

SOCIAL PERCEPTIONS OF CONVENTIONAL VERSUS COMPLEMENTARY AND ALTERNATIVE MEDICINE IN SLOVAKIA

ERIKA LOUČANOVÁ, MARTINA NOSÁLOVÁ¹

ABSTRACT *The aim of the paper is to reveal the attitudes of society in Slovakia towards conventional, and complementary and alternative medicine (CAM). A modified methodological approach using the Kano model was used to investigate the opinions of a sample of 275 individuals from Slovakia. The stated hypothesis is that conventional medicine is preferred to complementary and alternative medicine. The results confirmed that members of the sample prefer conventional medicine to complementary and alternative medicine in the case of illness. Complementary and alternative medicine is used more to reduce the symptoms associated with illness or eliminate the side effects of conventional medicine.*

KEYWORDS: *conventional medicine, complementary and alternative medicine, attitude, behavior, Kano model*

INTRODUCTION

The human body is rich in self-healing and regenerative ability, but requires a suitable environment and proper stimulation for its support. Health and treatment are associated with four levels of activity – physical, emotional, mental, and spiritual (Conway 2001). Different healing techniques originated

¹ Erika Loučanová and Martina Nosálová are assistants at the Technical University in Zvolen, The Faculty of Wood Sciences and Technologies, Department of Marketing, Trade and World Forestry, e-mail: loucanova@tuzvo.sk, nosalova@tuzvo.sk. The authors are grateful for the support of the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic, and the Slovak Academy of Sciences, Grant 1/0674/19, “Proposal of a model for the eco-innovation integration into the innovation process of companies in Slovakia in order to increase their performance.”

during the process of human evolution and are still currently developing to help individuals to balance the former levels and sustain health. Although many of these techniques are now called “alternative,” their roots are in the distant past, thus they may be considered to be traditional methods of treatment. Health is the responsibility of each individual, and the selection of medicine one uses depends on many factors that are related to consumption behavior.

The aim of this paper is to describe the attitudes of society in Slovakia to conventional, complementary and alternative medicine using the Kano model. The study sample is composed of randomly selected individuals.

The paper consists of an introduction, presentation of the theoretical background to the problem, the methodology (a description of the Kano model), the process of the research, and results. The latter highlight the attitudes of Slovak respondents to conventional and alternative medicine. The research described in the paper uses the Kano model, which allows us to identify and analyze the requirements of individuals. These requirements are nonlinear and asymmetric dependent variables. They relate to the importance awarded and satisfaction of individuals with conventional and alternative medicine. The Kano model has not been used in any study of attitudes to conventional, complementary and alternative medicine in Slovakia before.

THEORETICAL BACKGROUND

Most individuals live a lifestyle that reflects their attitude to the use of medicine in the case of illness. Some individuals, in attempting to create a healthier lifestyle and thereby improve quality of life, prefer alternative types of medicine to conventional medicine.

The quality of society life presupposes that it involves the most important aspects of human well-being in society and that these aspects are equally important to all individuals (Džuka, 2013).

Quality of life in such terms is becoming part of a specific type of economic sector in which particular social and market economy principles exist. From this perspective, individuals in society, when deciding on the use of conventional or alternative medicine, behave as consumers.

Kulčáková and Richterová (1996) define consumer behavior as the behavior that buyers display while searching for, purchasing or using a product/service that they expect will satisfy their needs. Richterová et al. (2005) considers consumer behavior to be the dynamic interaction of human beings with the environment, involving the emotions, knowledge, and procedures according to which humans

make exchanges with the intention of satisfying their needs. Consumer behavior may be differentiated into three phases (Kulčáková – Richterová 1996):

- Pre-purchase phase – awareness of needs, information selection, product / service selection or trade.
- Purchase – situational factors that influence buying behavior.
- Post-purchase phase – product rating after purchase.

Szarková (2007) defines three types of consumer behavior: 1) consumer behavior that is characterized by a strongly embedded individual value system (introverted consumers who are personally or interest-defined); 2) consumer behavior, which is characterized by a strongly embedded individual value system, but which is applicable only to specific socio-economic groups (consumers who prefer the traditions and customs of their group); 3) extroverted consumers, who are not interest-defined.

