is substantial, if compared to the European average of about 6–10% (Britten 2008, 3). There is a lack of statistics on the total sales of nutritional supplements in Latvia, yet the information in mass media shows that the world supplements' market grows by 10% annually (Knipse 2012). Non-prescription medicines and products are widely advertised in Latvia, promoting for increased consumption of these products and also for the profit of the pharmaceutical sector. In advertisements of nutritional supplements consumers are often given misleading information attributing non-existing properties to these products, such as, for instance, ability to treat cancer, hepatitis and severe heart diseases (Conusmer Rights Protection Centre 2014). Violation of norms is often identified in advertisements of non-prescription medicines – advertising messages do not comply with the information in the leaflet, properties of medicines are exaggerated, etc. (Health Projects for Latvia 2014). In this situation it is appropriate to ask the question – what is the situation regarding non-prescription medicines and products in Latvia?

The worldwide studies reveal a wide variety of the patterns describing the use of medicines and other pharmaceutical products. The World Health Organization (WHO) stresses that each territory may possess its proper regional differences, so it is necessary to perform studies within each particular region to identify the characteristic regional tendencies and determinants (Hardon, Hodgkin and Fresle 2004, 2). Programmes promoting for rational use of medicines should be based on study results characterising regionally–specific problems.

The Public Health Strategy (2011) and also other documents in Latvia and in other countries underline the need to promote for rational use of medicines. The terms "rational" and "rationality" are widely applied in the everyday context and also in the field of science. The rational use of medicines is most commonly characterized by the definition of the WHO[1]. According to this definition, behaviour that does not comply with the principles listed by this definition should be considered as non-rational or irrational (WHO 2002, 1). It is often common for consumers do not comply with the doctor's advice or information (Britten 2008, 15), however from the perspective of sociological theory such behavior should not be looked upon as irrational, but rather as behaviour disclosing a different perspective of rationality – the rationality of the medicines' user. In addition, the life-cycle of medicines is also influenced by the pharmaceutical industry based on its particular rationality (Britten 2008, 68), directed mostly towards profit maximization.

However, the aim of this paper does not provide for the analysis of different rationality aspects characterising all parties that are involved in medicines' and other pharmaceutical products' life cycle, but is rather directed towards the individual's perspective of rationality and interaction of this rationality with other rationalities.

According to the problem the objectives of the paper are defined:

1) To investigate typical patterns and determinants of the use of non-prescription medicines and products within the population of Latvia.

2) To identify the most typical patterns of the rationality of users of non-prescription pharmaceutical products – views regarding characteristics, effectiveness and perceived necessity of these products.

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[1] Rational use of medicines requires that „patients receive medications appropriate to their clinical needs, in doses that meet their own requirements, for an adequate period of time, and at the lowest cost to them and their community" (WHO 2002).

The following tasks are set to achieve the objectives:

1) To provide an insight into the sociological theories characterising the interaction between the agent and the structure.

2) To analyze sociological theories regarding interaction between the individual and the system.

3) To analyse theories considering social construction of health and illness, as well as health and illness behaviour models; identify a set of most typical medicines' and other pharmaceutical products' use patterns and determinants;

4) To analyze the concepts of rationality and rational social action provided by theoretical approaches of sociology, highlighting on the rationality perspective of the medicines' users.

5) Summarizing main problems, patterns and determinants disclosed by the studies worldwide, adjust the theoretical and methodological framework of the study.

6) With the help of empirical data, characterize patterns and determinants of the use of non-prescription products in Latvia, disclosing user's perspective of rationality.

Implementation of the tasks 1–5 is based on the theoretical analysis, while the task 6 is provides for empirical research.

Theoretical basis of the study

The paper considers behaviour of the individual from two theoretical perspectives – interaction between the agent and the structure, as well as between the individual and the system.

To characterize **agent-structure** interaction the analysis deals with the Structuration Theory provided by Anthony Giddens, the theory of *habitus* by

Pierre Bourdieu, as well as the Health Lifestyle Theory[2] by William Cockerham. The study also analyses the theory of psychographics by Emanuel Demby, which is traditionally applied in the field of marketing. This theory classifies consumers into particular segments according to their intrinsic psychological characteristics, values and lifestyle. There is the tendency of consumers to look upon non-prescription medicines as consumption goods instead of perceiving them as pharmacological products (Geest and Whyte 1989, 93). Consumer's lifestyle, built on the avalable life chances and life choices, determines individual's psychographic characteristics that are consequently related to the purchase preferences of goods and services.

The behaviour of an individual in the area of medicines and other medicinal products is influenced by the system. The study uses the theory of E. Giddens as a starting point to describe the interaction between the agent and the system. This theory reveals the impact of disembedding mechanisms on the individual. According to Giddens, the area of medicine is one of these "mechanisms", and the impact of this "mechanism" on individual occurs due to the asymmetry of knowledge and information.

The concepts of lifeworld[3] and system, provided by the Theory of the Communicative Action by Jürgen Habermas, composes the main theoretical framework for considering the relationship and interaction between individual and system. According to this theory, the impact of the system on the lifeworld is carried out through the colonization of the lifeworld values with the help of

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[2] Health lifestyles are collective patterns of health-related behaviour based on choices from options available to people according to their life chances (Cockerham, Rutten un Abel 1997, 321). Health-related behaviours may include lifestyle habits directed to improving health, maintaining or damaging it.

[3] The concept of the lifeworld (*Lebenswelt* (Germ.)) was introduced by the phenomenological theory of the German philosopher Edmund Husserl. This concept arose as a perspective different from scientific rationality, embodying the experience and the subjective importance assigned by an individual to the things and phenomena (Stones 1998, 176–177).

the system's formal rationality which dominates over the rationality of the individual. The lifeworld is characterized by the communicative action[4], but the system – by the strategic action. In the context of medicines' use one of the systems is healthcare policy with the involved actors (experts) and the other – pharmaceutical industry.

Since the research has the main focus on the individual, the study concentrates on the individual's illness perception and behaviour, as a product of this perception, as well as describes the rationality of the user of medicines and other non-prescription products.

The epistemological structure of the Thesis follows the framework from more general-level theories towards context-specific theories, concluding with the characteristic of patterns and determinants of the use of non-prescription medicines and products in Latvia.

Methodology and hypothesis

The theoretical part of the Thesis is devoted to the analysis of the scientific literature, the results of the research studies and conclusions. The current empirical research is based on the quantitative study methods. The choice of such methodological approach is justified by the possibility to identify quantitatively verifiable indicators in order to state causal explanations and association between the variables.

Analysis of the sociological theories and also the results of the empirical studies identify the framework of determinants of the use of medicines and other non-prescription products. The study also identifies typical users' rationality based on the interpretation of the value of medicines and other pharmaceutical

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[4] Communicative action (verbal or non-verbal) – interaction between two or more actors who „seek to reach an understanding about their action situation and their plans of action in order to coordinate their actions by way of agreement" (Outhwaite 1994, 71).

products for individual's daily life, as well as on the perceived efficiency and necessity of these products.

Six research **hypotheses** are proposed:

1. The user's perception regarding the necessity, properties and effectiveness of non-prescription medicines and products (the rationality of the user) is one of the most significant determinants of the use of these products.

2. The use of non-prescription medicines and products is related not only to individual's physical health status, but also to the other dimensions of holistic health – vitality, mental health and life-satisfaction.

3. The use of non-prescription medicines and products is more characteristic to the individuals maintaining more healthy lifestyle.

4. An individual's psychographic characteristics are associated with different patterns of the use of non-prescription medicines and products.

5. Trust in the information sources, containing advertisements, is associated with the more intensive use of non-prescription medicines and products.

6. Wider accessibility of non-prescription medicines and products and healthcare services promotes for more intensive use of these products.

In order to achieve the objectives of the Thesis and the implementation of the defined tasks, a research tool – the study questionnaire was developed (See the Thesis, Annex 1). Although the questionnaire encloses some question-blocks piloted by other studies, the content of the questionnaire is original material, designed for the needs of the particular study, being empirically tested for the first time.

The empirical study sample (n=785) is nationally–representative to the general set of population, covering the age group of 18–74 years. The empirical part of the Thesis describes the behaviour of users of non-prescription medicines and products, individual's rationality that is characterised by views and beliefs

about non-prescription medicines and products, efficacy, properties, necessity, risks and other related aspects.

