

THE USE OF THEORETICAL MODELS OF HEALTH BEHAVIOUR TO EVALUATE HEALTH BEHAVIOUR

MOŻLIWOŚCI WYKORZYSTANIA TEORETYCZNYCH MODELI ZACHOWAŃ ZDROWOTNYCH DO OCENY ZACHOWAŃ ZDROWOTNYCH

RENATA RASIŃSKA¹, IWONA NOWAKOWSKA¹, AGATA DOLACIŃSKA-ŚRÓDA²

¹ Department of Organization and Management in Healthcare
Poznan University of Medical Sciences

² Eastern Institute
Adam Mickiewicz University

ABSTRACT

To understand the evolution of health behaviours and planning efforts to change them, the system prospects of these behaviours determinants are needed. Complex theoretical models to explain taking and maintaining health behaviours are designed for it.

The aim of the manuscript is to analyse theoretical models of health behaviours with regard to the possibility of using them to evaluate health behaviours.

Summarizing the possibilities of applying theoretical models that explain taking and maintaining health behaviours, it can be confirmed that all models may be used to explain health behaviours. In practical actions the most convenient is to apply general rules of behaviour shaping and changing based on using all methods. However, no single theory or model explain and predict all possibilities of health behaviours and therefore, further research of this problem is essential. Models should be perceived as a description with a formalized structure helping understand factors that influence individual decisions and behaviours helpful in planning effective interventions of health promotion.

KEYWORDS: health behaviours, theoretical models.

STRESZCZENIE

Aby zrozumieć kształtowanie się zachowań zdrowotnych i planowanie działań zmierzających do ich zmiany, potrzebne są systemowe ujęcia wyznaczników tych zachowań. Służą do tego złożone modele teoretyczne wyjaśniające podejmowanie i utrzymywanie zachowań zdrowotnych.

Celem pracy jest analiza teoretycznych modeli zachowań zdrowotnych pod kątem możliwości wykorzystania ich do oceny zachowań zdrowotnych.

Podsumowując możliwości zastosowania modeli teoretycznych wyjaśniających podejmowanie i utrzymywanie zachowań zdrowotnych można potwierdzić, że wszystkie modele mogą posłużyć do wyjaśniania zachowań zdrowotnych. W działaniach praktycznych najlepiej zastosować ogólne zasady kształtowania i zmiany zachowań zdrowotnych oparte na wykorzystaniu wszystkich metod. Jednak żadna pojedyncza teoria ani model nie tłumaczy i nie przewidują wystarczająco wszystkich możliwości zachowań zdrowotnych i dlatego niezbędne są dalsze badania tego problemu. Modele powinny być postrzegane jako mający sformalizowaną strukturę opis pomagający zrozumieć czynniki wpływające na indywidualne decyzje i zachowania oraz być pomocne w planowaniu skutecznych interwencji dotyczących promocji zdrowia.

SŁOWA KLUCZOWE: zachowania zdrowotne, modele teoretyczne.

Introduction

To understand the evolution of health behaviours and planning efforts to change them, the system prospects of these behaviours determinants are needed. Complex theoretical models to explain taking and maintaining health behaviours are designed for it.

It is easier to change behaviours if the person knows he/she can influence these changes and believes that he/she is able to take actions which will help achieve desired results [1]. Such assumptions are respected by a construct of the "perceived self-efficacy" introduced in 1977 by Bandura [2] to the model of the cognitive alteration of behaviours. While result expectations refer to possible consequences of the action, the perceived

efficacy refers to the personal control over the action. The person convinced that he/she is able to cause a given event becomes more active. In literature, plenty of models explaining the process of health behaviours alterations were presented. It is possible to distinguish two attitudes among them: the first one refers to the decision making theory (e.g. the model of health beliefs by Rosenstock and Becker), in the second one beliefs and expectations play a first-rate role (e.g. the process model of health behaviours). The exemplification of the second approach is the competence, much more popular nowadays [3]. The model is based on the cognitive-behavioral theory and refers to process presentations by Schwarzer [4] and the will theory by Kuhl [5].