The marketing literature has focused primarily on the purchase situation, and on added value. Because of this focus, the needs of some specific segments of the population have remained hidden. The marketing focus supports observations about the health belief model (HBM), which has the following components: perceived susceptibility, perceived severity, perceived benefits, and perceived barriers (Risker 1996). Another focus in the marketing literature is Bettman's consumer decision model (CDM), which is composed of six interrelated components. These components include information, brand recognition, attitude, confidence, intention, and purchase.

The standard neoclassical model of a perfect market presupposes the existence of well-informed, reasonable consumers who act in their own best interests by systematically choosing which goods and services to buy, and from whom to buy them, to maximize their well-being (Dixon et al. 2010). Basic economic rules are applicable to the health care market, although the latter is also characterized by many specifics (Glova – Glavúrová 2013). Consumers and health-care providers in the market behave differently to those described by the "idealized" market model. Many researchers have focused on determining these differences. One of the first to attempt this, Arrow (1963), systematically analyzed the shortcomings of the market and the key characteristics of health-care consumers, finding out that all of these specifics stem from the factor of uncertainty about medical conditions and treatments. The specific characteristics of patients as consumers arise from the facts that... (Dixon et al. 2010):

- Health care is based on reputation – patients cannot try a product before consuming it, thus it is difficult to assess overall quality of care after use (experience).

- Patients find it difficult to obtain information about which medical treatment is appropriate for their condition – medical knowledge is complex and difficult to understand. Patients as consumers know far less than sellers do, so trust in providers is important.
- There is strong dependence between patients – one patient choice can have a significant (positive or negative) effect on another patient (for example: the choice whether to be vaccinated against influenza).

This paper deals with conventional medicine versus complementary and alternative medicine. Conventional medicine, also referred to as Western, classical, or scientific medicine, is according to MedicineNet (2012) medicine practiced by doctors and health professionals such as physiotherapists, psychologists, and registered nurses. Complementary and alternative medicine, in English abbreviated to CAM (complementary and alternative medicine), is also often called natural, traditional, or unusual. It includes a range of methods and products with a history of use or origin outside of conventional “Western” medicine. We include here the use of one or more complementary and alternative forms of medicine, such as acupuncture, Ayurveda, chiropractic care, energy healing therapy, special diets (including vegetarian and vegan, macrobiotic, and other modified diets), folk medicine and traditional healers, homeopathic therapy, hypnosis, naturopathy, nonvitamin and nonmineral dietary supplements, massage, meditation, relaxation, tai chi or yoga, chelation (detoxification of the body from metals), and EEG biofeedback (autoregulating the frequency of the electrical activity of the brain) (Clarke – Black 2015). Complementary medicine refers to complementary diagnostic and therapeutic medical procedures that are not part of conventional medicine, but which are used in parallel with conventional methods of treatment, while alternative medicine treatments are used instead of conventional procedures.

Previous studies have shown that individuals often use complementary and alternative approaches to improve health and well-being (McCaffrey et al. 2007), or to reduce the symptoms associated with chronic diseases and the side effects of conventional medicine (Lo et al. 2009). In the United States, most people who use complementary and alternative medical approaches do so to complement conventional care, rather than replace it (Astin, 1998).

Decisions about treatment and the choice of therapy involve a difficult and complex process that requires patients to consider the full range of physical and psychological treatment outcomes (Robles et al., 2013). The authors agree that the choice of treatment is also influenced by psychological factors (Rabin 1983). Difficulties associated with treatment choice may be further enhanced

by patients making their decisions based on personal beliefs, and may be of particular importance as regards treatment decisions when there is great uncertainty around the long-term effects of treatment (Robles et al. 2013; Brown et al. 2010; Porter – Diefenbach 2009).

Decision-making processes play an important role in the field of medicine. Healthcare professionals make a variety of decisions on a constant basis. These decisions are related to different matters, such as the type of diagnostics or intervention required, whether to modify standard procedures, or how make a treatment more effective (Halama 2013). Health-care decisions can be particularly complicated, involving a complex web of diagnostic and therapeutic uncertainty, patient preferences, values and costs (Kamhalová et al. 2013). Very frequently, these decisions have serious outcomes and can result in financial or human harm. Decision making in the area of health care has specific features (Halama – Gurňáková 2014), while paramedic decision-making situations are characterized by complexity and time pressure (Pílárik – Sarmány-Schuller 2011).

