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Research on patient satisfaction regarding medical services for the treatment of diabetes

- Abstract of doctoral thesis -

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Introduction

Patients' satisfaction is an important indicator of the healthcare sector. The literature demonstrates that it influences the degree of patient retention, it affects the results obtained from a medical standpoint, as well as the satisfaction of medical staff, the patient's tendency to seek a second opinion or to file malpractice lawsuits (Taylor and Benger, 2004; Boudreaux and O`Hea, 2003).

Medical practices and healthcare systems have considerably evolved during recent decades, the main elements that characterize them being (Prakash, 2010): the development of private healthcare establishments, benefiting from technology and the latest equipment, the existence of a third party payer as insurance companies, health insurance houses or governments, and the increased availability of medical information on the internet, which generates high expectations from patients, but also the increase of malpractice lawsuits as a consequence of unsatisfactory results. All this leads to a situation where medical institutions are operating in an increasingly dynamic and competitive environment. Therefore, managers become more and more careful in obtaining high scores in terms of patients' satisfaction, in order to support the differentiation of their institution from the competitors (Otani *et al*, 2009; York and McCarthy, 2011). Patients' satisfaction, along with the factors affecting it, thus became an increasingly studied subject in an attempt to provide for the medical institutions' management the most appropriate solutions for maximizing results from a medical point of view, but also in terms of patient retention and the institution's image on the market.

At the same time, the trend of the last decades is to position the patient in the spotlight of medical units and develop a partnership based relationship between doctor and patient; at the expense of the classical relationship where the doctor was the one taking all the decisions, and the patient was just following instructions. Today, this balance of power is redefined from a perspective closer to consumers; the patient and the doctor discuss and agree the terms of the partnership they are in, with the purpose of improving the health status of the former (Haug and Lavin, 1981). Nowadays patients are requiring time, information and are seeking answers to the questions they have, as well as courtesy, empathy and attention from the treating doctor (Shendurnikar and Thakkar, 2013). Thus patients are closer and closer to the customer profile (Bell *et al*, 1997), and the strategies adopted by medical units to meet the needs of this new category of patients require effective marketing plans, policies and practices geared towards the various consumer segments (Chahal and Mehta, 2013).

In this paper, we report to the context of medical units treating diabetes in the public sector in Romania and we intend to identify, from a marketing perspective, the factors influencing diabetes patients' satisfaction, with the purpose of providing theoretical and practical recommendations designed to help increase the performance of these institutions when interacting with patients. Currently, in Romania, medical units in the public sector are facing a number of difficulties in adopting a marketing orientation, determined also by the constraints operating on them in terms of how the price for the services is set, the available budget allocation, and the imposed income targets (Berkowitz, 2011; Panait, 2011). However, during recent years, competition in the medical field has become increasingly pronounced, following the development of the private medical sector, the private medical services market being lately considered one of the most dynamic markets in the Romanian economy (David, 2013).

Regarding medical services for treating diabetes, putting patients at the heart of healthcare activity is all the more important because diabetes is a condition of chronic nature, the disease management being extremely important in preventing associated complications, very costly in terms of funds allocated from the health social insurance budget. In addition, the condition's nature and particularities cause an increased number of interactions between patients and medical units and staff, during a long period of time. With a high incidence of the disease, approx. 64.000 newly diagnosed cases each year relative to a number of 796.803 patients diagnosed in 2011, Romania was, according to the European Index for Diabetes published by Health Consumer Powerhouse, on the 26th place in the EU27 in terms of caring for these patients, the situation being caused particularly by the deficient healthcare system rather than by an unhealthy lifestyle (ARPIM, 2011).

Given the high incidence of the disease among the population of Romania, the peculiarities of the disease, but also the problems the system is facing in this regard, we consider that researches having as subject diabetes patients' satisfaction may help improve the management of the disease, with positive effects from an economic, social and medical point of view. We believe therefore that the subject that we propose is a topical research, both nationally and internationally, located at the crossroads of three extremely important dimensions for patients: the healthcare system, the community as a whole, and the well-being from a medical, economic and social perspective. The specialized literature is addressing this issue at a more general level, analysing few of the variables that can influence patients' satisfaction, without taking into account overlapping elements that practically create the interaction between patients and the healthcare unit. Thus, some studies focus only on demographic data, while others only analyse psychological or medical issues, or the interaction with one or the other of the categories of actors involved in providing the medical service (for example, doctors or nurses). Also, regarding studies related to diabetes patients' satisfaction, the majority of them treat the situation of patients benefiting from ambulatory treatment, the focus on patients receiving medical services in the hospital being more reduced. However, the subject that we propose has a high relevance in the context of medical services in public units in Romania, often characterized by a negative perception caused by the various problems within the healthcare system (lack of funds, the situation of informal payments, quality and accessibility of medical services) (SAR 2012).

The purpose of the study we propose is to identify factors that influence diabetes patients' satisfaction in ambulatory settings or in hospitals, in order to rank them, but also to test the possibility of developing a comprehensive conceptual model related to the relationship between the identified factors and diabetes patients' satisfaction regarding the medical services they receive. In this respect, based on the results of the literature review, we identified six dimensions of patients' satisfaction, namely: the relationship with the doctor, the relationship with nurses, the relationship with the auxiliary staff, the clinic/hospital for diabetes as a whole and the relationship with other patients and other services provided. We have also taken into account the influence that demographic, psychological or medical aspects can exercise on patients' satisfaction. Including all these aspects in the analysis is giving an added value and differentiates the research we propose from previous studies by the largeness of the analysed elements spectrum, since, as noted above, existing studies are limited to analysing the influence of only some of the elements identified by us, without outlining an overview on patient interactions with healthcare units.

From a practical standpoint, the subject is relevant to the activity of medical institutions, as the obtained results can be transposed in practice and applied in order to increase the performance of these institutions. Given that the marketing orientation of a medical institution can affect its performance, we consider relevant to identify the factors that influence patients' satisfaction and analyse them in order to identify the variables with the highest impact and make concrete proposals by which these institutions can improve their work.

The paper that we propose is structured in four chapters. The first chapter addresses the theoretical aspects of the constructs analysed in the research. Thus, this chapter provides overall elements on consumers' satisfaction and general satisfaction determinants, to then narrow the literature review towards patients' satisfaction in general and diabetes patients' satisfaction in particular. In this chapter we present both the existing definitions in the relevant literature on patients' satisfaction, and the factors identified in the studies undertaken so far as influencing patients' satisfaction in general and those with diabetes in particular. The chapter also includes a characterization of the medical system in Romania and of the medical services market for treating diabetes, along with a presentation of the specificities of the public sector medical services, as well as of the marketing of such services.

The second chapter is dedicated to the research methodology. We punctually describe in it the steps taken in achieving the empirical research and in reaching the intended purpose. When drafting this chapter, we started from the conceptual framework presentation, and then we defined the research problem and explained the steps taken to address this problem. Specifically, we intended to identify and prioritize the factors influencing diabetes patients' satisfaction, but also to verify the possibility of developing a conceptual model regarding the formation of patients' satisfaction, by modelling structural equations based on the obtained data. The target population for this study consisted of patients with type I and type II diabetes, from Romania, who benefited from medical services to treat this disease in ambulatory care and in hospital settings. Data collection was conducted through the survey method, questionnaires being distributed online or by regular mail. The last part of this chapter covers the data analysis plan in which we have described the software used for processing the collected data, as well as the performed statistical tests within the analysis process.

The third chapter of the paper is dedicated to the presentation of the results derived from the data analysis. The first part of this chapter covers processing from the descriptive statistics category, namely the sample structure presentation according to a series of demographic data, medical data and information of psychological nature on respondents' attitudes towards life and disease management. From a demographic perspective, respondents were characterized according to age, gender, place of residence, educational level, marital status, occupation, income and declared religion. As regards medical data, respondents are characterized according to the following aspects: the self-assessed health status, the diabetes type, the condition's length, the treatment used and the existence of complications associated with this disease. From the perspective of psychological and behavioural aspects, respondents were characterized in terms of how they relate to life in general (pessimism, optimism, realism) and of the attention given to diabetes management. The next step was represented by the testing of the reliability and validity of measuring instruments used in the questionnaire. Reliability was checked for each measurement scale using the Cronbach α Coefficient. Validity was checked using content validity, construct validity and nomological validity. The statistical processing used included the exploratory factor analysis to identify factors that influence patient

satisfaction, by using the SPSS software, the confirmatory factor analysis, and the proposed research hypotheses testing, by using the AMOS software, and the structural equation modelling. Also, verifying the possibility of developing a conceptual model regarding patients' satisfaction formation was performed using the AMOS software, by structural equation modelling based on the obtained data. Finally, in this chapter, we included an analysis of existing correlations between patients' satisfaction regarding the services they receive in ambulatory, respectively hospital settings and demographic, medical and psychological variables, as well as an analysis of importance-performance type that reveals some interesting aspects about the reality of medical services for treating diabetes in Romania.