Complex theoretical models that explain taking and maintaining health behaviours can be divided into three groups [6]. The first one comprises incentive models, the second – explaining theories on the intention implementation, and the third one – concepts which explain stages of behaviour changes.

Incentive models include: the model of health beliefs, the theory of motivation to protection and the theory of reasoned action and planned behaviour. They concern incentive factors which explain whether the individual formulates the intention of attitudinal changes. They take into account such variables as: the behaviour inspection, the severity of the disease, susceptibility to fall ill, expectations concerning results of the behaviour change or subjective norms concerning behaviours.

The next presented group are models which explain stages of the attitudinal change. The examples are: the model of noticing the risk process, the transtheoretical model and the process approach.

The aim of the manuscript is to analyse theoretical models of health behaviours with regard to the possibility of using them to evaluate health behaviours.

The Theory of Reasoned Action and Planned Behaviour

The most frequently tested is the Theory of Reasoned Action and Planned Behaviour (**Figure 1**). According to this approach, health behaviour has one main indicator – intention.

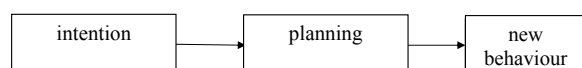


Figure 1. The Theory of Reasoned Action and Planned Behaviour
Source: Łuszczynska A. *Zmiana zachowań zdrowotnych*. Gdańskie Wydawnictwo Psychologiczne. Gdańsk 2004, s. 22–46.

The Theory of Reasoned Action (Ajken & Fishbein 1980) and its extension in Planned Behaviour (Ajken 1988) are being used for explaining, as well as predicting intention determined by behaviours [7]. These models are based on the hypothesis, according to which a factor that forecasts behaviour most effectively is the behaviour intention. In accordance with this model, the intention of a particular person's behaviour may be deciphered based on three elements: attitude, perception of the social pressure to behave in a specific way and the perceived control over behaviour.

A drawback of the presented theory is accurate operationalization of all variables which allows to create specific templates or even mathematical formulae [6]. At first the intention appears, i.e. the willingness to perform the activity in order to achieve a desired effect. The next

stage is planning after which only an attitudinal change follows. The verification of incentive models does not allow to state whether variables influence changes in behaviour or its stable maintaining.

This theory refers in particular to individuals, for who the main indication is the intention to change one element of pro-health behaviours under the influence of different impulses. Examples from authors' own research may be intentions expressed, for example, by students in the context of subsequent changes of their behaviours with reference to the motherhood and fatherhood [8]. These intentions contained basic information determining behaviour (each student individually determined what he was going to change, e.g. stop smoking or eat properly) and indicating, simultaneously, the onset date (the most frequent date was graduation). Unfortunately, this method did not allow to state whether variables given by respondents would influence behaviour changes. The method is based on the simple reasoning that the man is first subjected to cognitive processes (e.g. knowledge about the harmfulness of stimulants for future mothers), later he/she takes the conscious decision of doing something (e.g. I will stop smoking) and gives the time when the adequate situation will take place (e.g. when I become pregnant).

In research on a diet, for example, the TPB/TRA model enables to compare the influence on the individual and the influence on examined groups [7]. It can also be used to better understand determinants, e.g. the food choice. The TRA model worked in explaining such behaviours as consuming fat, salt and milk. The TPB model was also used for explaining British attitudes and beliefs concerning food with much starch [9].

Postintentional models

Postintentional models (belonging to the group of incentive models) are the ones that list factors acting after the intention and admit that their action leads to increasing the probability of desired behaviours [6]. In these models it is assumed that those factors constantly influence in the similar manner, if only the individual decided that he/she would like to commence a defined action (**Figure 2**).

The aim of these conceptions is to show factors influencing behaviour of the individual who has already taken the intention. An example is a model of implementing the intention that considers two behaviour indicators: intention and planning. Planning is a total mediator of the intention which means that the intention is not directly associated with behaviour, but it is an effect of creating action plans. The intention is influenced by factors which determine its implementation in action, such as: the attitude towards health, i.e. expecting self-

efficacy, a subjective norm or expecting the positive outcome, perceived control, e.g. risk.