The research hypotheses are tested using a range of statistical analysis methods[5] – Chi-square test, including adjusted standardized residuals method, factor analysis (Principal components method), as well as cluster analysis (K-means cluster) method. The analysis also tests the relationship between different variables. In order to test the hypotheses, at the first stage the comparison of variables based on binary **association** is implemented (Teibe 2007, 71) – the dependent variable is based on two possible alternatives – „used / did not use non-prescription medicines and products". At the second stage the hypothesis is tested with the help of logistic regression analysis method, i.e., analysing the **impact** of the set of several groups of dependent variables on the binary variable.

Scientific novelty of the study

The topicality of this research for Latvia is supported by the number of reasons. Firstly, it possesses a practical importance. The total consumption of non-prescription medicines and products in Latvia is outstanding and grows every year. The consumption of non-prescription medicines and products is encouraged by advertising and wide availability of the products, encouraging the perception that these products belong to the category of consumer goods and use of them does not involve any risk. The study provides an insight into consumers' behaviour regarding the use of non-prescription medicines and products, revealing patterns of use and also the information about the sources that are used for obtaining information and encouragement to use these products, etc. The Thesis also reveals a typical demographical portrait of a user of non-prescription medicines and products and also characterizes the most typical determinants and factors having association with the use of these products –

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[5] For a detailed description of the methodology see the Chapter 3 of the Thesis

holistic health status, health lifestyle and psychographics. The application of the psychographics method in the context of the use of pharmaceutical products is a novelty in Latvia. The impact of the user's rationality on the use of non-prescription medicines and products is examined. The study also investigates the impact of the system factors on the use of non-prescription medicines and products – trust in the available information sources, as well as availability of non-prescription medicines, products and healthcare services. The study results can be used as informative material in programs promoting for rational use of medicines and other pharmaceutical products.

The study also contributes to the development of the theoretical ideas in the field of the sociology of health and illness – the concepts from the theoretical literature are operationalized and causal explanations and interaction between variables are empirically tested. The paper uses the typology of N. Britten, elaborated on the basis of the Theory of the Communicative action by J. Habermas, originally applied to the context of prescription medicines. This typology is adapted to the context of the use of non-prescription medicines and products. The paper also depicts clash of individual's and system's rationalities and the impact of this conflict on the use of non-prescription medicines and products. User's behaviour is explored also from the "agent-structure" perspective. The Thesis presents comprehensive characteristics of the user of medicines and other pharmaceutical products from different theoretical perspectives.

<div align="center">**Structure of the Thesis**</div>

The Thesis consists of three chapters, the introduction, the conclusions and twenty annexes. In the **first chapter** theories related to the agent and structure interaction are analysed, adapting them to the use of medicines and other pharmaceutical products. The interaction between individual and system is demonstrated using the Theory of the Communicative Action. The chapter

examines models characterizing health and illness construction and consumer behaviour, including the choice and use of medicines and pharmaceutical products.

The second chapter summarizes the history and traditions of the studies regarding use of medicines and other pharmaceutical products by classifying the most essential methods and important aspects related to this field. This chapter describes most characteristic tendencies that are later discussed in the third chapter within the context of the obtained empirical data in Latvia. Several studies related to the topic have been previously performed in Latvia, and this chapter also includes a brief overview of the results of these studies.

Chapter three is dedicated to the empirical study of the use of non-prescription medicines and products in Latvia. This chapter provides a detailed description of the methodology, used indicators, as well as the results of the pilot study. The chapter reflects sampling procedure and fieldwork, as well as the obtained results that are analysed in the context of the theories and the results of the previous studies made in Latvia and worldwide.

The conclusions justify the proposed hypotheses and summarize the most significant results of the study, characterizing users of non-prescription medicines and products as agents, being influenced by the structure and the system. The chapter also characterizes the most typical patterns of the use of non-prescription medicines and products, as well as suggests a number of practical implications directed to the improvement of the situation in Latvia.

1. SOCIOLOGICAL CHARACTERISTICS OF THE FACTORS INFLUENCING INDIVIDUAL'S BEHAVIOUR

This chapter encloses characteristics of the factors influencing individual's behaviour from two sociological perspectives – "agent-structure" and "individual-system".

1.1. Interplay between the user of pharmaceutical products and the structure

The concept associated with the behaviour of an agent is commonly known as "agency" (Giddens 1984, 46). This concept means individual's ability to critically evaluate and choose a course of action under the influence of past conditions and future prospects. However this ability is constrained – agent's behaviour encompasses free choice elements, meanwhile the disposition of this behaviour is influenced by a certain force. In sociology this force is referred to as "the structure" (Ritzer 2008, 418). The question, to what extent the individual's action is the subject of his/her choice and to what extent it is determined by structural constraints, is answered differently by different authors. Gidens's Structuration theory (Gidenss 1984), emphasizes the interdependency of the agent and structure, indicating that the structure does not exist independently from the agent, while the agent is acting on the basis of the structure determined by the previous action. Giddens belongs to the group of sociologists, pointing to the capacity and reflexivity of the agent that prevails over the structural restrictions (Ritzer 2008, 397).

The interaction and complexity of the interplay between the agency and structure is noted by the sociologist P. Bourdieu, describing the concept of *habitus* – the certain disposition that lies under the ability of agents to generate products – thoughts, perceptions, expressions and actions, being set by the historical and social conditions (Bourdieu 1984, 170). *Habitus* means a fixed system of dispositions, a part of which agents are aware of, and part of which they are not– this disposition system creates the basis for the action in the social world. P. Bourdieu is considered to be an author that assigns the dominant role to the structure (Ritzer 2008).

Attributing the topic "agent and structure interaction" to the area of health and illness, a concept "health lifestyle" is applied – this concept classifies the behaviour of individuals into collective health behaviour patterns (Nettleton

2006, Cockerham 2007, 56). W. Cockerham notes that individual's health lifestyle choices are largely determined by the agent's social class – mostly by the amount of available financial resources, level of education and available information. Similarly, choices are also influenced by socio-demographic factors, family, relatives, communities, etc., as well as the experience acquired in the process of socialization. W. Cockerham characterizes the interaction between agent and structure as – life-choices and life-chances working in close tandem and creating a fixed disposition (*habitus*) that, on its turn, determines the way agents behave (Cockerham 2007, 60–70). Agent's behaviour may be revealed through the choice of a particular health lifestyle – activities that are directed towards health maintenance, enhancement or deterioration, e.g., use of medicines, particular diets, physical activities, recreation, personal hygiene, stress management techniques, health check-ups, health damaging habits, etc. (Cockerham, Abel and Luschen 1993, 419). Despite the influence of structural conditions, individual's responsibility for choosing health lifestyle remains high (Smith and Goldblatt 2000, 42). The so-called "big four" – smoking, the use of alcohol, sports and diet (Gabe, Bury and Elston 2004, 25) – these lifestyle elements are considered as voluntary; i.e., subjects of individual's life-choices rather than life-chances (Blaxter 1990, 113).

Summarizing the views of the above mentioned authors, it can be noticed that the main differences in opinions persist in relation to the dominant role of either agency or structure – should it be assigned to the agent or the structure. The current Thesis aims to clarify the way the particular health lifestyle – an interaction between life-chances and life-choices – is associated with use of non-prescription medicines and products in Latvia.

The concept "lifestyle" is applied in different social contexts – within the context of non-prescription medicines and products the use of this concept may be also related to the characteristics of a consumer. The growing consumerism within the society (Bunton, Nettleton and Burrows 1995, 193) promotes for the

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widespread tendency to think that non-prescription medicines and products fall into the category of consumer goods, not in the category of pharmacological subjects (Geest and Whyte 1989, 93). Psychographic characteristics of a consumer reflects trends in the choice between different products and services (Demby 1974, 28), and these tendencies can be also applied to use of non-prescription medicines and products. Lifestyle, a combination of life-choices and life-chances, is an important variable determining psychographic characteristics of a consumer (Demby 1974, 23). Psychographics, as one of the determinants of medicines use, is also included in the Model for the Study of Determinants of Medication Use (Smith 1996, 300). The current study aims at determining whether the individual's psychographic characteristics are related to the differences patterns of use of non-prescription medicines and products in Latvia.

1.2. Influence of the system on the users of pharmaceutical products

Structural conditions have an impact not only on agent's behaviour, but also on the other perspective, being in mutual interaction with the agent – the system. E. Giddens refers to the circumstances of globalization, in which micro and macro environments influence each other, stating that each of these levels is characterized by a specific type of rationality. The system rationality creates certain disembedding processes or "mechanisms". "Expert systems", like the areas of healthcare and medicine, are such "mechanisms". The process of disembedding occurs due to the asymmetry of knowledge and information – individuals due to their limited knowledge cannot fully evaluate health information and the aspects related to medicines, so their perceptions of risk are formed on the basis of trust in experts and information sources (Britten 2008, 15). Such enforced trust creates a social dependency of individuals on the experts as well as the alienation of consumers from their actual needs.