The last chapter of this paper, Chapter 4, is intended for general conclusions drawn from the conducted study. We bring into focus the theoretical and practical contributions of the paper we propose, as well as the research limitations and our suggestions for future research.

Chapter 1 – Literature review

From a marketing perspective, patients' satisfaction implies positioning the patient as a customer of the medical institutions belonging to the private or public branch. Thus, the patient's position in the relationship with the doctor and the medical institution that offers the treatment encounters a change from the classical approach, meaning that the relationship that was once dominated by doctors is now a rather new partnership involving the proposal and acceptance of a new solution for the patient, based on an informed decision (Baron-Epel *et al*, 2001; Mooney, 1998). At the same time, the patient-client is now found in the position to request on his own certain medical services or investigations (for instance in the case of medical elective services such as aesthetic surgery), for which he is allowed to pay directly or to use different types of medical insurance.

Even more, with the growth of the number of private medical institutions and the rise of competition in this field (Ahmad *et al*, 2013; David, 2013), the patient-client has now gained access to a wide range of services, being able to choose his favourite service provider based on the criteria he considers relevant. However, this does not mean we overlook the specific characteristics of medical services, such as high complexity, the existence of an unbalanced flux of information between the doctor and the patient, the difficulty in making a decision (Catană, 2009; Rădulescu, 2008). The growth of the competition in this field makes the providers of medical services compete for attracting patients-customers and try to offer the best information and solutions. This way, the purchase of a medical service, the process of building a patients-customers data base and maintaining it gets very close to the situation encountered on the market of different types of services.

In the current paper, we considered the patient as a customer of the medical institution. Our paper will focus on the diabetic patients in Romania, a chronic affection with the incidence of approximately 11% (FADR) in our country, but also with a considerable impact on the quality of life, productivity and on the psychological concerns of the patients, as well as on the medical costs for managing the affection and the complications implied. We will focus on the diabetic patients who benefitted from medical services in the ambulatory care or in the hospital setting within Romanian medical state institutions.

We will further focus on the characteristics of marketing and services offered by the public health organisations.

Marketing in medical services includes any activity developed for growth, placing, setting the price or communicating products/medical services (Thomas, 2008). Nowadays, medical systems are in a continuous transformation following the development of technology, the changing of the medical health insurance, the growth of number of requests for this type of services, but also the competition on this market, as well as the growth of the pressure from the public opinion for this kind of services to ensure value to patients in exchange for the sums allocated for this market branch (Thomas, 2008; Berkowitz, 2011; Kotler *et al*, 2008). Moreover, medical services consumers can now access a wide series of information regarding diagnosis, services offered by clinics and medical staff, alternative treatment, and also engage in social networks that allow them to exchange opinions and experiences (Berkowitz, 2011). All of these aspects determine a change of the environment in which the providers of medical services operate, placing marketing on a higher level of this branch (Thomas, 2008).

Shostack (1987) points out that medical services are characterized by a high level of complexity (the steps and sequences that represent the medical service) and divergence (variation and latitude in executing these steps and sequences that represent the medical service). Practically, in the case of providing medical services, the doctor modifies and rearranges constantly the sequences associated through assimilating new data from different analyses, evolution of the disease etc.; estimating the probabilities, the risks and then making different decisions that will determine the course of action.

Concerning the marketing of medical services, these characteristics, as well as the marketplace to which the medical services address, determine a series of marketing characteristics, such as (Thomas, 2008; Catană, 2009; Rădulescu, 2008; Kotler *et al*, 2008):

1. The nature of request for medical services – although there is a certain flexibility for the request and medical procedures for which the request can be generated (for example, elective procedures such as aesthetic medicine that patients request), the majority of episodes in which patients address to providers are unpredictable;

2. The type of medical service, the means and the moment of the administration are established most often by the doctor, not by the consumer. In most industries, the consumer decides when, how much and what to buy. In this case, the decision will be taken most likely by the medical staff, medical salesman, etc.;

3. The product offered in medical services is often one of technical nature, very complex, hard to conceptualise by the patient and therefore difficult to evaluate. Moreover, there is also an unequal relationship between the doctor and the patient regarding knowledge, information and the possibilities of understanding and interiorizing that information and their impact on the course of the patient's treatment;

4. The existence of undesired patients, namely of those patients who are unable to sustain medical costs associated to services from which the benefit (for example, medical emergency services for patients who do not contribute to the social health insurance system);

5. The difficulty of establishing the difference between medical service providers is due to the low possibilities of comparing the services offered, keeping in mind the high standard of complexity and divergence associated to this category of services.

All of these aspects leave their mark on the marketing mix of medical services. Keeping in mind the product offered in medical settings mostly consists of services, as we have seen in the previous sections, characterised by a high complexity and conceptualisation difficulties, but also by the fact that they cannot be known through a careful examination and that they are described by a series of characteristics, such as integrity, variation, inseparability, outage, and lack of property, we consider opportune to discuss the marketing mix in medical services from the 7P perspective introduced by Booms and Bitner (1982).

The literature suggests that in the case of organizations supplying services, the traditional marketing mix consisting of the 4P (product, price, placement and promotion) needs adjustments by adding three supplementary elements: staff, processes, physical evidence (Akoush, 2011; Bitner, 1990; Rafiq and Ahmed, 1995). The main argument is the fact that these three supplementary elements are

fundamental to the market success of any organization with activity in the medical services field (Bitner, 1990; Rafiq and Ahmed, 1995).

Therefore, regarding the *product*, to any producer or services provider, the main goal of all the efforts in marketing is to sell products or services and meet clients' needs (Berkowitz, 2011). In the medical industry, the product is represented by the goods, services and ideas offered by the medical institution (Thomas, 2008). In general, products include goods (for example, medicines, equipment) as well as services such as different medical procedures (for example, open heart surgery, programs for the management of diabetes, geriatric procedures).

Regarding the *price*, it represents the exchange value of the product offered by the provider of medical services, including taxes, contributions, co-payment, medical insurance, etc. (Berkowitz, 2011; Thomas, 2008). It depends on the medical institutions (private or public) and on the type of service being offered (contracted by the Houses of health insurance, insurance companies, etc.) to intervene or not in setting the price.

Another aspect to be taken into consideration, mainly in the case of public medical units, is determined by the accessibility of services and of medical products (Berkowitz, 2011; Thomas, 2008). We should bear in mind the fact that they are addressed to different social and professional categories, at the same time attaining profit requests (Ahmad *et al*, 2013) and budgetary restrictions that operate, most often, on the public institutions (Rădulescu, 2008).

Another important aspect that intervenes in the case of the price setting in the public medical services is determined by the fact that payment is not made directly by the patient-client, but most often is made through a third party (the House of health insurance, insurance companies, etc.) (Rădulescu, 2008; Catană, 2009), and this makes patients – customers unaware of the price of the medical services they received. This makes it difficult for the public medical institutions mainly to compete on price. However, the price remains an important element from the point of view of the competition in the case of medical services provided by the private units or in the case of elective procedures with costs paid directly by the patient, as shown above.

Regarding the *placement* of medical services, it represents the means by which goods and services are being distributed to be used by consumers, for example, the place and time in which patients-customers can benefit from medical consultations. Also, nowadays, patients' expectations regarding the availability of the medical staff to offer consultations are growing (Thomas, 2008). Other factors to be taken into consideration are accessibility for medical services, waiting times associated with the consultation and the means of payment.

In this case, c*ommunication* in medical services refers to the means by which the market is informed of the solutions identified by the provider of medical services for solving the problems they encounter. Most medical institutions focus on communication as a differentiation technique from their competitors as a follow-up of the restrictions regarding the difference based on product, price or channels of distribution (Thomas, 2008) that we discussed above. Generally, the strategies of communication from the medical field have focused mainly on social marketing campaigns and on raising awareness to the wide public on the negative effects of different vices/habits and lifestyles, but also on campaigns for adopting new behaviours (for example, growing the interest for sports, adopting a healthier lifestyle for reducing the risk of diabetes etc.) (Kotler and Lee, 2007). The most

common used channels of communication are commercials, public relations and direct marketing (Kotler and Lee, 2007).

Staff, facilities and processes

Staff, facilities and processes associated to the performance of medical services are elements that offer tangibility to medical services, these being frequently used by the patients as "surrogate" proofs regarding the quality of the medical service they will benefit from.

Thus, *staff* is a distinctive element of the marketing mix especially, as according to the way in which they interact with clients they can add value to the services offered by that particular organization. In the case of medical services, staff is represented by doctors and nurses, as well as auxiliary staff (health care assistants, security, administrative staff, etc.). The presence of medical staff as well as the attention given to patients, as well as their availability and the way in which they answer to their needs and requests, are elements that contribute to the differentiation of the medical unit. The literature in the field of medical services emphasizes the fact that the interactions between patient-clients and medical staff influence the patients' satisfaction, as well as the perceived quality of medical services that they benefit from (Ahmad *et al,* 2013). Furthermore, a particular element in medical services is represented by the fact that usually patients-clients associate the medical service to the doctor that is offering it (Ahmad *et al*, 2013).