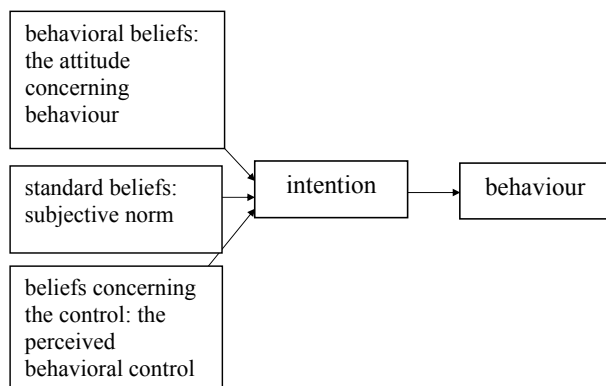


Figure 2. The model of bringing intention into force: the role of planning
Source: Łuszczzyńska A. *Zmiana zachowań zdrowotnych*. Gdańskie Wydawnictwo Psychologiczne. Gdańsk 2004, s. 22–46.

A disadvantage of presented models is that planning is one variable deciding on behaviour and that even though they explain, which leads to one-time involvement into a given action, they do not specify, which causes that behaviour can be maintained for a longer time [6]. Postintentional models do not consider factors which lead to formulate the intention of changing behaviour.

The analysis of one's own research results shows that it is possible to use this model to change behaviours of examined students concerning the number of meals, for example [8]. The intention is influenced by the attitude towards behaviour, expressed by a disadvantageous evaluation of the meals number and acquired knowledge on a recommended norm, which is 5 meals a day. The next norm is subjective, expressed by the willingness to submit to recommended norms and perceived behavioral control which contains past experiences (the low frequency of meals causes hunger and no power for further work) and other factors determining problems (the lack of time to eat regularly caused by the wrong organization of activities).

The Social Cognitive Theory

The Social Cognitive Theory, which represents the next group of models that explain taking and maintaining health behaviours, is a concept of self-efficacy, in which this efficacy treated as an optimistic conviction of the individual about his/her possibilities of acting according to the chosen purpose – irrespective of obstacles to achieve this objective – is a factor modifying behaviours [6]. Along with a stronger belief that one is able to solve a specific problem, the motivation to formulate the intention and start action grows as well. The atti-

tudinal change depends on the feeling of control over one's own action. The person who believes that he/she is able to take action and solve a problem this way, has a stronger motivation to do it and is more involved in the process of decision making.

According to the social-cognitive theory, our behaviours are managed by the following expectancies: situation-outcome expectancies, action-outcome expectancies and self-efficacy expectancies [10].

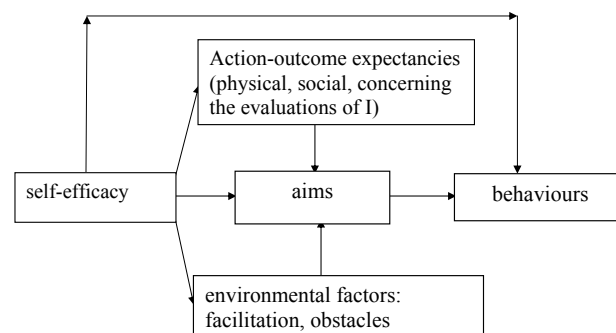


Figure 3. The Social Cognitive Theory
Source: Łuszczzyńska A. *Zmiana zachowań zdrowotnych*. Gdańskie Wydawnictwo Psychologiczne. Gdańsk 2004, s. 22–46.

In the Social Cognitive Theory self-efficacy influences behavior also indirectly, affecting the choice of aims (the stronger efficacy, the more ambitious aims) and expected profits and losses (the stronger self-efficacy, the more profits and the fewer losses resulting from behaviour are noticed by an individual) [6]. The generalized self-efficacy can be defined as the personality trait which determines behaviours in different situations. This theory also takes into account environmental variables, i.e. barriers and factors facilitating behaviour that appear in the individual's surrounding.