The sociologist Max Weber speaks about the specific "rationalism" that characterizes the bureaucracy of the modern society, noting that this "rationalism "is based on predictability and calculability (Weber 2004, 14–15). According to M. Weber, four types of rationality exist, – practical rationality, theoretical rationality, substantive rationality and formal rationality (Kalberg 1980). Formal rationality is based on the calculated actions, affected by the laws, regulations and social structures (Kalberg 1980, 1151–1159), and Weber indicates that in the modern society this type of rationality prevails over other types (Kalberg 1980, 1173). W. Cockerham and the colleagues have attributed the theory of Weber to the health and illness context, arguing that health lifestyles embody the principles of formal rationality – health is not perceived as a value itself, but rather a tool to fulfil certain social roles. The use of medicines may likewise primarily be based not on the goal to ensure good health, but on the opportunity to regain the capacity of fulfilling everyday duties and obligations (Allotey, Reidpath and Elisha 2004).

The dominant role of formal rationality is revealed by the Theory of Communicative Action by J. Habermas that classifies social behaviour depending on its orientation in the broader context of the action and is based on M. Weber's theory. The Theory of Communicative action is grounded in the concept of social action having its roots in rationality of the parties involved in mutual interaction. The communicative action is closely related to the concepts of the "lifeworld" and "system". "The concept of the lifeworld comprises norms and subjective experiences, social practices and individual skills, as well as cultural convictions. Not only culture but also institutional orders and personality structures should be seen as basic components of the lifeworld" (Habermas 1987 (a), XXVI). The lifeworld is characterized by communicative action – the action that focuses on mutual understanding. The system can be characterized as something external and objective – "someone not involved" (Habermas 1987, (b) 117). The system implies strategic behaviour based on formal rationality

principles. Strategic action may also take forms of an open strategic action and concealed strategic action, which can be defined either as unconscious deception (systematically distorted communication) or as unconscious deception (manipulation).

Increasing formal rationality of the system widens the gap between the individual and system – the system gradually loses touch with the life-world elements that took part in the system formation. E. Giddens refers to these alienation processes by using the term "disembedding", while J. Habermas utilizes the concept "uncoupling" (Habermas 1987, (b) 153–154). The system and lifeworld separation, in Habermas's opinion, promotes the increasing domination of the system's formal rationality over the lifeworld's rationality, alienating the lifeworld from its real needs and wants; this ongoing process is called colonization (Habermas 1987, (b) 311). In the field of medicines and other pharmaceutical products the Theory of the Communicative Action reveals interaction between the agent (the user of these products), encompassing the perspective of the lifeworld, and the system, which reveals itself through the health policy with the involved experts and also through the activities of the pharmaceutical industry (Britten 2008, 19). Colonization of the lifeworld manifests itself in several ways. Consumption in the area of healthcare can be considered as one of colonization drivers (Scambler and Britten 2001, 62). Making decisions regarding non-prescription medicines and products consumers have and illusion of their self-autonomy, liberty and choice (Hibbert, Bissell and Ward 2002, 47, Whyte, Geest and Hardon 2002, 93, Stevenson, Leontowitsch and Duggan 2009, 97). However, in reality the system constantly creates expectations and needs of consumers, using a variety of tools, such as marketing and advertising, thus controlling prices of goods and services (Slater 1997, 33–35; 50). Thus, individual's behaviour is a product of social manipulation; the system actually imposes its power over individuals – freedom in such a situation is one of the strategies of power (Slater 1997, 59). With the help of advertising

the necessity to use medicines is constructed, promoting the increase of sales of these medicines. From the Habermas's theory perspective such information for consumers may be looked upon as concealed strategic action (manipulation) performed by the system. Having the emphasis on pharmacological treatment, highlighting only positive aspects of medicines and not revealing information about negative effects of medicines may be characterized as colonization of the lifeworld implemented by the system.

Colonization of the lifeworld also manifests itself in the meeting-points of the individual's lifeworld and system – when strategic action comes into contact with communicative action, strategic action starts to dominate over the latter (Britten 2008, 19–20). Such meeting-points are medical encounters and also consultations with pharmacists. In terms of the Theory of the Communicative Action the strategic behaviour of the experts may be characterized as open or concealed strategic action. Open strategic action manifests itself when doctor explains all the information to the patient in technical terms, speaking in a "voice of medicine" (Scambler and Britten 2001, 56) and the "voice of the lifeworld" remains unheard. Communication with patient may also reveal the traits of concealed strategic action – systematically-distorted communication, "leaving others to believe that all the presuppositions of communicative action are satisfied" (Habermas 1987, (a) 332). Even though medical professionals may try to listen to the patient's lifeworld concerns, the traditional format of the medical encounter does not make this process easy (Britten 2008, 140, Nettleton 2006, 36) – a limited time may be one of the barriers to a successful communication. Doctors, as important information source, should find ways to balance communicative and strategic action (Britten 2008, 149). One of the tools to implement this task is patient-centred care, which generally means listening to the patient's opinion and the "acceptance of patient's agency in relation to medicines" (Britten 2008, 184). Such approach would enhance the

patient's trust in physicians, and trust is associated with more compliance and more successful treatment outcome (Thom, et al. 2002, 483, Britten 2008, 130).

The time when doctors were almost the only information source about medicines has passed (Rayner and Easthope 2001, 174). In cases of non-prescription medicines and products, the responsibility is said to be passed over from doctors to pharmacists (Bissell, Ward and Noyce 2001, 10). Pharmacist's consultations are another meeting-point of the lifeworld and system, thus a successful cooperation may be a vehicle of the lifeworld de-colonization. The key word in this respect should also be "patient-centred care". "Pharmaceutical care is a patient-centred practice in which the practitioner assumes the responsibility for the patient's drug-related needs, and is held accountable for this commitment" (Almarsdóttir and Traulsen 2005, 78).

In the modern age of information, the Internet is an important source of information for consumers. Sociologically speaking, the Internet can possess the potential to constrain the colonization of the lifeworld with the help of discussions, exchange of views and freedom of speech abilities (Britten 2008, 190). The Internet can be seen as a meeting-place, a bridge between the lifeworld and the system and also a tool of "re-addressing the imbalance of knowledge between patients and professionals" (Britten 2008, 99–100). This is particularly related to the so called "lay referral network" (Britten 2008, 61), implemented in the form of different Internet forums. The Internet is also seen as a tool promoting patient involvement and empowerment, as well as constructing the medical and healthcare knowledge (Cohen, et al. 2001, 454–455). This source can be very useful; however the information on the Internet is not always of good quality (Pandolfini, Impicciatore and Bonati 2000, Risk and Petersen 2002 , Diaz, Griffith, et al. 2002, Cline and Haynes 2001). A large part of the information on the Internet is also directed towards sales promotion. In order to promote the communicative action and raise the lever of consumers' knowledge regarding medicines and other pharmaceutical products, health care experts should assume

the role of "gatekeepers" (Major and Vincze 2010, 338), suggesting reliable internet sources that may be used by patients.

These chapters reflect the impact of the structural conditions and the system on the individual in relation to the use of medicines and other pharmaceutical products. In the interaction between the system and the user of medicines and other pharmaceutical products it is possible to indentify all types of strategic action implemented by the system that influences the behaviour of the individual.

1.3. Interpretation of the concepts "health" and "illness"

The use of non-prescription medicines and products is closely related to the health status of an individual, so it is important to look at the social construction and interpretation of health and illness. The concepts "health" and "illness" are not unambiguous – their construction is influenced by culture, ideology and the structural factors (Nettleton 2006, 38, Cockerham 2007, 9). The biopsychosocial approach to health and disease states that the definition of health is holistic. It is important to emphasize that the concept of health involves much more than just physical health – it also includes vitality, social relationships, and mental health (Ware 1987, 474, Blaxter 1990, 25). The term "quality of life", as one of the components of the holistic health, includes living standards, social relationships, job-satisfaction and psychosocial characteristics of the individual (Ware 1987, 474).