Another category of tangible elements consists of the *facilities* provided by that specific medical unit, including the medical equipment, of which it disposes, but also the facilities offered to patients (waiting room, parking, the interior of the consulting rooms, wards) and the atmosphere in the medical unit. The literature emphasizes their role in the process of healing of patients (Azila-Gbettor *et al*, 2013), also in what concerns the medical indicators such as post-operatory recovery, the use of analgesics and the duration of hospitalization (Ulrich, 1995). The main role of physical facilities is to support the providing of services to clients, which also have, as we showed in the previous paragraphs, the role of influencing the perception of the services' recipients on the provider's performance (Palmer, 1998). The facilities in the medical field include the exterior of the building, the designated parking space, signals, waiting area, the admission area, hospital wards and the medical equipment used (Zeithaml *et al*, 2006), as well as cleaning and the general aspect of the medical unit (Ahmad *et al*, 2013). Taking into account the high degree of intangibility of medical services, the role of facilities and physical evidence is therefore that of offering the medical services tangible clues which will support the patient in their evaluation (Ahmad *et al*, 2013). Also, Hutton and Richardson (1995) point out that the existent facilities, as they have been previously described play an important part in the satisfaction of patients-clients, the perceived quality, and the intention of coming back and their willingness of recommending that particular unit. Moreover, if in the past, in the case of the facilities available in the medical units, we rather emphasized their functional role in ensuring the medical care, in the recent years, we noticed an increased interest in the function of psychological support the facilities can have in the recovery of the patients, by creating a peaceful atmosphere, comfort, security, etc. (Azila-Gbettor *et al*, 2013)

Processes are an extremely important element in providing medical services as the opinion of the patient on the service he benefited from is influenced by his experience with the medical process (Ahmad *et al*, 2013). In the case of medical services providers, they refer to the various administrative or medical aspects that need to be taken into account in order to access a medical

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examination, the admission and discharge procedures, to benefit from other medical procedures, to designate the doctor responsible with the patient care.

The ultimate aim of marketing in the medical services should be the one of creating a long term relationship. An example of a tool used in this respect is the survey concerning the patients' satisfaction that has the role of engaging the organization in a dialogue with the patients in order to identify the aspects that influence their satisfaction.

The results of the literature review in the field show the fact that ensuring patient satisfaction is important both in what concerns the medical act, as well as from a marketing perspective. Furthermore, the notion of patient-centred medicine (Mead and Bower, 2000) and the importance of benefits offered to patients beyond their health recovery (for ex: information, autonomy, moral support, etc.) (Mooney, 1998) require a more diverse approach of the concept of medical benefits and by default, of patient satisfaction.

Also, in the case of medical services performed in the public sector, we can speak about a series of reforms meant to increase the efficiency and profit, being at the same time closely scrutinised by the public who also have increasing expectations and are also more and more interested in the quality and accessibility of medical services (Calnan, 1997; Kotzian, 2009; Aiken *et al*, 2012). At the same time, ensuring patient satisfaction is closely linked to the fears existing in the sector concerning the increase of competition and the risk of malpraxis trials (Larson *et al*, 1996), sustained by the increasing pressure on medical systems generated by the aging of population and constant pressure of the sometimes contradictory aims; on the one hand the cost control, and on the other hand, the need of increasing quality of the services performed (Aiken *et al*, 2012). At the same time, as we have previously shown, we must not leave aside the fact that the subject of patient satisfaction is a complex one as a consequence of the service's nature per se, that renders the performed service very difficult to assess by the patients.

From the point of view of medical and marketing benefits, the studies show that patient satisfaction leads to an improvement of the spirit of employees, a reduction of the patients' tendency to ask for a second opinion, the rise of the extent to which the patients follow the doctor's recommendations and a positive view of the medical institutions in the community (Taylor and Benger, 2004; Boudreaux and O'Hea, 2003).

In what concerns the definition of patient satisfaction, most of the researchers (Gill and White, 2009; Crow *et al,* 2002; Wolf *et al,* 1978) currently agree that "there is no universally accepted definition of patient satisfaction" (Bleich *et al,* 2009, p. 271). Moreover, the research methodologies used vary greatly among the studies; therefore the results are difficult to interpret in a comparative manner (Sitzia and Wood 1998). At the same time, the results of different studies carried out often contradict, especially in what concerns the predictors of patient satisfaction and the measuring methods chosen. (Wolf *et al,* 1978; Sitzia and Wood, 1998; Taylor and Benger, 2004; Gill and White, 2009).

In view of the carrying out of the research we are suggesting, we choose to use the definition offered by Hjortdahl and Laerum (1992) that we consider comprehensive regarding the analysed phenomenon. Thus, we will define patient satisfaction as a set of "complex relationships between the perceived needs of patient, his expectations and caring experience; the particular reaction of the

patient to the examination and its result pertaining to a standard the patient established consciously or unconsciously before or during the examination."

The findings of the literature review regarding patient satisfaction show that the factors taken into account and analysed vary among the studies, while their number is considerable. Also, the results obtained in what concerns the factors that influence the satisfaction of patients sometimes contradict. In the case of some of the studies, age is closely linked to the satisfaction of patients (Rahmqvist, 2001; Jackson *et al,* 2001 and Quintana *et al,* 2006); while in other cases this is only slightly linked to satisfaction (Jenkinson *et al,* 2002 and Boudreaux *et al,* 2000). At the same time, in the case of other studies (Boudreaux *et* al 2000) the perception of patients on the care received is more closely linked to satisfaction than the demographical variables or the characteristics of the medical visit.

It is important to notice the consequence of the medical staff interaction with family and relatives of patients. These interactions were taken into account only in the study of Boudreaux *et al* (2003). From our point of view, these interactions should be taken into account, especially in the case of patients that require emergency medical assistance, given the fact that most frequently the family or close relatives of patients are the ones that bring them to the medical unit and usually they will also be the ones that will make sure that the medical indications are followed.

By restricting the analysis on patient satisfaction to the satisfaction of patients suffering from diabetes, firstly, we will take into account some aspects concerning the nature of this disease. Thus, diabetes is a chronic disease that appears when the pancreas either does not produce enough insulin, a hormone responsible for the control of the blood sugar level, or the body is not capable of efficiently using the insulin produced by the pancreas (WHO, 2015). There are two main types of diabetes, type I diabetes (also known as insulin-dependent diabetes) characterized by a deficiency in the production of insulin and that requires the daily administration of this hormone and type II diabetes determined by the lack of capacity of the body to process the insulin produced by the pancreas. Type II diabetes affects 90% of the persons that suffer from diabetes worldwide, which is due to a significant extent to obesity and lack of exercises (WHO, 2015). From a medical point of view, the main consequences of diabetes are the increase of the risk of heart attack and stroke, diabetic neuropathy, disease that can lead to the amputation of inferior limbs, retinopathy, disease that can lead to blindness, kidney failure (WHO, 2015).

At a global level, diabetes is one of the chronic diseases with the fastest rate of increase in the number of patients diagnosed in the recent years (IDF, 2013; EC, 2015). Moreover, the nature and particularities associated to this disease that we will discuss in what follows trigger an increased number of patients' interactions with the medical units and medical staff for a long period of time.

Given the fact that patient satisfaction is closely linked to a better treatment adherence and a strong tendency of patients to follow the doctor's indication, the identification of factors that influence the satisfaction of patients suffering from diabetes allows the professionals in the medical field to adopt measures meant to sustain the efforts for managing the disease made by each patient so that it contributes to the increase of satisfaction and as a consequence, to increase the level of treatment adherence. At the same time, we believe that all these have a role in obtaining a positive social effect as the patients will feel more confident in them and in the treatment, they will suffer fewer complications and therefore, will be able to lead a life as normal as possible, with all the social and

economic aspects that this implies. Last but not least, given the high number of patients diagnosed with diabetes and the existing link between patient satisfaction and the image of the medical unit in which they are treated or the tendency of recommending the medical unit and/or the treating doctor to other patients, but also the considerable development of private medical units and the increase of competition in the medical service field, we believe that the identification of factors influencing the satisfaction of diabetes patients contribute to the accomplishment of financial and marketing objectives of the institution offering care.

In what concerns the objectives of the studies identified in the literature, out of the ten studies considered, seven tested the extent to which a certain variable is significantly correlated to patient satisfaction. The variables taken into account were the quality of medical care (Venkat Narayan *et al*, 2003), the various characteristics of patients (Redekop *et al*, 2001), the influence of the support offered by the relatives (Dominguez Guedea *et al*, 2010), the patients' interest for alternative methods of treatment (Bradley *et al*, 2011), the active involvement of patients in managing the disease, the answers given to various demands of patients, the encouragement and support of patients' autonomy by the doctor (Garrett and Bluml, 2005; Uhlmann *et al*, 1988; Williams *et al*, 2005). The other three studies tried to identify the factors that influence patient satisfaction. The factors taken into account included the quality of life and the satisfaction in the treatment offered (Saatchi *et al*, 2010; Redekop *et al*, 2002), the severity of the disease, the frequency of visits and individual efficiency in the management of the disease (Diț *et al*, 2012), the doctor-patient interactions and the self-assessed health status of the patient (Vladislavovna Doubova *et al*, 2009).