In relation to findings of the conducted research on the sense of self-efficacy, which for the examined group of students show a very high level of their self-efficacy (higher than in control groups), one could use the model based on the social-cognitive theory, in which self-efficacy influences the choice objective changes, expected profits and losses, one's own expectations and directly – behaviours. Self-efficacy becomes an incentive factor then [8]. However, authors' own research on the relation between health behaviours and the level of efficacy did not confirm it. People with a high level of self-efficacy do not show positive pro-health behaviours at all. Their efficacy influences only a bigger amount of time devoted to physical activity and the smaller amount of stress.

It was shown that the sense of self-efficiency enables to predict intentions and actions in various areas of human activity, including also health behaviours [10].

The sense of self-efficacy involves such health behaviours, as: preventing uncontrolled sexual behaviors, taking up regular physical exercises, controlling weight and behaviours associated with eating, preventing and giving up smoking and other addictions [11].

The Precaution Adoption Process Model

According to the Precaution Adoption Process Model, in order to effectively change behaviour, the individual must undergo stages of the attitudinal change in a specific sequence [6]. Health behaviours can only be changed when the individual starts noticing the risk resulting from failing to care about one's own health.

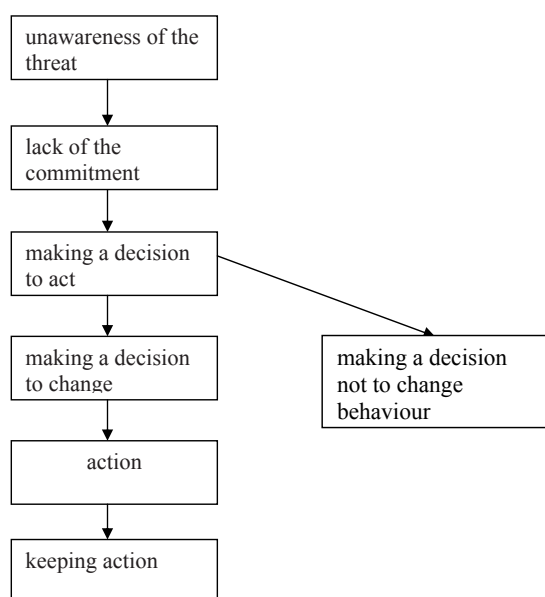


Figure 4. The Precaution Adoption Process Model; the course of the attitudinal change stages

Source: Łuszczzyńska A. *Zmiana zachowań zdrowotnych*. Gdańskie Wydawnictwo Psychologiczne. Gdańsk 2004, s. 22–46.

The stage model, which includes the Precaution Adoption Process Model, takes into account stages of risky behaviour changes, beginning from the unaware threat through taking decisions on changes and action, to keeping this action [6]. Health behaviours can only be changed when the individual starts perceiving the risk resulting from failing to care about one's own health and undergoes all cycles.

However, this model was not significant for a researched group since students declared great satisfaction from their state of health, ways of spending free time, as well as the appearance, in spite of not respecting principles of pro-health behaviours [8].

The Transtheoretical Model

In the Transtheoretical Model (TTM) five stages of the attitudinal change are distinguished and the order of changes in behaviour explained [6]. This model does not take into account factors causing the change which appears out of nowhere. In the Transtheoretical Model the first stage is procontemplation, i.e. the period, in which the individual does not consider the need to change the current behaviour. At the next stage a given person considers pros and cons of the change in behaviours, and then gets ready for changes. Two next stages are: action (the change of behaviour) and maintenance (the stabilization of behaviour and avoiding returns). Current verifications of the model concerned different health behaviours and confirmed the existence of individual stages.

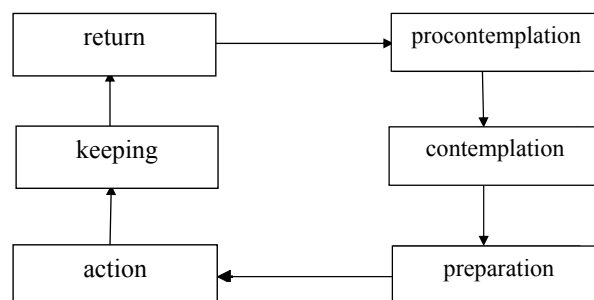


Figure 5. The Transtheoretical Model: the course of the attitudinal change stages

Source: Łuszczzyńska A. *Zmiana zachowań zdrowotnych*. Gdańskie Wydawnictwo Psychologiczne. Gdańsk 2004, s. 22–46.