METHODS

Social perceptions about conventional medicine versus complementary and alternative medicine (CAM) are analyzed based on the methodology of the Kano model (Loučanová et al. 2015). This model allows us to identify the specific requirements of individuals according to the nonlinear and asymmetric dependence between the importance and satisfaction associated with conventional medicine and CAM treatments. The methodical approach to identifying the “requirements” individuals expect of conventional medicine and CAM comes from the elementary steps of the Kano model. The first step represents identifying the basic categories of alternative medicine. Here belong, according to Conway (2001), phytotherapy (herbalism), aromatherapy, nutritional medicine, homeopathy, flower therapy, art therapy (therapy using art), anti-stress therapy, meditation, massage, and touch. Perceptions about the aforementioned types of CAM are studied and contrasted with conventional medicine. Based on this, a questionnaire containing positive and negative statements was drawn up to collect the responses of individuals using a Likert scale (with the responses strongly agree, partially agree, neutral, partially disagree, strongly disagree).

Questioning is the main method used to identify the specific requirements (demands) of individuals in relation to medicinal treatments, representing a

complex method that has the aim of gathering primary data about the activities and attitudes of members of the study sample.

The process of creating the database of information took place after questionnaire implementation. Individual answers to positive and negative statements were evaluated separately for each type of medicinal approach. The Kano model (Table 1) was used to specify the requirements of individuals related to the given type of medicine. This approach classifies the latter in accordance with social perceptions into: “must be” requirements (M), one-dimensional- (O), attractive- (A), reverse- (R), indifferent- (I) and questionable requirements (Q) (Table 1).

Table 1 KANO model for assessing the needs of respondents

		Negative statement				
		Strong agreement	Partial agreement	Neutral stance	Partial disagreement	Strong disagreement
Positive statement	Strong agreement	Q	A	A	A	O
	Partial agreement	R	I	I	I	M
	Neutral stance	R	I	I	I	M
	Partial disagreement	R	I	I	I	M
	Strong disagreement	R	R	R	R	Q

Source: Ducár et al. (2006)

Individual categories describe the satisfaction of the requirements of individuals and can be characterized as follows (Chen and Cheng, 2010; Chen et al., 2010):

1. Must be requirements (M) are considered natural, and individuals expect them automatically. They may be identified as primary or basic, indicating that individuals pay attention to them only in the case of their non-fulfilment. Their identification plays a primary role mainly because meeting these requirements will have an effect on the satisfaction of individuals, but their lack or non-fulfilment is noticed by individuals immediately, who thus end up unsatisfied. Ultimately, such a situation will be reflected in maximal dissatisfaction.
2. One-dimensional requirements (O) represent those attributes of a product whose fulfilment leads to satisfaction (or in the case of their non-fulfilment, to the dissatisfaction of individuals); i.e. the greater the rate of fulfilment of these requirements, the more satisfied individuals are. However, compared to must-be requirements (M), one-dimensional requirements are

not automatically expected to be present by individuals. There is direct linear dependence between the fulfilment of these requirements and the satisfaction of individuals.

3. Attractive requirements (A) are those that have a clear effect on the satisfaction of individuals because they do not initially expect them. Non-fulfilment of these requirements will not lead to feelings of dissatisfaction.
4. Reverse requirements (R) are called the exact opposite, but represent product attributes to which customers react in a contradictory manner (Ducár et al. 2006; Ullah – Tamaki 2011).
5. Indifferent requirements (I) do not have an influence on individuals. These attributes are not crucial to customers. Their fulfilment or non-fulfilment does not affect customers' satisfaction or dissatisfaction.
6. Questionable or ambiguous requirements (Q) express questionable results. These are due to wrongly formulated questions or to the misunderstanding of questions by customers.

The individual categories of requirements for conventional medicine or types of CAM are subsequently expressed in percentage values. The highest percentage identifies the final attitude to the examined category of medicinal approach.