Most variables identified in the ten studies analysed were correlated significantly with the patient satisfaction which shows the existence of a large range of factors influencing the satisfaction of diabetes patients, also including factors that were not discussed in the articles dealing with this phenomenon in a general matter, without taking into account the particularities of certain diseases. Thus, in addition to the categories of factors already identified in the general studies and that refer generally to interactions between patients and the medical staff, medical equipment, existent developments or socio-demographical variables, in the case of diabetes patients, the factors that influence their satisfaction also include aspects closely linked to the characteristics of the disease, such as: the support given by the family, the doctor's support, and the way he encourages the patient's autonomy, the existence of alternative treatment methods, the patient's wellness from a psychological point of view and the perceived quality of life.

Second Part: Empirical research

Chapter 2 – Research methodology

Based on the literature review in the field of patient satisfaction and the satisfaction of diabetes patients we have formulated the following research question:

Q: How can the satisfaction of medical services beneficiaries for the treatment of diabetes be increased by using marketing techniques?

From the point of view of marketing research we attempt to gather information to establish the elements that influence the satisfaction of medical services beneficiaries for the treatment of diabetes.

Hence, the research objectives that we aim to attain are:

1. The identification of factors that influence the satisfaction of diabetes patients;

2. The ranking of factors that influence the satisfaction of diabetes patients;

3. The testing of the possibility of developing a conceptual model in what concerns the shaping of patients' satisfaction, by structural equations modelling based on the data obtained.

In what concerns the variables used for the development of the research, we considered satisfaction as a multidimensional concept with the following six dimensions. We thus considered the satisfaction of the relationship with the doctor, the satisfaction of the relationship with the nurses, the satisfaction of the relationship with auxiliary staff, the satisfaction of the relationship with other patients, the satisfaction concerning the medical unit as a whole and the satisfaction regarding other support services as independent variables, and global satisfaction of patients as dependent variable. We formulated the following research hypotheses:

Table 1: Proposed research hypotheses

Ambulatory services	Hospital services
H1.Satisfaction regarding the relationship with the doctor directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	H1. Satisfaction regarding the relationship with the doctor directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.
H2. Satisfaction regarding the relationship with the nurses directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	H2. Satisfaction regarding the relationship with the nurses directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.
H3. Satisfaction regarding the relationship with the auxiliary staff directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	H3. Satisfaction regarding the relationship with the auxiliary staff directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.
H4. Satisfaction in the diabetes clinic as a whole directly and positively influences patient satisfaction regarding the medical services	H4. Satisfaction in the diabetes clinic as a whole directly and positively influences patient satisfaction regarding the medical services

Ambulatory services	Hospital services
benefited from in ambulatory care.	benefited from in the hospital setting.
H5. Satisfaction regarding the interaction with other patients directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	H5. Satisfaction regarding the interaction with other patients directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.
H6. Satisfaction regarding other support services directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	H6. Satisfaction regarding other support services directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.

For the gathering of the data we used the inquiry method, having as main instrument the survey. We chose a survey with a high degree of structuring, having the content and format already established, containing almost only close questions, with multiple choice fixed answers. The structure of the survey closely followed the conceptual framework and the research hypotheses approached. Thus, the survey consisted in three main parts:

A. Medical services for diabetes patients, offered in ambulatory care;
B. Medical services for diabetes patients, offered in hospital settings;
C. Demographical, medical and psychological characteristics of the respondents.

The survey consisted in a total of 182 questions out of which 20 open questions concerning the age, city and county of residence of respondents, religion, data regarding the treatment that they benefited from (number of hospital admissions, the date when the disease occurred, etc.) and 4 open questions regarding the greatest fear of respondents in what concerns the medical services available in ambulatory care, and in hospital settings respectively and an aspect that they would change in what concerns the services that they benefit from in ambulatory, and in hospital settings, respectively.

Taking into account the size of the population that we referred to, as well as the geographical distribution at a national level, costs and the time span available, we chose the following methods of managing the survey:

1. The dissemination of survey through e-mail and its posting on a dedicated platform;

2. The dissemination of survey through correspondence.

The dissemination of the on-line survey had been made by uploading the questions on a dedicated platform, http://smm-design.com/madalina/. The link to this platform was disseminated then as follows:

- To the Associations of diabetes patients throughout the country with the kind request of its sending to their members;
- Through the platform doctor.ro, the online booking appointments platform available to patients in the entire country;
- Through social media (Facebook);

- In the following e-groups for diabetes patients: Asociația de Diabet Cluj-Napoca; Diabeticii; Asociația Copiilor and Tinerilor Diabetici - Mureş; Buziaş forever; Buziash; Am diabet; Asociația bolnavilor de diabet din Timiş; Diabeticii acționează; Asociația diabeticilor Galați; Diabet.
(The Diabetes Association Cluj-Napoca; Diabetics; the Association of Children and Young diabetics- Mureş; Buziaş forever; Buziaş; I have diabetes; the Association of diabetics Galați; Diabetes)

The data for this research was gathered between the 15th of July and the 15th of February 2015. 339 correctly filled in questionnaires were obtained.

In what concerns the structure of the sample, taking into account the two types of services analysed, medical services in ambulatory care, and in hospital settings respectively, we used two subsamples: Subsample A: Medical services in ambulatory care and Subsample B: Medical services in hospital. The respondents were characterized according three categories of information- *demographical data*, *medical data* and *psychological information* regarding the attitude towards life and disease management.

The operationalization of the six dimensions analysed was done according to the results of the literature review, the dimensions being defined as follows:

1. The relationship with the doctor - this implies the interactions of patients with the doctor in the case of the treatments that they benefit from in ambulatory care or hospital settings and it includes waiting time, time, attention, interest, politeness and willingness of the diabetes specialist, the type and manner in which the information is offered, the patient's confidence in the diabetes specialist and the involvement in his treatment.

2. The relationship with nurses - this covers the interaction with patients and nurses in what concerns the promptness with which they fulfil the requests of patients, the way of treatment and offering of information and support, the confidence of patients in the competences of nurses.

3. The relationship with auxiliary staff (health care assistance, laboratory staff, cleaning staff, safety) - this covers the interactions of patients with auxiliary staff from the point of view of the promptness in dealing with their requests and politeness.

4. The diabetes clinic as a whole - this parameter covers the facilities offered by the clinic from the point of view of location, cleanliness, facilities and procedures existent.

5. Other patients - this covers the interactions with other patients from the point of view of their number, discussions and their experiences.

6. Other support services - taking into account the complexity of the disease and the possibility of the occurrence of complications, this parameter covers the related support services such as the support of the psychologist, the patients group, and the special programs of education in the management of the disease.

Each of the six dimensions was then described through various items specific to each type of medical service, in ambulatory care or in hospital settings. Therefore, each part of the survey contains a set of six scales through which we operationalized and measured the analysed concepts.

Taking into account the lack of available data allowing a probability sampling, the researcher has chosen a non-probability sampling method, namely the sampling through the reasoning of the researcher.

For the analysis of the collected data we chose the method of statistical analysis in view of testing the hypotheses previously formulated and the degree of adequacy of the conceptual models proposed. In this respect, we used the programs IBM SPSS Statistics, version 21 and AMOS version 21. With the help of the two programs we conducted descriptive statistical analyses for the characterization of the sample, exploratory factor analysis and confirmatory factor analysis through structural equations modelling.

The main statistical analyses further conducted focused on calculating the relative frequencies for describing the sample according to the demographical, medical and psychological mentioned in section C - Demographical data, of the survey. Thus, on the basis of relative frequencies, we characterized the respondents according to age, gender, residence, education level, marital status, occupation and revenues level, as well as religion. Also, the sample was characterized according to the type of diabetes, the duration of the disease, the treatment used, the number of admissions and the average duration of admission, as well as the self-assessment of the health status and the most recent level of glycated haemoglobin, an indicator that helps in determining the quality of disease management. Last but not least, the sample was characterized in view of the existence of complications associated to this disease, the perspective on life, the importance associated to the management of diabetes or the psychological approach concerning this disease in the previous year, but also in what concerns the respondents' degree of knowledge on patient's right according to the National Program of Diabetes in Romania.