The interpretation of health and illness determines individual's health and illness behaviour, which in most cases takes place according to the following algorithm – symptoms are identified, the severity of health problems is assessed. Then, decision is made regarding the most appropriate action and the potential impact of the action is assessed (Kleinman 1980, 51–52). The diagnosis of actual or potential health problems may lead to the number of possible scenarios – a health problem is ignored, the individual decides to have self-medication, he/she

chooses to consult a healthcare professional, etc. Several behaviour analyses'
models explore whether the interpretation results in action, and whether this
action results in the use of medicines. The user's behaviour regarding non-
prescription medicines and products can be to some extent explained both by the
models exploring health and illness behavioural patterns[6], as well as by models
related to the consumer's behaviour regarding medication uptake[7]. However, the
motives characterizing use of non-prescription medicines and products are more
complex than those provided by these models (Montagne and Basara 1996, 261)
– these motives should also usually enclose biheivioral, social and cultural
factors (Montagne and Basara 1996, 270).

1.4. Models characterizing behaviour of the users of pharmaceutical products

Factors having impact on medicines users' behaviour may be classified
into eleven groups: consumer mind-set, symptom awareness, sources of
information, availability of pharmaceutical products, physical and social
environment of use, rituals of use, promotional campaigns, mass media reports,
social networks, modelling and social learning and accessibility of
pharmaceutical products (Montagne and Basara 1996, 270). Also, the model
revealing particular sequence of factors can be enclosed[8] (Smith 1996, 300). It is
important to be aware that the lists of the factors provided by these models are
not exhaustive, but should be considered to be rather illustrative; the
identification of the factors is still the ongoing process (Smith 1996, 299). Most
of the groups of factors enclosed in these models may be related to the use of
non-prescription medicines and products. In case of prescription medicines, the
instructions provided by the physician are of a bigger importance; however, in

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[6] Health belief model, Health as a locus of control model, Social-cognitive theory, etc.
[7] Decision-Making Process of Consumer Medication Use, Social and Behavioural Factors in Consumer Medication use, Model for the Study of determinants of Medication Use.
[8] Model for the Study of Determinants of Medication Use

cases when non-prescription medicines and products are used individuals tend to consult a variety of other information sources, including pharmacists (Britten 2008, 29–30). This process is known as self-medication, and this phenomenon is very relevant in cases when non-prescription medicines and products are used (Britten 2008, 25). The current Thesis aims at exploring the extent of self-medication within the population of Latvia, as well as at clarifying the most typical determinants and factors associated with the use of non-prescription medicines and products.

1.5. Subjective rationality of the individual

Rationality of the users of medicines and other pharmaceutical products encompasses perceptions regarding properties, necessity, efficacy of medicines, the level of risk related to the use of these products and other aspects. The user's rationality is always tied to the individual's life context, and this rationality also manifests the impact of social system, structure and cultural environment.

The use of medicines may be a certain sign that the individual has accepted his/her illness (Britten 2008, 48; 53). Medical anthropologists believe that the use of medicines has roots in " a complex urge of ancient lineage which predisposes humans to combat disease by taking in a chemical agent, which either drives out the intruding cause or replaces the 'something' lost in illness" (Pellegrino 1979, cited in Geest and Whyte 1989, 356). Sociologists indicate that frequent use of medicines is based on the "urge to "take something" in response to troubling symptoms or distress" (Britten 2008, 45, emphasis in the original). This belief is reinforced by the mass media, promoting the use of medicines even in cases of non-significant ailments, and also by constructing the necessity to use different vitamins and nutritional supplements continuously.

Anthropologists believe that the users' rationality is revealed through the meanings of medicines – medicines may be perceived both as material objects, as well as symbols. Non-prescription medicines and products may be a symbol

of independence – their application is associated with the individual's autonomy. "Pharmaceuticals break the hegemony of professionals and enable people to help themselves" (Geest and Whyte 1989, 348–349).

The user's rationality is characterized by socially constructed views regarding effectiveness, necessity, properties and risks of medicines and other pharmaceutical products (Whyte, Geest and Hardon 2002, 5–6). Risk is one of the most important issues related to the use of medicines (Gabe 1995, 2), and the concept of "risk" includes both the potential risk of adverse effects as well as the risk that may arise if medicines are not used. Individual's behavior depends on the perceptions of risk and risk-benefit assessment associated to the use of the product. Anthropologists point to the widespread belief that non-prescription medicines and products are risk-free, as well as to the belief that newer and more expensive medicines are more effective (Hardon, Hodgkin and Fresle 2004, 4). The study results show that the users of non-prescription medicines tend to pay more attention to the benefits of these medicines rather than to potential harm caused by these medicines (Bissell, Ward and Noyce 2001, 14, Hibbert, Bissell and Ward 2002, 56). This trend is also being named as "pharmacomythologies" – false beliefs that these medicines should produce only positive effects (Montagne and Basara 1996, 264). Social efficiency of medicines manifests itself as the capacity of medicines to ensure the possiblity for an individual to carry out his/her social roles or to fulfil one's need for social recognition (Allotey, Reidpath and Elisha 2004).

The user's rationality illustrates that the "total drug effect" (Britten 2008, 46) extends beyond their pharmacological properties of the pharmaceutical products. Medicines user's rationality is an important aspect of the total rationality concept, like another "side of a coin", and it needs to be explored to get a complete insight in medicines use patterns and problems. The current Thesis explores the patterns of the user's rationality within the population of

Latvia, as well as it investigates the impact and association between this rationality and the use of non-prescription medicines and products.

2. STUDIES OF MEDICINES USE

2.1. Research history and traditions abroad

Systematic medicine' use studies date back to the 60–ies of the 20th century; since the seventies the research that has been carried out is extensive, and methodological differences in these studies are considerable. Research traditions distinguish three aspects – pharmacological aspects, epidemiological aspects of social aspects of medicines' use. The methodological diversity of the studies makes it difficult to build a comprehensive summary of identified trends. Still these studies can be separated into two groups. The first group consists of the studies, aiming at disclosing patterns of medicines' use and detecting particular problems in this area. The second group encloses studies examining association between medicines' use and different factors having impact on users' behaviour.

Tendencies revealed by these studies are quite heterogeneous and can hardly be generalized; – it supports the WHO statement that medicines use studies' results may vary in different countries. However, it is still possible to make general summary of the results: self-medication tendency is growing worldwide; the most significant social medicines' use determinants are gender, age, education, household characteristics, income level, health status, lifestyle, beliefs, sources of information, availability of medicines, etc.[9]

2.2. Research traditions in Latvia

Studies in Latvia examining pharmacological and epidemiological aspects of medicines are performed on a regular basis. There are also studies that analyze the impact of social factors on individual's behaviour, including some data related to the use of non-prescription and prescription medicines. Although no systematic research traditions exist in Latvia on the impact of social aspects

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[9] The detailed description is enclosed in the Chapter 2.1of the thesis.

of the use of medicines; however, certain studies indicate common characteristics related to such aspects as health and illness behaviour, the role of social factors in the construction of efficiency, user's demographic profile and others.[10] The trends revealed by these studies are analyzed in the Chapter 3 of the current Thesis in the context of the obtained empirical results.

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[10] The detailed description is enclosed in the Chapter 2.2 of the Thesis.

3. PATTERNS OF THE USE OF NON-PRESCRIPTION MEDICINES AND PRODUCTS IN LATVIA

3.1. Empirical research methodology

The study is based on the population survey (the fieldwork period: July 4–24, 2012). The method of survey was direct (face-to-face) structured interviews. The data were collected by "The Institute of Sociological Research". Research tools consist of the original questionnaire designed by the author of the current Thesis (See the Thesis, Annex1). To test the designed questionnaire and to avoid inaccurate or false interpretations of the enclosed issues, a pilot study was conducted prior to the survey. The pilot study contained both cognitive test as well as the perception evaluation test.

The sample of the study was the residents of Latvia aged from 18 to 74, and the sample (n=785) is representative to the general set of the population in Latvia. The sample was collected using a two-stage stratified random sampling method. The data were weighted in the categories "gender," "age" and "place of residence".

The data analysis was performed using statistical methods provided by the data analysis program *IMB SPSS Statistics 20.0*. The dependent and independent variables were compared using Chi-square ($\chi2)$ test. Contingency tables (2 * 2), as well as R * C tables, consisting of > 2 rows (R) and > 2 columns (C) (Teibe 2007, 67) were used in the analysis. In addition adjusted standardized residual test was performed. If | Adjusted standardized residual | > 1.96, the observed relative frequency is outside the 95% confidence interval– it means that the observed relative frequency is different from the expected relative frequency at the significance level of p = 0.05 (Teibe 2007, 72; 86). In the cases, when the independent variables contained a large number of indicators, the exploratory factor analysis (Principal components method) was used to reduce the dimension of the measurements and to obtain internally connected variable groups.