To determine the dependence of the individual results using the Kano model, the correlation coefficient was used to measure the dependence between two quantitative variables using Microsoft Excel software. The value of the correlation coefficient explains how the values of these two variables simultaneously change. Positive values mean that they change together in one direction, while negative values mean that they change in the opposite direction, and a zero value mean that they change independently from each other. Values range from -1 to 1. Cohen (as cited in Rimarčík 2015) says that if the absolute value of a correlation coefficient in psychological research is below 0.1, it shows a trivial level of dependency, if the value is in the range from 0.1 to 0.3 it shows minor dependency, from 0.3 to 0.5 shows moderate dependency, and values of over 0.5 show strong dependency (Rimarčík 2015).

RESULTS AND DISCUSSION

The research examines the attitudes of members of the convenience sample towards conventional, and complementary and alternative medicine. The study is based on the methodology of the Kano model, which helps observe the impact

of attributes' interactions on individual satisfaction – that is, interaction between internal and external psychological motives (Tontini et al., 2013). Based on the above, a Kano questionnaire was formulated and implemented in Slovakia on a convenience sample. Structured interviews were used for the purposes of the research. The former were addressed to the 275 respondents who represented a convenience sample, of whom 159 were men and 116 women aged 18-65. The following results were obtained from the survey data evaluation (Table 2).

Table 2 Research results

Requirements	Conventional Medicine	Phytotherapy	Aromatherapy	Nutritional Medicine	Homeopathy	Flower therapy	Art therapy	Anti-stress Therapy	Meditation	Massage	Touch Therapy
M – must be	40	8	15	26	13	28	31	26	35	36	32
A – attractive	15	85	56	42	31	59	17	29	18	19	23
O – one dimensional	24	22	24	5	3	20	8	31	18	16	16
R – reverse	22	36	24	18	50	31	56	25	33	52	29
I – indifferent	171	110	150	175	165	130	158	154	152	147	169
Q – questionable	3	14	6	9	13	7	5	10	19	5	6

Source: Authors' calculation

The perceptions of individuals in the sample about individual types of medicine (conventional medicine and CAM) do not significantly vary, thus we reject the stated hypothesis. The primary results of the survey, however, do not take into consideration other facts such as the health status of individuals in the sample. The influence of this factor on the results is discussed further.

The association between the health status of individual respondents and perceptions about types of medicine (using the correlating coefficient to identify linear dependence between the two quantitative variables (Table 3), is moderately strongly correlated, especially for the use of conventional medicine (0.405). This suggests that individuals who are not ill are almost completely disinterested in the influence of alternatives types of medicine.

Table 3 *Correlation coefficients*

Monitored factor	Suffering from illness
Suffering from illness	1.000
Disease-free	-1.000
Conventional medicine	0.405
Phytotherapy	-0.039
Aromatherapy	0.032
Nutritional Medicine	0.062
Homeopathy	-0.068
Flower therapy	0.110
Art therapy	0.011
Anti-stress therapy	0.083
Meditation	0.153
Massage	0.142
Touch therapy	0.073

Source: Authors' own calculation

Based on the results that have been thus modified, we make the following conclusions with regard to the topic “Conventional versus complementary and alternative medicine in accordance with social perception in Slovakia” (Table 4).

Table 4 *Respondents' attitudes to different types of medicine*

Attitudes	Conventional medicine	Phytotherapy	Aromatherapy	Nutritional Medicine	Homeopathy	Flower therapy	Art therapy	Anti-stress therapy	Meditation	Massage	Touch therapy
M – must be	40	8	15	26	13	28	31	26	35	36	32
A – attractive	15	85	56	42	31	59	17	29	18	19	23
O – one dimensional	24	22	24	5	3	20	8	31	18	16	16
R – reverse	22	36	24	18	50	31	56	25	33	52	29
Identified attitudes	M	A	A	A	R	A	R	O	M	R	M

Source: Authors' own calculation

Based on non-linear and asymmetrical dependence between the importance and satisfaction of individuals with conventional medicine and CAM, individuals who are ill prefer conventional medicine, meditation, and touch therapy as mandatory types of medicine. These are thus the basic “requirements” of individuals in the sample that are considered natural and automatic, and such individuals expect them, or they are their first choice. We suppose that when individuals are ill they are more likely to use drugs or conventional therapies (over-the-counter drugs from the pharmacy, or those prescribed by a doctor), to take up meditation (while idle in bed), or alternatively prefer touch therapy.