The model of change stages is based on the assumption that changes are made constantly and they are never ultimate [12]. One can go back to earliest stages repeatedly, but it does not necessarily mean that then we must start again. The behaviour of humans in this model is described through the progress in overcoming a few successive behavioral states along with derivative factors, such as the readiness to change. Information about these behavioral states should be taken into consideration in adjusting the educational data referred to a specific person which should take into account individual needs and readiness to receive different types of information. The model of change stages can be more useful for simple and closely defined dietary behaviours, such as eating five portions of vegetables and fruits or drinking low-fat milk every day (aims concerning food) and less useful for the description of complex changes of dietary habits, such as limiting fat consumption (aims concerning nutrition). It seems that behavioral alternative models are more appropriate to describe purposes concerning nutrition. Nevertheless, the model of change stages was repeatedly applied in

order to better understand changes concerning dietary habits and it allows to single out social groups differing in the attitude towards pro-health nutrition. The best test for this model is its practical verification, i.e. checking whether dietary interventions based on stages of behaviour changes are effective

In the Transtheoretical Model which distinguishes stages of behaviour changes but does not consider factors causing changes, a person that makes changes, goes through the cycle of following stages and can go through the entire cycle several times. This model is suitable for presenting the lack of positive effects of pro-health education. Students underwent individual stages several times, starting from realizing problems during talks on pro-health behaviours (e.g. concerning harmfulness of smoking), through taking decisions about the change (I will stop smoking), all the way to the recurrence stage (after all, nicotine addiction) [8].

The Health Action Process Approach

The Health Action Process Approach (HAPA) assumes existing two qualitatively various stages of the behaviour change, referring to pre-intentional processes (the incentive stage) and post-intentional processes (the willing stage which is putting intention into action) [6]. At every stage a lot of social-cognitive variables which influence

formulating intentions and behaviour were taken into account. The role of social-cognitive variables is discontinuous, which means that other variables play a role at the incentive stage and the other ones – at the willing stage. The self-efficacy is an only variable which is significant at both stages. The first social-cognitive factor influencing the intention is a spotted risk. It is assumed that behaviour can be changed, if the individual notices the increased risk of the health loss. The next factor are expected profits and losses coming from the attitudinal change, i.e. its predicted positive and negative consequences. The last factor is a sense of self-efficacy, i.e. optimistic conviction about one's own possibilities and abilities to reach an assigned objective. After formulating the intention, the individual goes to the willing stage. Here two factors play the essential role: self-efficacy and planning. Self-efficacy is having competence associated with the health purpose and it depends on the general personality changeability to a large extent [13]. The HAPA is a model stage, however simplified to a large extent as far as the number of attitudinal change stages are concerned. Seeking variables that explain maintaining behaviour and limiting returns caused the appearance of the widened HAPA model, in which the role of self-efficacy was elaborated, assuming that there were its specific kinds which influence at different stages of the attitudinal change.

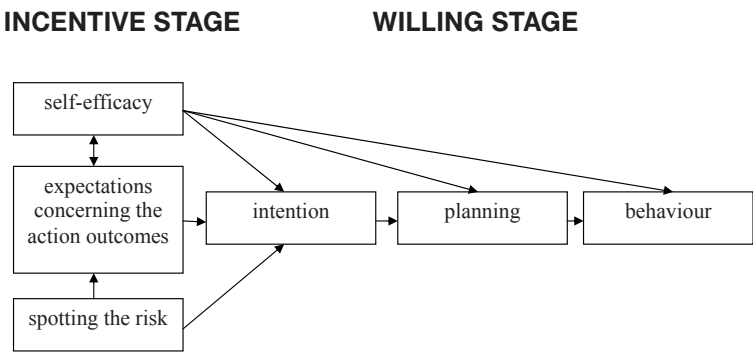


Figure 6. The Health Action Process Approach (HAPA): the relation between variables
Source: Łuszczynska A. Zmiana zachowań zdrowotnych. Gdańskie Wydawnictwo Psychologiczne. Gdańsk 2004, s. 22–46.