After the calculation of relative frequencies and the characterization of the sample according to the aspects presented in the previous paragraph, we tested the reliability of each measuring scale using the Cronbach α coefficient. The scope of this processing was that of evaluating the quality of the instrument used by testing its internal reliability, namely the extent to which the items used in the scale are measuring the same concept (Tavakol and Dennick, 2011). In the case of calculating this coefficient, the reliability of the measuring scale used increases as the values Cronbach α are higher (Field, 2009). Researchers indicate a threshold of 0.7 to describe the reliability of a scale (Nunnaly, 1987; Hinkin, 1998). For the study proposed, we considered the threshold of 0.7 as indicator of reliability for the scale used.

After the testing of reliability, we conducted the multidimensional analysis of data through the ''simultaneous processing of more variables'' (Buiga, 2001; Urdan, 2010). We conducted exploratory factor analysis to identify the main components (synthetically factors) that explain the correlations among a group of variables. The scope of the macro analysis was to structure the initial variables in a reduced number of factors with a minimum information loss (Buiga, 2001; Urdan, 2010). Also, the factor analysis allows the identification of connections between the measured variables and constructions analysed (Williams *et al*, 2012).

The precursory stages of the realization of the factor analysis implied the testing of the extent of data adequacy in view of this analysis. In this respect, we used the coefficient of sampling adequacy Kaiser-Meyer-Olkin (KMO) and the Bartlett sphericity test for the testing of the existence of a correlation that is sufficiently strong between the variables that can be subject to factor analysis. The KMO coefficient has values between 0 and 1, the minimal threshold recommended for an adequacy corresponding to the data being 0.5 (Field, 2009; Williams *et al*, 2012). In what concerns the Bartlett sphericity test, this calculated the χ^2 coefficient in order to verify the existence of a correlation between variables. For this coefficient the level of significance p should be situated under 0.05 (Williams *et al*, 2012).

After checking the two conditions for each of the scales used, we conducted the exploratory factor analysis for each construct included in the model. In this respect, we used the analysis of main components as a method of extracting factors (Field, 2009; Williams *et al*, 2012). In order to determine the number of factors, we used the Kaiser Criterion and orthogonal rotation (Varimax). We chose this rotation method as it maximizes the distinction between the factors obtained (Urdan, 2010). The research hypotheses were then tested by using the AMOS package of SPSS.

We also examined the relationships existing between the general satisfaction of patient in what concerns the medical services that they benefit from in ambulatory care, and hospital settings respectively, and a series of elements of socio-demographic nature identified in section C of the survey. The socio-demographic aspects taken into consideration included: age, gender, residence (urban/rural), education level, marital status, monthly revenue, while the medical aspects took into account were: the self-assessment of the health status, the diabetes type, the duration of the disease and the duration of insulin intake, the latest value of glycated haemoglobin, the existence of complications. We have also analysed some psychological aspects such as: the perspective on life and the perspective of patients on the management of diabetes. Moreover, in the case of diabetes patients that benefit from medical services in ambulatory care, we investigated the relationship existent between the duration of the relationship with the treating doctor in ambulatory care, while for the diabetes patients that benefited from medical services in hospital settings, we investigated the relationship existent between their satisfaction concerning the services they benefited from in the hospital setting and the number of admissions for diabetes, and the duration of admission for this disease. In view of investigating these relationships, we used t-test processing adequate for testing the differences between two groups (Clow and James, 2014) and one-way ANOVA, adequate for the testing of the existence of differences between three or more groups (Clow and James, 2014), in SPSS version 21.

In order to complete the discussions concerning the aspects that influence the satisfaction of diabetes patients, we have also conducted the importance-performance analysis that reveals some interesting aspects concerning the reality of medical services for treating diabetes in Romania.

In the last stage, we proposed the development of a conceptual model in what concerns the satisfaction of patients regarding the services they benefit from in ambulatory care, and in hospital settings respectively. This was done through confirmatory factor analysis, a procedure that is included in the category of structural equations modelling. In contrast to the exploratory factor analysis that groups the items according to the correlations existent among them, the confirmatory factor analysis tests the theoretical model proposed (Urdan, 2010). The result of the analysis will

reveal the degree of matching of the proposed model in comparison to the data collected (Urdan, 2010; Schumacker and Lomax, 2004). A series of model fit indices such as CMIN/df, NFI, CFI and RMSEA are calculated. After analysing these indicators, the proposed model shall be accepted or rejected.

Chapter 3 – Research results

The reliability and validity of each measuring scale were tested with the Cronbach α coefficient. The values obtained were situated, in all cases, over the threshold value recommended of 0.7. With the help of exploratory factor analysis we identified the factors describing the dimensions analysed.

Following the exploratory factor analysis conducted for medical services that the patients benefit from in ambulatory care, we identified eight factors that influence the perception of patients on the six dimensions analysed and nine factors that influence the satisfaction of patients concerning the dimensions analysed.

In the case of medical services that the patients benefit from in hospital settings, following the exploratory factor analysis conducted for medical services that the patients benefit from in hospital settings, we identified ten factors that influence the perception of patients on the six dimensions analysed and eight factors that influence the patients' satisfaction regarding the analysed dimensions.

The testing of the research hypotheses formulated in previous sections was done through the AMOS extension of the software SPSS, version 21, for each of the two subsamples.

For testing the research hypothesis, we used the final scores obtained following the factor analysis for each of the six dimensions considered to influence the general satisfaction of patients concerning the services that they benefit from in ambulatory care.

In the Table 2 below, we present a synthesis of the results obtained following the regression analysis on the six hypothesis formulated in the research model proposed regarding the satisfaction of patients concerning the medical services they benefit from in ambulatory care.

Table 2: Synthesis of the results obtained following the testing of the research hypotheses

Research hypotheses	Obtained results
H1.Satisfaction regarding the relationship with the doctor directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	Confirmed hypothesis
H2. Satisfaction regarding the relationship with the nurses directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	*Rejected hypothesis*
H3. Satisfaction regarding the relationship with the auxiliary staff directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	Confirmed hypothesis
H4. Satisfaction in the diabetes clinic as a whole directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	Confirmed hypothesis
H5. Satisfaction regarding the interaction with other patients directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	*Rejected hypothesis*
H6. Satisfaction regarding other support services directly and positively influences patient satisfaction regarding the medical services benefited from in ambulatory care.	*Rejected hypothesis*

The impact that the satisfaction of diabetes patient in connection with the six factors taken into consideration had on the general level of satisfaction concerning the medical services received in ambulatory care was analysed in AMOS through a multiple regression considering the combined effect of all the six factors. Results showed that the patients' satisfaction concerning the relationship with the doctor, nurses, auxiliary staff and other patients, as well as the satisfaction regarding the clinic as a whole along with other support services received can all explain 57.7% of the total variance of patient's satisfaction concerning the services of the diabetes clinic in general. In what concerns the impact of each of the six factors analysed on the medical services they benefitted from in ambulatory care, the most important factor is the satisfaction regarding the diabetes clinic as a whole (β=0.312), followed by the satisfaction regarding the relationship with the doctor (β=0.243) and the satisfaction regarding auxiliary staff (β=0.224).

In Table 3 below we present the synthesis of the results obtained in the regression analyses on the 6 hypotheses formulated in the research model proposed regarding patient satisfaction concerning the medical services they benefit from in hospital settings.

Table 3: Synthesis of the results obtained following the testing of the research hypotheses

Research hypotheses	Obtained results
H1. Satisfaction regarding the relationship with the doctor directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.	*Rejected hypothesis*
H2. Satisfaction regarding the relationship with the nurses directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.	Confirmed hypothesis
H3. Satisfaction regarding the relationship with the auxiliary staff directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.	*Rejected hypothesis*
H4. Satisfaction in the diabetes clinic as a whole directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.	Confirmed hypothesis
H5. Satisfaction regarding the interaction with other patients directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.	Confirmed hypothesis
H6. Satisfaction regarding other support services directly and positively influences patient satisfaction regarding the medical services benefited from in the hospital setting.	*Rejected hypothesis*

The impact that the satisfaction of diabetes patients in connection with the six factors considered had on the general satisfaction level concerning the medical services received in hospital settings was analysed in AMOS through a multiple regression in which we took into account the cumulative effect of all of the six factors. The results showed that patients' satisfaction in relationship with the doctor, nurses, auxiliary staff and other patients, as well as the satisfaction concerning the diabetes hospital as a whole along with other support services can all explain 45.7% of the total variance of patient's satisfaction regarding the services of the diabetes hospital in general. In what concerns the impact of each of the six factors analysed on the general satisfaction concerning the medical services they benefited from in hospital settings, the most important factor is patient's perception of the

satisfaction regarding the diabetes hospital as a whole (β=0.525), followed by the satisfaction regarding the relationship with the nurses (β=0.256) and the satisfaction regarding the relationship with other patients (β=-0.159).