Grouping of the variables into smaller sub-groups was performed by using K-means cluster analysis. To determine the impact of the independent variables on the dependent variable, a binary logistic regression analysis method was implemented. The selected significance level was 0.05, so statistically significant results were produced if p-value < 0.05. The selected confidence interval was 95% with the reliability coefficient $Z_{1-\alpha/2} = 1.96$.

The analysis includes variables (factors) and indicators characterising the factors identified by the theoretical literature. The first group consists of demographic and socioeconomic factors. The second group consists of factors related to the individual's holistic health status: self-rated physical health, mental health, vitality, as well as an evaluation of particular quality-of-life aspects. The third group characterises the rationality of the users of pharmaceutical products and encloses beliefs and perceptions regarding efficiency, properties, necessity and other aspects related to these products. The fourth group consists of lifestyle-related factors, including both health lifestyle characteristics as well as psychographic characteristics of an individual. The fifth group is related to the assessment of a system from the individual's perspective – trust in the available information sources, as well as the accessibility of non-prescription medicines and products and healthcare services.

3.2. Characteristics of the sample

Men's average age is ± SD 43.2 ± 15.8. Women's average age is ± SD 46.1 ±16.4. Minimum age of respondents – 18 years, maximum – 74 years; age range – 56 years. Mean age of the respondents is ± SD is 44.7 years ± 16.2 years. The median of age is 44.7 years, the mode – 52 years.

The majority of respondents have secondary or secondary professional education (59.6%). 29.9% of the respondents have higher or graduate degree, and 10.5% of the respondents have primary education (See the Thesis, Table 3.8).

As to the occupation of the respondents, the largest proportion is manual labour workers (26.7%), as well as experts and officials (23.6%). The economic activity characteristic of the respondents is displayed in the Table 3.9 of the Thesis.

Most of the respondents earn 201 EUR to 400 EUR monthly (calculated as per household member). Less than this amount (up to 200 EUR) is earned by 30.1% of the respondents, while 14.5% of the respondents earn more than 401 EUR per household member (See the Thesis, Figure 3.1).

3.3. Patterns of the use of non-prescription medicines and products

During last three months, 61.7 % of the respondents had used different non-prescription medicines and products. The most frequently used products are painkillers (analgesics), cough and cold medicines, as well as vitamins and minerals (See the Thesis, Table 3.10). The disclosed trends are similar to the results elsewhere.

Ibumetin, containing the active ingredient ibuprofen, is the most frequently used non-prescription product (in 23.7% cases). The second most popular medicine is Citramon (acetylsalicylic acid) – in 9.1% of cases, while the third place (7.0 %) is taken by the products containing fish oil, belonging to either the group of medicines or nutritional supplements. It has been noted that the use of ibuprofen is very typical among the population in Europe (Delaney, et al. 2011, 86). Also, medicines for gastrointestinal problems (Mezym forte) and Vitamin C were comparatively frequently used pharmaceutical products. Summarising the results of the current study, as well as the study data elsewhere, it can be concluded that non-prescription medicines and products that require particular attention are cough and cold medicines, painkillers (analgesics), particularly containing the active substance ibuprofen, medicines for gastrointestinal problems, as well as vitamins and minerals, particularly the vitamin C.

Findings from the current study also reveal that the people in Latvia do not use too many non-prescription medicines and products simultaneously. These findings may be partially explained by the fact that the survey was implemented in July when common cold problems are not a very topical issue.

Assessing the knowledge about different aspects related to the use of non-prescription medicines and products, it came out that the lowest level of knowledge is observed regarding compatibility of different products. The majority of respondents believe that they comply with the information provided by patient information leaflets and other sources. The main reason for non-compliance (or partial non-compliance) is a lack of motivation, based mainly on the experience – no adverse effects were observed as the result of the previous non compliance.

3.4. Demographic characteristics of the users of non-prescription medicines and products

The proportion of the users of non-prescription medicines and products is higher among women in Latvia – 71.4 %, while the proportion of non-users is higher among men – 49.3 %. Also the logistic regression analysis (See the Thesis, Annex 17) shows that women's chances of taking non-prescription medicines and products are generally twice as high, if compared to men. It was also noted that the proportion of the users of non-prescription medicines and products is higher among the elderly (aged 55–74) – 75.0 %, while the proportion of non-users is relatively higher among the younger (aged 18–34) respondents – 48.8 %. The logistic regression test results show that the odds of using non-prescription medicines and products are twice as high for the age category 35–54 as compared to the youngest group of respondents (18–34 years). Non-prescription medicines and products are used more by the retired – 78.8 %, but less – by pupils and by students – 39.3%. The use of non-prescription medicines and products is more excessive among the divorced individuals and widows (71.7%), as well as among

those respondents who have two household members – 67.6 %. More extensive use of non-prescription medicines and products is characteristic among individuals who live in the suburbs of Riga – 72.9%, but comparatively less non-prescription medicines and products are being used in individuals living in Kurzeme's region. Logistic regression analysis shows that the odds of using non-prescription medicines and products of those living in Riga are twice as high, if compared to those who live in Kurzeme. Likewise, the odds of using non-prescription medicines and products are four times higher for the individuals living in the suburbs of Riga (if compared to those who live in the region of Kurzeme).

The studies elsewhere also show that medicines are used more in women (Bush and Osterweis 1978, 179, Daban, et al. 2010, 1, Johnson and Pope 1983, 226, Tobi, et al. 2003, 204, Kaufman, et al. 2002, 339, Al-Windi 2005, Neutel and Patten 2009, e443, Conboy, et al. 2005, 977, Ryan, et al. 2009, 4). Direct correlation between the increasing age and the use of medicines is also observed by several studies (Birchley and Conroy 2001, 164, Johnson un Drungle 2000, Kaufman, et al. 2002, 339, Smith 1996, 297, Novignon, et al. 2011, 4, Neutel and Patten 2009, e443). At the same time, a number of studies exploring the use of non-prescription medicines and products have detected a distinctive trend – relatively younger age increases the possibility of use of these products (Bush and Osterweis 1978, 182, Daban, et al. 2010, 1, Carrasco-Garrido, et al. 2009, 746, Ryan, et al. 2009, 5, Extavour and Edwards 2008, 290). This trend can to some extent be explained by the reluctance of young people to see a doctor, but rather self-medicate instead (Baran, Teul and Ignys-O' Byrne 2008, 139). The studies abroad have found that larger number of members within a family contribute to the lower consumption of non-prescription medicines (Johnson and Pope 1983, 228). The studies also show that the use of non-prescription medicines is more characteristic to people that belong to a higher social class (Daban, et al. 2010, 1, Johnson and Pope 1983, 228), and some research data

suggest that the retired people use less non-prescription medicines (Nielsen, Hansen and Rasmussen 2003, 677). The situation in Latvia shows different features characteristic to the particular region. More extensive use of non-prescription medicines and products in Riga and around Riga may be at least partially explained by the fact that a large number of pharmacies is located in Riga and around the capital; also, the sales in these regions are comparatively higher (The Competition Council 2008, 86). According to the data of 2012 provided by the Central Statistical Bureau (CSB) of Latvia, the number of operating pharmacies was the lowest in Kurzeme – 55 (80 pharmacies in Riga, 66 pharmacies around Riga) (CSB 2014).

3.5. The use of different categories of non-prescription medicines and products

The survey data (See the Thesis, Table 3.20) revealed that the proportion of individuals using medicines for gastrointestinal problems is higher among men, as well as among physical labour workers. The use of this group of medicines is sometimes attributed to the age of individuals, namely, it is found that medicines for gastrointestinal problems are more used in older people (Smith 1996, 297) or in very young people (Frosst, Majowicz and Edge 2006, 489). The current study revealed no statistically significant differences between age groups and the use of medicines for gastrointestinal problems.

Cough and cold medicines are mostly used in the youngest age category – the proportion of the users is 35.4%, while the lowest level of use is observed in the oldest age category – 16.7%. These medicines are more used in people having managerial positions (35.4%), but least in the retired people – 11.2%. Also the studies in other countries show that cough and cold medicines are more used in people having employment contract with the employer (Baran, Teul and Ignys-O 'Byrne, 2008, 137). It can possibly be explained by the necessity of

these people to suppress the symptoms of common cold to be able to return to everyday work and duties.

Pharmaceutical products for joints and bones, as well as cordials, are more used in the elderly population. This trend may be explained by the prevalence of these symptoms in a particular age group. Homeopathic preparations and cordials are used more in the retired people.