The next most dominant is alternative medicine, which includes phytotherapy, aromatherapy, nutritional medicine, and flower therapy. These types of treatment have a clear effect on the satisfaction of individuals in relation to their perceived efficacy – as individuals do not expect such approaches necessarily to have any effect, in the case of fulfilment they are satisfied; however, the ineffectiveness of the former does not result in their dissatisfaction.

In Slovakia, only anti-stress therapy is considered to be a one-dimensional type (O) of medicine. In such cases, the greater the rate of fulfilment of the related requirements is, the more satisfied individuals are, but such requirements are not automatically expected, in contrast to mandatory requirements. This may be because not everybody is able to put aside their duties in the case of illness, and their non-fulfilment increases stress.

The sample of the study consider homeopathy, art therapy, and massage to be contradictory types of medicine. These types of medicine are received by individuals in a contradictory fashion, suggesting that the former are not absolutely sure about the efficacy of these types of alternative medicine, or that their efficacy is perceived only in some kinds of illnesses but not globally for all kinds of illnesses.

Some types of medicine, despite presently being perceived as alternative, were formerly considered traditional methods of treatment. Results clearly indicate that out of all types of treatment in Slovakia, conventional medicine (39.6%) is perceived very positively in relation to the issue of “Conventional versus complementary and alternative medicine in accordance with social perceptions in Slovakia.” Other types of treatment that we examined are perceived as “attractive” complementary and alternative medicines (33.3 %) (Table 5).

Table 5 Final attitudes of sample in relation to conventional medicine, and complementary and alternative medicine

Attitudes	Conventional medicine (%)	Complementary and alternative medicine (%)
M – must be	39.6	21.9
A – attractive	14.9	33.3
O – one dimensional	23.8	14.0
R – reverse	21.8	30.7

Source: Authors' own calculation

The results clearly indicate that members of the Slovakian study sample prefer conventional medicine to complementary or alternative medicine, proving our hypothesis. Slovak individuals consider the use of conventional medicine as mandatory type, however complementary and alternative types of medicines are still attractive to them. Based on the low correlation coefficient of different types of medicine in relation to health status, alternative approaches to the treatment of illnesses appear to be being used by individuals to reduce symptoms related to illness or to reduce the side effects of conventional medicine, as also observed in earlier research by McCaffrey et al. (2007), Lo et al. (2009), and Astin (1998).

Future healthcare problems may be solved with the use of robotization. As suggested by research from the University of Auckland (Datta et al. 2012), this approach consists of the use of a Stationary Robotic Medication Management System to design, implement, and monitor systematic therapeutic plans that can produce the desired outcomes from medication regimes, thereby improving the quality of people's lives. A key part of our research involves designing a system that will help prevent medical errors and increase collaboration to eliminate the asymmetry that exists in the formation of successful therapeutic relationships. Adherence to medical regimes, along with a focus on safety, are concerns that can be addressed using the robot.

The research results presented herein provide both theoretical and practical information for businesses, innovators, and experts working the field of the relationship between the health status of individual respondents and types of medicine. Such theoretical knowledge and research results can help define objectives and policies that assist with implementation.

CONCLUSION

From a sociological perspective, it is interesting to observe the consumer behavior of the study sample in Slovakia in terms of the perception of different types of medicine that they search for and use, and what customers require to meet their needs given the specificity of this economic sector.

Based on the survey results we can clearly state that conventional medicine is preferred to complementary and alternative medicine in the sample. The sample in Slovakia perceived conventional medicine as the core type of medicine for use in the case of illness. The latter is seen as a natural choice and automatically used in case of health problems. Complementary and alternative medicine is also very attractive to members of the sample, demonstrating a clear effect on the satisfaction of individuals in the case of having effects that were unanticipated. Complementary and alternative types of medicine are used more for the relief of symptoms associated with disease, or the elimination of the undesirable effects of conventional medicine.

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