Next, we examined the differences between the general level of patient satisfaction in what concerns the services that they benefit from in ambulatory care, and in hospital settings, respectively and the following socio-demographic aspects: age, gender, residence (rural/urban), education level, marital status, monthly revenue as well as medical aspects such as: self-assessment of health status, diabetes type, the duration of the disease, the duration of insulin administration, the latest value of glycated haemoglobin, the existence of complications associated to the diabetes, the perspective of patients on life and on diabetes management. Also, specific to the two subsamples analysed, we investigated the existence of differences determined by the duration of the relationship with the treating doctor in the case of the services the patients benefit from in ambulatory care, respectively the number of admissions for diabetes and the average duration of hospital admission for this disease, in the case of services that the patients benefited from in hospital settings. In order to investigate these aspects, we carried on t-test and one-way ANOVA processing in SPSS context, version 21.

The analysis of the differences existent among the groups in what concerns the satisfaction perceived by the patients in what concerns the services they benefited from in ambulatory care from the point of view of socio-demographic, medical and psychological aspects has shown that the aspects that influence patients' satisfaction are only linked to the socio-demographical aspects (age and marital status of respondents), respectively the medical ones (type of diabetes and the existence of diabetes complications).

Through the importance-performance analysis, we identified those aspects where the medical institutions are very well placed but also those that require further attention. The method implies the identification of the strong and weak points in the offer of the product or services provider related to two criteria used by consumers when making a buying decision: the importance of the analysed characteristics and the performance of the provider in delivering those characteristics (Wong *et al*, 2011). Thus, according to this analysis, we do not examine only the perceived performance in what concerns the aspects associated to a certain product or service, but also the importance of the characteristics for the satisfaction of consumers (Silva and Fernandes, 2011). Subsequently, based on the respondents' evaluation, we calculated the average values recorded for the importance and perceived performance that will allow the setting up of four fields: *Focus here*, *Possible waste of resources, Low priority* and *Keep going*! For both subsamples, the factors analysed are grouped in three of the four fields: *Possible waste of resources, Low priority* and *Keep going*! The results obtained can then be used to suggest managers with further actions in order to maximize the results obtained by their units.

In the following part, based on the data obtained, we proposed the verification of the possibility of developing a conceptual model for each of the two medical services addressed to diabetes patients that we studied. The development of the two conceptual models and the evaluation of their adequacy were done through the confirmatory factor analysis with the help of the SPSS software, version 21, alongside structural equations modelling with the AMOS software. The testing of the adequacy of the proposed models was realized separately, for each of the subsamples. For the

testing of the adequacy of the proposed models we therefore took into account the relationships established between the latent variables (factors) characterizing the six conceptualized dimensions as describing patients satisfaction and general satisfaction of patients concerning the medical services they benefit from in ambulatory care, and hospital settings, respectively. The results obtained indicated the acceptance of both of the models proposed.

Thus, in the case of medical services for treating diabetes that the patient benefits from in ambulatory care, their satisfaction is influenced by the following eight factors: the satisfaction in the relationship with the doctor, the satisfaction regarding the relationship with auxiliary staff, the satisfaction regarding the diabetes clinic as a whole, the satisfaction regarding the access to auxiliary services and the satisfaction regarding the support offered through these services, the satisfaction regarding the relationship with other patients.

In what concerns medical services that the patients benefit from in hospital settings, their satisfaction is influenced by the following six factors: satisfaction regarding the doctor's availability, the satisfaction regarding the doctor's support, the satisfaction regarding auxiliary staff and nurses, the satisfaction regarding the diabetes hospital as a whole, the satisfaction regarding auxiliary services and the satisfaction regarding the relationship with other patients.

Chapter 4 – Conclusions, contributions, limitations and further research

In this paper we attempted to identify and rank the factors that influence the satisfaction of diabetes patients in ambulatory care, and in hospital settings respectively, as well as verifying the possibility of developing a conceptual model in what concerns diabetes patients satisfaction. The scope of this study was to contribute to the enlargement of the degree of knowledge in what concerns the shaping of patient satisfaction, as well as supporting medical units in the public sector in their approaches for adopting a marketing orientation and the strengthening of the market position through practical recommendations for the increase of patient satisfaction. We adopted a multidimensional perspective on the concept of patient satisfaction, defined through six dimensions: the relationship with the doctor, the relationship with the nurses, the relationship with auxiliary staff, the diabetes clinic/hospital as a whole, other support services and the relationship with other patients. In our research, we analysed the existent link between patient satisfaction concerning the six dimensions and their general satisfaction regarding medical services for treating diabetes that they benefit from in ambulatory care, and in hospital settings respectively. Also, based on the result obtained, we made a ranking of the factors that influence patient satisfaction, and then we developed and tested a conceptual model in what concerns the shaping of diabetes patients satisfaction.

Theoretical conclusions

Taking into consideration the objectives proposed and the research carried out, the paper brings several contributions to the existing literature. Thus, from a theoretical point of view, the paper proposes a complex approach on patient satisfaction in the sense that this concept is defined through six dimensions, marking out the cumulative elements that arise in creating the medical healthcare experience of the patient when he addresses the medical unit for treating diabetes in the public sector. Thus, we analysed both the persons that they encounter when benefiting from the medical services for treating diabetes, as well as the whole interactions that are established between patients and the medical unit, medical and auxiliary staff, as well as other patients. Among the analysed studies in the literature on patient satisfaction, there is no other study that deals with all the parameters that we took into account, the vast majority of the similar researches being focused on the testing of the influence of demographical and/or medical factors, or on their testing alongside the influence of the relationship with the medical staff and possibly the auxiliary one. Other studies take into consideration the facilities offered by the medical unit alongside the interaction with medical staff and demographical and medical data, without also taking into account the additional services or the interaction with other patients.

Furthermore, another element that gives the paper a high degree of novelty and that brings contributions to the specialized literature is the integrative approach on the diabetes patients' satisfaction in the sense that we analysed both services that they benefit from in ambulatory care, as well as the ones they have access to in hospital settings. The analysed studies do not offer such approach, the majority dealing with the satisfaction of diabetes patients regarding the services they benefit from in ambulatory care.

Also, the paper proposed contributes to the subject knowledge enhancement on the satisfaction of diabetes patients at Romania country level, where, with few exceptions, the specialized literature did not focus in particular on examining the satisfaction of patients in general or the satisfaction of

diabetes patients in particular. The number of this type of studies is reduced, and the already existent ones analyse a low number of variables.

From the point of view of the results obtained, we believe that through the study we proposed, we managed to offer a better understanding on the way the analysed factors influence the satisfaction of diabetes patients, in the context of medical services market in the public sector in Romania. The study contributes to the broadening of the vision presented in the specialized literature in what concerns the multidimensionality of the concept of patient satisfaction, the influencing factors, as well as the ranking of their importance. Thus, the main contributions and novelty elements that appear as an outcome of the empirical research are: 1) the proposal of an initial conceptual model based on the specialized literature analysis; 2) the development of a new instrument of data gathering; 3) the identification of five new factors in what concerns the parameters analysed concerning the perception and patients' satisfaction towards the medical services they benefit from in ambulatory care (2 factors), respectively in hospital settings (3 factors); 4) the proposal of two adequate conceptual models regarding diabetes patients' satisfaction in ambulatory care, as well as in hospital settings; 5) the identification of the existing relationship between medical variables (diabetes type and the existence of complications associated to diabetes) and patient satisfaction in the ambulatory care or hospital settings, respectively.

From the point of view of formulated hypotheses, a novelty element is determined by the initial conceptual model proposed. This was realized following the analysis of the specialized literature, being built so that it catches the complexity and multidimensionality of the concept of diabetes patients' satisfaction in what concerns the medical services they benefit from in ambulatory care, respectively in the hospital that we considered. The model has not been taken from other previous studies, being developed by the author for the scope of this study. At the same time, we built and tested a new data collection instrument that comprised items above on all the parameters analysed, but also a high variety of socio-demographic, medical and psychological variables discussed in various researches done previously regarding the patients' satisfaction and the diabetes patients' satisfaction.

The operationalization of the variables included in the model was made based on specialized literature in what concerns the attributes considered by the consumers when they evaluate the medical services they benefited from. Each parameter was operationalized according to the attributes identified in the literature in the field of patient satisfaction, the items being subsequently tested through discussions with the members of the teaching staff in the marketing field, resident doctors and diabetes patients. We used the Likert scale with five points, each item being assessed on the perceived performance and its importance in the opinion of the respondent.

In what concerns the results of the factor analysis, for the subsample A: medical services in ambulatory care, for the perceived performance, we identified two factors for the parameter "*Relationship with the doctor*", two factors for the parameter "*Other support services*", and one factor for the other four dimensions. This reveals the fact that the parameters „*Relationship with the doctor*" and "*Other support services*" are characterized, in their turn, by multidimensionality. In what concerns the "*Relationship with the doctor*" it is worth noticing the fact that the parameters "*Involvement of relatives*" and "*Availability of the doctor*" become separate parameters, which denotes a distinctive mark given by patients to the role of family in establishing the medical

treatment and the support they will give the patients afterwards in the management of diabetes as a chronic disease. Also, in what concerns "*Other support services*" we notice the separation of the type of support that the patients benefit from-access to medication or support through additional services offered by the psychologist, the support group or the diabetes association, in two distinctive factors. The factor "*Support in diabetes management*" has not been identified in other similar studies.