3.6. Rationality of the users of non-prescription medicines and products in Latvia

The most important factor influencing the use of non-prescription medicines and products perceived by respondents is – "products were already at home, and it was not necessary to go to the pharmacy" – 78.3 %. The possibility to avoid medical encounter is also an important factor in 74.5% of the cases.

With the help of factor analysis the perceptions of the respondents were divided into three groups (See the Thesis, Annex 7). The first type characterizes individuals who tend to think that their decision to use non-prescription medicines and products is influenced by the following pre-conditions: "As natural ingredients as possible", "Known brand/producer's name of a product", "Suggested by friends and relatives". This group of perceptions was entitled as "**The influence of advertising and lay advice**". The second type possesses an opinion that the use of non-prescription medicines and products is mostly influenced by the low price, reliable and known pharmacist and a possibility to avoid a medical encounter. This type was assigned the name **"The practical ones"**. The third type has a tendency to consider that the most important factors are the pharmacy location (accessibility of a pharmacy from home), large choice of pharmaceuticals and a possibility to purchase non-prescription medicines and products not only in pharmacies, but also in stores and via the Internet. This type was named –**"The comfort and choice-oriented"**.

The results of the analysis shows that the proportion of users is comparatively higher (69.2%) among the respondents who possess the perceptions of the first type – "The influence of advertising and lay advice" (See the Thesis, Table 3.21).

The most common view related to the efficacy of the pharmaceutical products is "If products have helped in the past, they will certainly help again" – 83.2 % of the respondents completely or mostly agree with this statement. 79.3 % of respondents completely or mostly agree with the statement "The longer the medicines and remedies are in the market, the safer they are". A large part (69.4 %) of the respondents possess an opinion that "Medicines and remedies should be used at the sight of the first symptoms to avoid more serious symptoms". 63.9 % of respondents cannot permit themselves to be ill because of everyday duties, therefore they start using pharmaceutical products at the sight of the first symptoms. 34.3% of the respondents believe that the use of non-prescription medicines and products cannot have side effects. 55.5% of respondents believe that the newer medicines are more effective, but 26.6% believe that the use of vitamins and nutritional supplements cannot cause any side effects. 37.3% of the respondents believe that the more expensive drugs are usually more efficient (See the Thesis, Table 3.22).

With the help of factor analysis the views of the respondents were divided into four groups (See the Thesis, Annex 8). The first type is characterized by false views regarding the properties of non-prescription medicines and products –"Nutritional supplements and vitamins should be used all the time," "Use of vitamins and nutritional supplements cannot cause side-effects" and "Use of non-prescription medicines does not cause side-effects." This group is named as **"The false perceptions"**. The second group possesses the following opinions – "I cannot permit myself to be ill, therefore I start using medicines at the first sight of symptoms" and "Medicines should be used at the sight of the first symptoms to avoid more serious symptoms." This group has been awarded the name **"The**

cautious". The third group consists of the following opinions – "If medicines have helped in the past, they will certainly help in future" and "The longer medicines are in the market, the safer they are". This group is characterized by the name **"The evidence-based"**. The fourth group is convinced that new and expensive products are better; this group is consequently named as **"New and expensive is better"**.

A comparison of the three types (See the Thesis, Table. 3.23) shows that the majority of users are among the first type "The false perceptions"– 70.9%. The results of the logistic regression analysis (See the Thesis, Annex 17) show that the odds of using non-prescription medicines and products are twice as high (OR=2.16) for the people having false perceptions "on the average degree". If the respondents completely or rather agree to statements revealing false perceptions, the odds of using non-prescription medicines and products increase by more than five times (OR = 5.32).

Also in the cases when an individual possesses the views of the type "The cautious", the proportion of the users of non-prescription medicines and products is higher. Individuals who trust the media as information source about pharmaceutical products have a tendency to possess views of the first type – "The false perceptions". Those who rather trust the experts (doctors, nurses, physician assistants and pharmacists) rather have views characteristic of the type "The cautious".

3.7. Characteristics of the holistic health

More than half of the respondents rate their health as good (48.5%) or very good (7.9%) (See the Thesis, Figure 3.3). The most commonly experienced health problems are common cold, headaches, cardiovascular diseases (25.9%), as well as bone- and joint-related problems or severe back pain (See the Thesis, Table 28.3).

The relationship between health assessment and the use of non-prescription medicines and products (See the Thesis, Table 3.30) shows that the proportion of users is higher among the respondents with negatively self-rated health – 81.2 %. The proportion of the non-users is higher among the individuals with higher self-rated health – 48.9 %. The logistic regression analysis (See the Thesis, Annex 17) shows that particular ailments increase the odds of the use of non-prescription medicines and products: headache (OR = 2.64), digestive problems (OR = 8.26). The studies elsewhere have noted the correlation between positive self-evaluation of health and the use of medicines to a lesser extent, and vice versa – negative self-evaluation of health contributes to more extensive use of medicines (Daban, et al. 2010, 1, Neutel and Patten 2009, e443, Tobi, et al. 2003, 203, Al-Windi 2005, Carrasco-Garrido, et al. 2009, 743, Novignon, et al. 2011, 4, Smith 1996, 300).

The results of the analysis (See the Thesis, Table 3.32) show that the proportion of the users of non-prescription medicines and products is higher among the respondents with the lowest level of vitality – 92.3%, while the share of non-users is higher among those with the highest level of vitality (50.6%). The logistic regression test (See the Thesis, Annex 17) shows that a lower vitality level contributes to the higher odds of the use of non-prescription medicines and products (OR = 8.54). A similar trend is observed within respect to mental health – the proportion of non-users is higher among the respondents whose mental health ratios are better – 46.7 %, and the use non-prescription medicines and products is more extensive among the respondents with a lower mental health level.

The results of the current study show that 53.3 % of the respondents rate their quality of life as "good or very good", 41.0 % as "average" and 5.7% as "poor or very poor". The analysis examining the association between life-quality assessment and the use of non-prescription medicines and products shows that the number of non-users is higher among the respondents who rate their life-

quality as good or very good (57.0 %) (See the Thesis, Table 3.33). The lower life-quality assessment ("average") is associated with an increasing proportion of the users of non-prescription medicines and products – 66.6 %. The studies abroad also reveal a correlation between the lower life satisfaction and increased possibility of non-prescription medicines' use (Shafie, Hassali and Yahaya 2013, 107, Kovac, et al. 2008, 227). It has been concluded that a low degree of satisfaction with various aspects of social life is a prerequisite for hypochondriasis that may encourage excessive use of different medicines (Smith 1996, 298).

With the help of the factor analysis a common scale, describing the satisfaction with various aspects of everyday life, was created (See the Thesis, Annex 9). The results of the analysis (See the Thesis, Table 3.34) show that the proportion of people who do not use non-prescription medicines and products is higher among those who have higher satisfaction scores (52.0%).

The current study results lead to the conclusion that a better physical and mental health, vitality and quality-of-life assessment are associated with the use of non-prescription medicines and products to a lesser extent.

3.8. Health lifestyles

A large proportion of respondents (40.1%) believe that they take care of their health "very much" or "quite much." Slightly smaller number of the respondents (38.4%) evaluates their care as "average", but 21.5% believe that their care about health can be characterized as "do not care" or "slightly care". The results of the analysis show that the proportion of users of non-prescription medicines and products is lower among those respondents who do "do not care" or "slightly take care" of their health – 50.6% (See the Thesis, Table 3.35).

To classify individuals within the sub-groups in relation to their health lifestyles K-means cluster analysis method was implemented. As the result of the analysis, two different groups of individuals emerged – those with a

comparatively healthier lifestyle and those with non-healthy lifestyle. Those respondents who have healthier lifestyle (See the Thesis, Table 3.37) comparatively more often undergo regular health examinations and tests, get vaccinated and have special diets, perform sports activities – exercises at home and in sports clubs, do regular walking, work out or do sports in the fresh air. 82% healthier lifestyle representatives perform different types of sports activities at least twice a week. These people eat significantly more fruits and vegetables and have a relatively less proportion of health-damaging habits like smoking and alcohol consumption in risky doses. Individuals, whose lifestyle is non-healthy, rarely undergo medical examination and tests; more rarely have special diets and comparatively rarely get vaccinated. The level of physical activities of these people is very low – only 1–2 % regularly conduct exercises in the open air or at home, and only 21% perform some sports activities at least twice a week. These people eat less healthy food – vegetables, fruit and fruit juice. People having non-healthy lifestyle considerably more often consume alcohol in risky doses (38%) and smoke (47%). In addition, 66% of these people have indicated that they practically do not take care of their health.