From the point of view of patients' satisfaction concerning the six dimensions analysed for the subsample A, we identified two factors for each of the parameters "Satisfaction regarding the relationship with nurses" (*Availability- satisfaction* and *Family involvement-satisfaction*), "Satisfaction regarding the relationship with other patients" (*Satisfaction concerning medical aspects discussed with other patients* and *Satisfaction regarding the number of other patients present)* and "Satisfaction regarding other support services" (S*atisfaction in the management of diabetes-satisfaction* and *Access to medication and specific treatment-satisfaction),* and a factor for each other three parameters. The novelty element is given here by the identification of the satisfaction concerning the interactions with other patients as a distinctive factor. This aspect has not yet been identified in the specialized literature, however we believe that further research in this direction is recommendable, in order to identify the way in which the interactions between patients can contribute to, or on the contrary can decrease the level of satisfaction they feel.

In what concerns the subsample B- medical services in hospital settings, from the point of view of perceived performance, we identified four factors for the parameter "*Relationship with the doctor*", two factors for the parameter "*Other support services*" and one factor for each of the other four parameters. As for the subsample A, we noticed in this case as well the identification of "*Family involvement"* as a distinctive factor in the parameter "*Relationship with the doctor*", this time alongside *Availability shown by the doctor, Safety perceived* by the patient and *Experience* of treating doctor. We notice here the complexity of this parameter characterized by three factors. Also, it is worth mentioning the fact that the factor *Safety perceived* in the sense that, in hospital, the number of specialized doctors and residents the patient interacts with is a high one, as he feels the need of knowing the doctor he refers to. In what concerns the factor *Experience*, it refers to the age and medical degree of doctor, well as the extent to which he is able to offer advice and alternative treatment methods. The novelty element is given by the aspect that the patients' interest for alternative methods of treatments has been identified in other similar studies (Bradley *et al*, 2011), as far as we are aware, the doctor's experience appears in this case as a distinctive factor for the first time. In what concerns the parameter "*Other support services",* the two factors identified are *Support in the management of diabetes* in the sense that there are additional support services (psychologist, patient association, support group) and *Spiritual support* in the sense that there is a priest or a chapel in the hospital. As far as we are aware, the latter aspect (*Spiritual support*) has not been identified in other similar studies. Its identification as a separate factor could be explained through the complete nature of the disease, but also through the risk of severe complications (vision loss, amputation of a limb, etc.), which increases the pressure the admitted patients are exposed at from a psychological and emotional point of view.

From the point of view of patients' satisfaction regarding the six parameters analysed for the subsample B, we have identified three factors for the parameter "Satisfaction concerning the relationship with the doctor" (*Availability of doctor-satisfaction, Offered support-satisfaction* and *Perceived safety-satisfaction*) and a factor for each of the other five parameters. We notice here the

complexity of the parameter "Satisfaction regarding the doctor relationship" characterized by three factors.

The testing of the hypotheses has been realized through a multiple regression in which we took into account the combined effect of all the six factors.

Thus, following the hypothesis testing, in what concerns the subsample A, we established the existence of a link that is direct and significant from a statistical perspective, between the diabetes patients' satisfaction regarding the relationship with the diabetes doctor, satisfaction of diabetes patients regarding the relationship with auxiliary staff and satisfaction concerning the diabetes clinic in general. The relationship between the satisfaction of diabetes patients regarding the relationship with the nurses, other patients and other support services and the satisfaction of patients concerning the medical services they benefit from in the diabetes clinic in general, was not significant from a statistical point of view, the associated hypothesis being rejected. In what concerns the impact of each of the six factors analysed on the general satisfaction of patients concerning the medical services they benefited from in ambulatory care, the most important factor is the satisfaction regarding the diabetes clinic as a whole ($\beta=0.312$), followed by the satisfaction concerning the relationship with the doctor ($\beta=0.243$) and the satisfaction regarding the relationship with the auxiliary staff ($\beta=0.224$).

In what concerns the subsample B, following the testing of the research hypothesis we established the existence of a link that is direct and significant from a statistical perspective, between the diabetes patients' satisfaction regarding the relationship with the nurses, satisfaction concerning the diabetes hospital in general. The relationship between the satisfaction of diabetes patients regarding the relationship with the doctor, auxiliary staff and other support services and the satisfaction of patients concerning the medical services they benefit from in the diabetes hospital in general, was not significant from a statistical point of view, the associated hypothesis being rejected. In what concerns the impact of each of the six factors analysed on the general satisfaction of patients concerning the medical services they benefited from in hospital, the most important factor is the satisfaction regarding the diabetes hospital as a whole ($\beta=0.525$), followed by the satisfaction concerning the relationship with the nurses ($\beta=0.256$) and the satisfaction regarding the relationship with other patients ($\beta=0.159$).

At the level of theoretical contributions that result from the proposed testing hypotheses, from the results obtained for the two subsamples we notice the fact that, in the case of services in ambulatory care, the elements that are linked in a direct and a statistically significant manner and the satisfaction of patients in general are the satisfaction of patients concerning the relationship with the doctor, auxiliary staff and the diabetes clinic, while in the case of patients admitted in, the relationship is established between the relationship with the nurses, other patients and the diabetes hospital as a whole. Each time, the most important factor is the satisfaction of patients regarding the clinic, respectively the diabetes hospital as whole, which suggests the fact that the patients feel the need of being able to benefit from all the equipment and facilities necessary to benefit from a complete treatment. This factor is more important than the satisfaction regarding the relationship with doctor and nurses, the most probable as a consequence of the fact that, without the facilities and equipment needed in the medical unit, the patients' healthcare would be affected, even if there is a high level of satisfaction as compared to other factors.

By investigation the relationship between the socio-demographical and medical variables and the diabetes patients' satisfaction, we proposed to research the differences existent between the general satisfaction of diabetes patients in what concerns the medical services that they benefited from in ambulatory care, and in hospital settings, respectively and the socio-demographical and medical factors analysed. The main contribution from a theoretical point of view resulted from this analysis is determined by the identification of the existent link between the medical variables (diabetes type and the complications associated to this disease) and the satisfaction of patients towards the medical services in ambulatory care, and hospital settings, respectively. Thus, for the both subsamples, the results obtained indicate the fact that the type II diabetes patients, and those with complications associated to this disease, tend to be generally more satisfied. This result is quite surprising, taking into account the higher complexity in the case of management of type II diabetes and the complications associated to diabetes as a disease. An explanation could be represented by the fact that these patients interact more frequently with the unit and the medical staff, which determines the adjustment of their expectations at the level of the existent reality. We haven't identified a comparative analysis of this type in other similar research studies; this is why we believe that a more in-depth analysis on this subject would be useful to carry out in future research.

Finally, based on the data obtained, we proposed two conceptual models concerning the shaping of the patients' satisfaction regarding the medical services that they benefited from in ambulatory care, as well as in hospital settings. The results obtained indicate the acceptance of the two models proposed. Thus, in what concerns the medical services for treating diabetes that the patients benefit from in ambulatory care, the results indicated the existence of eight factors that predict patients' satisfaction: the satisfaction concerning the relationship with the doctor, the relationship with auxiliary staff and the diabetes clinic as a whole, the satisfaction concerning the support offered through additional services (psychologist, patients' association, support group), the satisfaction concerning the patients' access to medication and specific treatment, the satisfaction concerning the relationship with other patients, the nurses' support and their availability. In the case of medical services available in hospital settings, results indicate a number of six factors that predict the diabetes patients' satisfaction concerning these services in general: satisfaction concerning the doctor's availability, the support given by the doctor and diabetes hospital as a whole, the satisfaction concerning the relation with other patients and the satisfaction concerning auxiliary staff, perceived as a single factor, the satisfaction concerning the relation with other patients and the satisfaction regarding the support offered through additional services that they benefit from (psychologist, parenting association, support group). The two conceptual models proposed therefore contribute to the specialized literature through the presentation of a comprehensive approach on the predictors of diabetes patients' satisfaction in what concern medical services that they benefit from in ambulatory care, and hospital settings, respectively.

Practical conclusions

The results of this research offer a better understanding of the factors that influence patient satisfaction, also indicating the points on which the provider of medical services for diabetes patients should focus on. This is extremely important in the conditions of the current medical services market in Romania, characterized by an increase of competition as a consequence of the extremely dynamic development of the private medical services. At the same time, the estimations of the International Diabetes Federation concerning the increase of the number of patients suffering from this disease

show that additional efforts need to be made by the medical units in order to ensure the satisfaction of these patients, this being associated, as we were showing in this paper, with countless medical and marketing benefits. Knowing the factors that influence the satisfaction of diabetes patients, as well as the way in which it is shaped, described through the two conceptual models proposed, represent an important aspect at a practical level in the sense of offering a set of guidelines to the medical units in the public sector in view of implementing a marketing orientation that contributes to the maximization of the performances obtained, with benefits from the social, economic and medical point of view. Thus, the main practical contributions refer to: 1) the building of a board matrix for the managers in the public health organizations for treating diabetes in what concerns the strong and weak points existing in their offer as compared to two criteria used by the consumers in making the buying decision: the importance of the analysed attributes and the performance of the provider in offering those specific attributes; 2) the identification of differences existent between the general satisfaction of patients regarding the services they benefit from in ambulatory care, as well as in hospital settings and the socio-demographic, medical and psychological aspects analysed; 3) the offer of a starting point for the medical units in defining a segmentation and differentiation strategy.

After conducting the importance-performance analysis we obtained additional information on the way in which the factors identified following the exploratory factor analysis on the patients' perception regarding the six dimensions analysed influence their satisfaction. Both for the subsample A as well as the subsample B, the factors characterizing the diabetes patients' perception on the analysed dimensions were regrouped according to the average values registered for importance and performance, in three of the four fields of the model: *Possible waste of resources*, *Low priority* and *Keep going!* , emphasizing the differences in the perception at a perceived performance level, but also the importance given by the patients.

In the subsample A, the factors in the field *Possible waste of resources* characterized by a low level of importance attributed by the patient, but an increased level of the medical unit's performance are *Doctor's availability*, *Nurses' availability* and *Interaction with other patients*. At a primary analysis, the low level of importance suggests the fact that additional efforts to increase the performance for those attributes are not necessary. Nevertheless, given the complex nature of the analysed service, we believe that the low importance given by the patients to these factors could be due, as Oliver (2015) shows to the fact that the *Availability of doctor and nurses*, as well as the *Interaction with other patients* are attributes considered to be inherent to the medical service; basically the patients expect that each offer includes it, regardless of the provider. This type of attribute plays an important part in generating dissatisfaction in the case of a lack of provider offer or a low performance (Oliver, 2015).thus; we believe that the medical units for treating the diabetes patients should support the maintenance of a high level of performance for the three attributes analysed.

The *Low priority* field, characterized by a low level of importance attributed to patients, but also to the performance of medical services provider, includes the factor regarding the support that the patients benefit from through additional services (psychologist, support group, patients' organization). Taking into account the low level of importance given by the patients, this kind of service does not pose any problems for the medical services supplier. We believe that it is possible that the low level of importance given by the patients is determined also by lack of knowledge and use of these services for their real value. Given the nature of the analysed disease, as well as the results of the studies that show the fact that wellbeing from the psychological point of view and the

gaining of self-efficiency feeling in the management of diabetes contributes to the increase of patients' satisfaction (Diț *et al*, 2012; Redekop *et al*, 2001), we recommend the increase of the visibility of this kind of services and their subsequent evaluation.

In the *Keep going!* field we find factors regarding the patients' access to medication and specific treatments, including the general practitioner's services, promptness and politeness showed to the auxiliary staff, facilities and accessibility of the diabetes clinic where the patients benefit from treatment in ambulatory care and the attention given by the doctor to the family. This field represents a better positioning-importance and high performance- and the obtained results suggest a good performance of medical units, alongside an increase of patients' interest in these attributes.

For the subsample B, the field *Possible waste of resources* comprises the factors regarding the experience of the treating doctor and the extent to which he can recommend other alternative treatment methods, the interaction with other patients admitted both in what concerns their number, as well as the discussions had, the spiritual support as referring to the existence in the hospital of a priest/chapel and the relationship with the auxiliary staff, taking into account the promptness and politeness of staff towards the patient and his family. The low level of importance for these factors suggests the fact that additional efforts towards the increase of performance for these attributes are not required. This could be due to the fact that the admitted patients are more interested in improving their health status, their attention being focused on the availability shown by doctor and nurses, as well as on the facilities of the hospital.

The *Low priority* field comprises factors dealing with the attention that the doctor gives to the family and the close friends of the admitted patient and the safety perceived by the patient in the sense that he knows who the doctors responsible of his treatment are and he trusts his competence. Taking into account the low level of importance given to patients, this kind of service does not pose any problems for the medical service provider.

The *Keep Going!* Parameter comprises factors regarding the availability shown by the doctor during the examination, openness, attention and politeness shown by the nurses to the patient and relatives, the existence of additional support services from the side of the psychologist, the patient association, the group of support, etc. and the facilities and accessibility of the diabetes hospital as a whole. This field, with high levels of importance and performance represents the best positioning and the results obtained suggest a good performance of the medical units, alongside an increase of patients' interest for these attributes.

Therefore, the results obtained from the importance-performance analysis, as well as the exploratory factor analysis, suggest the need for an increased focus on the increase of visibility and the patients' access to additional support services offered by the psychologist of the medical unit, the patients' organization or the support group. This can represent an element of differentiation for the medical unit, supporting at the same time the patient in the correct and efficient management of diabetes.

In the following part, the analysis of existent links between the socio-demographical, psychological and medical variables and the satisfaction of diabetes patients extends the area of knowledge concerning the impact of these variables for the particular case of this chronically disease. The results obtained are generally similar to those presented in the studies that deal with the patients' satisfaction in other contexts (emergency medical care, acute diseases etc.) (Quintana *et al*, 2006;

Jackson, *et al*, 2001; Rahmqvist, 2001; Bleich *et al*, 2009; Venkat Narayan *et al*, 2003; Diț *et al*, 2012), even if the type of the disease that determines the interaction with the medical unit is a different one.

The results obtained for the subsample A show that, in the case of medical services that the patients benefit from in ambulatory care, the aspects that influence the patients' satisfaction are only linked to socio-demographic variables (revenue and marital status of respondents) and medical ones (type of diabetes and the existence of complications). In what concerns the socio-demographical aspects, the results obtained indicated a higher level of satisfaction in the case of older patients, as well as widowed or married, being in line with the ones obtained in other similar studies (Quintana *et al*, 2006; Jackson, *et al*, 2001; Rahmqvist, 2001; Bleich *et al*, 2009). From the point of view of medical aspects, the results indicate the fact that the type II diabetes patients and the ones suffering from complication associated to this affection tend to be more satisfied, probably as a result of a lower level of expectations.

In what concerns the results obtained for the subsample B, these indicate the fact that the aspects that influence the patients' satisfaction are linked to socio-demographic variables (revenue and marital status of respondents) and medical ones (type of diabetes and the existence of complications) or psychological (perspective of patients on the diabetes management). From the point of view of socio-demographic and psychological variables, the results are in line with those obtained in other similar studies, older patient, with revenues at the extreme areas and a lower education level ant the ones that pay attention to the diabetes management tend to be more satisfied (Quintana *et al*, 2006; Venkat Narayan *et al*, 2003; Diț *et al*, 2012). From the point of view of medical aspects, the results are similar to those obtained in the subsample A, patients with type II diabetes and those suffering from complications associated to this disease tend to be more satisfied, probably as a result of a lower level of expectations.

In conclusion, from the point of view of practical contributions, the paper emphasized the aspects where the medical institutions are very well positioned, but also those that require more attention, representing at the same time a starting point for the medical units in realizing a segmentation of patients, but also an outline for the development of medical services adapted to the specific needs of different patient categories.

Limitations and further research

The study we carried out presents some limitations in what concerns the results obtained, offering at the same time future research directions in view of more in-depth studies on the subject of diabetes patients' satisfaction concerning the medical services that they benefit from in ambulatory care, and in hospital settings, respectively.

The results obtained are specific to diabetes patiens in Romania that benefit from medical services in ambulatory care or in public hospitals, without being extrapolated in order to characterize, for example, the situation of diabetes patients that benefit from medical services in private units or of patients suffering from chronic diseases in Romania. Future studies could be developed in order to give an overview on the satisfaction of these categories of patients.

In what concerns the data gathering, we confronted with a series of limitations in what concerns the data collected for the subsample B-medical services that the patients benefited from in hospital

settings, in the sense of obtaining a smaller sample. This limitation was overcome by replacing the missing values with the average. In the following part, our suggestion is to broaden the research rearding the satisfaction of diabetes patients that benefit from the medical services in hospital settings by using bigger sized samples.

Also, taking into account the slightly surprising results obtained in what concerns the influence of medical variables on the satisfaction of diabeste patients, we believe that it would be useful to pursue the research in this direction in view of confirming or not the results obtained.

Last but not least, taking into account the high complexity of the subject regarding the diabetes patients' satisfaction we believe that it would be useful to continue the efforts in order to enhance this type of research by the analysis of experiences and the perception of medical and auxiliary staff in what concerns the satisfaction of diabetes patients. Such an approache would broaden the knowledge in the field, contributing to the development of integrative strategies that ensure the satisfaction of all parties involved in the medical act, with considerable benefits on the medical unit.

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