Health lifestyle is related to the use of non-prescription medicines and products in the following way – the proportion of the users of non-prescription medicines and products proportion is higher among those respondents who have comparatively healthier lifestyle (66.9%) in comparison to the representatives of non-healthy lifestyles (53.9%) (See the Thesis, Table 3.38).

3.9. Psychographic characteristics of the users of non-prescription medicines and products

In order to make the classification of consumers, the factor analysis method was implemented (See the Thesis, Annex 11).

Type 1. **"The Modern."** These people like to show-off; they strive for new impressions and sensations. They want to feel themselves as modern and

contemporary; in fact, they are convinced that they are modern and contemporary. For them, it is important to follow up fashion news, and they want others to think that they have a style. The representatives of this type can be more found among women and the young people (18–34), among Latvians, living in the suburbs of Riga, as well as among those with the highest income level per one household member. People that belong to this type are frequently entrepreneurs or individual workers, civil servants or students.

Type 2. **"The Discoverer."** These people look for new challenges; they constantly want to learn and practice something new. People who belong to this type want to feel the excitement; they are hungry for diversity and willing to avoid routine. The representatives of this type are more likely to be found among women, within the youngest age group (18–24), among students and people living in Vidzeme.

Type 3. **"The Practical."** People of this type want to make things by hand. They love working with a variety of materials; they prefer making things themselves rather than buying these things in stores. This type is most characteristic among the comparatively older people (aged 65–74), the retired and the individuals having the lowest income level.

Type 4. **"The Manager"**. These people think they have more skills than the others, including the level of intelligence. They like assuming the liability and guiding others. The representatives of this type can be found among people whose occupation is a manager, as well as among the residents of Riga.

Type 5. **"The Technical."** These people are interested in mechanical devices and operation of these devices, in computer stores and car accessory shops. The representatives of this type can be more found among men, age category of 35–54, among blue-collars and entrepreneurs. This type of views is more characteristic of the people with an average income category, as well as among individuals living in Latgale.

Type 6. **"The Religious."** These people have an increased interest in the Universe, the God and the religion. This type of views is much more common among women. These people can be found in the oldest age group (55–74 years), the retired; they live in Riga and belong to other nationalities (non-Latvian).

Type 7. **"The Intellectual."** This type is interested in the news of art, history and culture, as well as in different theories. This type is more common among women, people of comparatively older age (55–74), as well among those who live in Kurzeme

Type 8. **"The Survivor"**. This personality type has relatively narrow interests – people having views characteristic of this type are interested only in some particular areas. The representatives of this type can be more frequently found among the retired people and individuals who live in Vidzeme.

The results of the analysis show that the proportion of the users of non-prescription medicines and products is higher among the representatives of the following types: "The Religious" (72.1%) and "The Intellectual" (72.1%), but a lower proportion is found among "The Modern" (52.8 %) and "The Technical" (51.3%) (See the Thesis, Table 3.39). The logistic regression test (See the Thesis, Annex 17) shows the decreased odds of using non-prescription medicines and products for the type "The Modern." The fact that the representatives of the type "The Intellectual" use comparatively more non-prescription medicines and products can be explained by the interest of this type in different theories that might also include interest in health and illness issues. To some extent, the tendency to use more non-prescription medicines and products can likewise be explained by the fact that representatives of this type are more found among people who are women and belong to the oldest age group. However this trend cannot be solely explained by the demographical characteristics, because representatives of this type can more be found among people living in Kurzeme, where the proportion of the users of non-prescription medicines and products is the smallest.

The type "The Religious" approximately corresponds to the characteristics of the VALS ^{TM} type "Believers" and description of this type states that these people are very conservative consumers who trust in certain brands that have been tested before. Their consumption patterns of these people can be changed only with a careful promotional strategy (VALS, ^{TM} 2006, 14). The characteristics of this type also states that people of this type are heavy users of sedatives, analgesics, vitamins and nutritional supplements (VALS, ^{TM} 2006, 16). In addition, this type is more typical among women, the elderly and the retired people, who are more intense users of non-prescription medicines and products.

The fact that non-prescription medicines and products are less used among the representatives of the type "The Modern", can be partly explained by the characteristics provided by the terminology of VALS ^{TM}, describing the similar type "Innovators": these people have less trust in advertising, but increasing interest in health and proper nutrition; they pay attention to the product quality and carefully evaluate the expected benefits (VALS, ^{TM} 2006, 31). In addition, views of this type are most characteristic of young people (18–34 years), managers and students. However, the demographic characteristics cannot entirely explain these differences, because the type "The Modern" can be more found among women and persons living around Riga, but these demographic categories have comparatively higher proportions of the users of non-prescription medicines and products.

The fact that the proportion of the users of non-prescription medicines and products is relatively smaller among the representatives of the type "The Technical" can be partly explained by the fact that views of this type are more common among men and managers, who are found to use non-prescription medicines and products to a lesser extent. The description of the type "The Technical" approximately corresponds to the description of the type "Makers", provided by the theory of VALS^{TM}, and it has been stated that these individuals

are very sceptical about the information in mass media (VALS, ™ 2006, 28). This scepticism may probably be related to the ability to evaluate critically the information about pharmaceutical products provided by the mass media.

It can be concluded that psychographic characteristics have substantial role in explaining the use of non-prescription medicines and products – there are differences regarding use non-prescription medicines and products, depending on the consumer's psychographic characteristics.

3.10. Evaluation of the information sources

The decision to use non-prescription medicines and products after consultations only with medical experts (general practitioners, physicians, nurses or physicians' assistants) is made by 21.7% of the respondents. Studies elsewhere have found similar data – only about a fifth of users of non-prescription medicines and products consult medical experts (Baran, Teul and Ignys-O' Byrne 2008, 137). For the majority of the population (67.2%), decision-making regarding the choice and use of non-prescription medicines and products is based on the consultation only with other information sources. The current study analysis reveals that the most important information source regarding non-prescription medicines and products for people in Latvia is a pharmacist (32.5 % of cases). Also, people often rely on their past experience, but general practitioner's role in respect to non-prescription medicines and products is slightly lower – 26.9 % (See the Thesis, Table 3.40). About one tenth (11.1%) of the users consult both – medical experts and other sources of information. Such data suggest that self-medication tendency is growing, if compared to the situation about ten years ago (Ozolina 2006).

Although many people in Latvia do not consult physicians regarding the use of non-prescription medicines and products, the role of a doctor is still high enough – general practitioners are the third most important information source.

The majority of the respondents have indicated that they trust in the information provided by patient information leaflets (80.0%), physicians (78.7%) and general practitioners (77.9 %). The pharmacist is a source of information that is highly trusted not only by Latvians (72.3%) – see the Thesis, Figure 3.6, but also in other countries – Estonia (Villako, Volmer and Raal 2012, 338) and elsewhere (Simoens, Lobeau and Aerschot 2009, 450). The lowest level of trust appears to be in respect to the information in the mass media: radio (9.6 %), TV (10.8 %) and the Internet (11.6 %) (See the Thesis, Figure 3.7). A similar trend is disclosed by the studies abroad – the study in New Zealand found that users have the lowest level of trust in the information provided by TV (Hodgetts, Hayward and Stolte 2013, 8). From the users' point of view, a part of the information sources (general practitioner, physician, nurse, pharmacist, patient information leaflets) generally provide more non-commercial information (See the Thesis, Figure 3.8), while the other sources (non-traditional healers, newspapers and journals, TV, radio, the Internet and brochures about medicines and other pharmaceutical products) offer more commercial information about these products (See the Thesis, Figure 3.9). A quite large proportion of the respondents who trust or rather trust such sources of information as TV, radio, the Internet and medicinal brochures, rate this information as promotional (in case of TV – 30.5%, in case of radio – 25.7%).

To assess the association between trust in information sources and the use of non-prescription products, with the help of factor analysis two types characterizing respondents' trust in information sources were identified (See the Thesis, Annex 16). The first type has a tendency to trust the information sources in which advertisements of non-prescription medicines and products can frequently be found – press, TV, radio, the Internet, as well as brochures and leaflets of medicines. This type is described as **"Trust in advertising"**. The second type is characterized by trust in such information sources as a general practitioner, physician, pharmacist, nurse and patient information leaflets. This

type of trust can be named **"Trust in experts"**. It was found that in cases when respondents "do not trust" or "rather do not trust" sources containing advertising, the proportion of the users of non-prescription medicines and products is lower (51.0%). Evaluating the impact of a number of factors on the use of non-prescription medicines and products, the logistic regression test (See the Thesis, Annex 17) disclosed that higher trust in the sources containing advertising of non-prescription medicines and products contributes to more than twice higher odds of non-prescription products' use (OR = 2.15).

The impact of advertising on medication and other pharmaceutical products' use is also supported by the theoretical literature and research in the world.

3.11. Accessibility of products and healthcare

The highest accessibility rating is assigned to the pharmacies (91.4%); accessibility of the stores offering non-prescription medicines and products is evaluated most negatively (61.2%). In additional, 29.8% of respondents state that they never purchase non-prescription medicines and products in stores (See the Thesis, Figure 3.11). **The test of the correlation between the evaluation of accessibility and the use of non-prescription medicines and products shows that no statistically significant differences exist in this respect**.

CONCLUSIONS

This chapter encloses the summary of the main conclusions based on the hypotheses and the objectives set by the current Thesis.

The first group consists of findings obtained as the result of the analysis of the interaction between the user of pharmaceutical products and structure.

1. The behaviour of the agent is the result of a combination between life-choices and life-chances. In the field of health and illness agents choose

among different health lifestyles. This study in Latvia shows that the individuals who have healthier lifestyles use more non-prescription medicines and products – the use of these products reflects individual's concern for health.

2. Non-prescription medicines and products gradually step out of the "experts' area" and become self-medication products. Using non-prescription medicines and products, individuals do not often consult physicians, but use another information sources. The research data reveal the following differences in the use of non-prescription medicines and products depending on psychographic characteristics of the individual.

    ▪ Non-prescription medicines and products are more used by individuals who are interested in different theories and news and have a comparatively high level of knowledge regarding various issues.

    ▪ Non-prescription medicines and products are more extensively used by individuals, who possess conservative beliefs and loyalty to certain brands.

    ▪ People with practical and technical orientation, and also those who consider themselves as modern and fashionable, use non-prescription medicines and products to a comparatively lesser extent.

    The study results show that psychographics can be one of the useful tools that help describe the behaviour of the users of non-prescription medicines and products.

    The second group of conclusions comprises findings from the analysis related to the perspective "individual and system."

1. An individual is in constant interaction with two "systems" – health policy with its experts and the pharmaceutical industry. Systems are characterized by all types of strategic action – open strategic action and concealed strategic action consisting of unconscious deception (systematically distorted communication) and conscious deception (manipulation). The concealed

strategic action (manipulation) manifests itself in the promotion and advertising of medicines and pharmaceutical products. The study in Latvia reveals an impact of the commercial information on the users of non-prescription medicines and products.

- Up to one third of the population who have trust in particular information sources (TV, radio, the Internet, newspapers and magazines, and medicinal brochures) consider this information to be fully or partly commercial.
- The results show that lower trust in the sources containing promotional information (advertising of non-prescription products) is associated with a less extensive use of these products.
- Trust in sources containing promotional material (advertisements) increases the odds of using non-prescription medicines and products more than two times.

2. Lots of people in Latvia trust medical experts (general practitioners, physicians, nurses and physician assistants) and also pharmacists. The task of the health professionals is to balance strategic and communicative action by implementing patient-centred care principles – responding to the patient's concerns and accepting patient's agency to non-prescription medicines and products. Medical experts should assume the role of "gatekeepers" and suggest trustworthy information sources about non-prescription medicines and products.

The third group of conclusions consists of the role of individual's holistic health.

1. The study reveals that certain ailments (headaches and gastrointestinal problems) increase the odds of using non-prescription medicines and products for several times.

2. Not only physical health but also other holist health components, such as lower level of vitality and mental health, as well as lower life satisfaction

level, are associated with a more extensive use of non-prescription medicines and products.

The fourth group of conclusions contains findings regarding rationality of the users of non-prescription medicines and products.

1. Making decision regarding the use of non-prescription products, the most important factors for an individual are – "the product is already at home", the opportunity to avoid a medical encounter and natural ingredients of the product.

2. The use of non-prescription medicines and products is more widespread in individuals who value the characteristics of products that are often emphasised by advertisements – natural ingredients, familiar brand or name, as well as suggestions of friends and relatives.

3. Perceptions of a considerable part of the population in Latvia can be characterised as "pharmacomythologies" – beliefs that non-prescription medicines and products have only one type of effect – positive, and their use is not associated with risk. If an individual possesses such beliefs, non-prescription medicines and products are used more extensively. False perceptions increase the odds of using non-prescription medicines and products for more than five times.

4. More than half of the population believes that newer medicines are usually more effective, but more than third of the population – that more expensive medicines are more effective. Such views may contribute to unnecessary and excessive use of medicines and other pharmaceutical products, as well as to wasted resources.

5. Non-prescription medicines and products in Latvia possess so-called "social efficiency", revealed by the perceived necessity to use these products at the sight of the first symptoms to be able to return to their everyday duties. Such opinion is possessed by more than a half of the population.

6. Users' rationality has the association with the trust in sources of information about non-prescription products.

   ▪ Individuals who trust the information provided by mass media tend to possess false views regarding risks associated with use or non-use of non-prescription medicines and products.

   ▪ Individuals who trust medical experts tend to possess views characterizing the type "The Cautious".

The fifth group of conclusions includes the summary of the most characteristic patterns of the use of non-prescription medicines and products and justification of the hypotheses.

1. Similar to the tendencies elsewhere, the most popular non-prescription medicines and products in Latvia are painkillers, cough and cold medicines, vitamins and minerals, as well as medicines for gastrointestinal problems. The most often used drug in Latvia is ibumetin. Studies worldwide show that use of these products may often be non-rational – users fail to comply with doses, use these medicines and products for an unnecessary prolonged periods, disregard compatibility of medicines with other products, etc. Therefore, elaborating programs promoting rational use of medicines, particular attention to these groups of pharmaceutical products should be paid.

2. The study results, examining knowledge of different aspects related to the use of non-prescription medicines and products, showed comparatively lower level of knowledge about compatibility of different medicines and pharmaceutical products, therefore it is suggested that programs promoting rational use of medicines include more information about these aspects.

3. A portrait of the user of non-prescription medicines and products in Latvia can be characterized as – **"women, older people, retirees, households with smaller number of people, the divorced or widowed individuals, residing in Riga, or in the suburbs of Riga"**. The factors having impact

on the use of non-prescription medicines and products are: **gender, age** and **place of residence**.

4. There are several demographic differences in relation to the use of different groups of non-prescription medicines and products. Medicines for digestion problems are more used among men and physical labour workers. Cough and cold medicines are more popular among young people, as well as among people taking managerial positions. Products for bones and joints and cordials are more used in the older population, but homeopathic preparations and cordials are comparatively more used in the retired people.

5. The main reason for non-compliance is the lack of motivation that is based on the experience – no negative effects were observed as the result of non-compliance. Such data suggest the necessity to raise the level of knowledge and awareness of the users of non-prescription medicines and products, for instance, by adding information about potential risks of non-compliance to the patient information leaflets.

6. The majority of the population does not consult medical experts, but a variety of other information sources regarding the use of non-prescription medicines and products. Such behaviour may have several benefits – individual's responsibility and empowerment increases. In order to reduce the risk of unreasonable or improper use of non-prescription medicines and products, it is necessary to provide objective information to consumers, raising their knowledge level, thus diminishing the negative effect of the system over the lifeworld.

It can be concluded that sevelar patterns disclosed by the current study corresponds to the tendencies in other countries, however there are particular trends that must be considered as characteristic of the situation in Latvia. **Five hypotheses can be confirmed, but one hypothesis has to be rejected:**

1. The perceived necessity, properties and effectiveness of non-prescription medicines and products (users' rationality) one of the most

significant determinants of the use of these products – **hypothesis is confirmed**.

2. The use of non-prescription medicines and products is related not only to the individual's physical health status, but also to other holistic health dimensions like vitality, mental health and life-satisfaction – **hypothesis is confirmed.**

3. The use of non-prescription medicines and products is a component of the individual's healthy lifestyle – **hypothesis is confirmed**.

4. The individual's psychographic characteristics are associated with distinctive patterns of the use of non-prescription medicines and products – **hypothesis is confirmed**.

5. Trust in information sources, containing medicines and other pharmaceutical products' advertising, is associated with a comparatively more extensive use of non-prescription medicines and products – **hypothesis is confirmed.**

6. Wider perceived accessibility of non-prescription medicines and products and healthcare services promote for more intensive use of them – **hypothesis has to be rejected**.

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