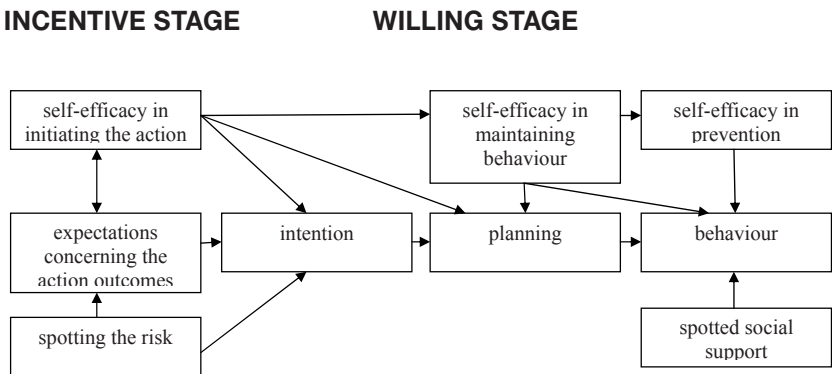


Figure 7. The widened HAPA model: the relation between variables
Source: Łuszczynska A. Zmiana zachowań zdrowotnych. Gdańskie Wydawnictwo Psychologiczne. Gdańsk 2004, s. 22–46.

Two last models belonging to the process models of health actions: the HAPA model and the widened HAPA model, are the most useful ones when it comes to describing changes of health behaviours [8]. In the process of forming and strengthening health activities, two stages can be distinguished: the stage of motivation and forming intentions, and the stage of putting intention into action and consolidating new behaviours [13]. At the first stage essential predictors are result expectancy and self-efficacy expectancy. At the second stage self-efficacy helps maintain action and turns into self-efficacy in reducing recurrences. An important thing at this stage is also noticing social support. In relation to the noticed very high level of self-efficacy, noticing the risk and family support, the extended HAPA model seems to be the most advantageous in forming and changes of health behaviours. Therefore, all current and future actions oriented to forming and changing health behaviours should be based on this model.

Summing-up

Summarizing the possibilities of applying theoretical models that explain taking up and maintaining health behaviours, it can be confirmed that all models can help explain health behaviours. In practice, however, it seems the most appropriate to apply general rules of forming and changing health behaviours based on all methods.

Nevertheless, no single theory or model can explain or predict all possibilities of health behaviours and therefore, further research of this problem is essential [12]. Models should be perceived as a description with a formalized structure that helps understand factors influencing individual decisions and behaviours. These models can also be of help in planning effective interventions concerning health promotion.

References

- Juczyński Z, Juczyński A. Chcieć to móc, czyli o znaczeniu poczucia własnej skuteczności w modyfikacji zachowań związanych z pićm alkoholu. *Alkoholizm i Narkomania*. 2012, 25, 2, 215–227.
- Bandura A. A self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*. 1977, 84 (2), 191–215. cyt. za: Juczyński Z, Juczyński A. Chcieć to móc, czyli o znaczeniu poczucia własnej skuteczności w modyfikacji zachowań związanych z pićm alkoholu. *Alkoholizm i Narkomania*. 2012, 25, 2, 215–227.
- Juczyński Z. Narzędzia pomiaru w promocji i psychologii zdrowia. Warszawa: Pracownia Testów Psychologicznych PTP; 2001.
- Schwarzer R. *Psychologie des Gesundheitsverhaltens*, Göttingen-Bern-Toronto-Seattle: Hogrefe. 1996, cyt. za: Juczyński Z, Juczyński A. Chcieć to móc, czyli o znaczeniu poczucia własnej skuteczności w modyfikacji zachowań związanych z pićm alkoholu. *Alkoholizm i Narkomania*. 2012, 25, 2, 215–227.
- Kuhl J. Volitional mediators of cognition-behavior consistency: self-regulatory processes and action versus state orientation. W: Kuhl J, Beckman J (red.) *Action control: from cognition to behavior*. New York: Springer, 29, 1985, 101–128 cyt. za: Juczyński Z, Juczyński A. Chcieć to móc, czyli o znaczeniu poczucia własnej skuteczności w modyfikacji zachowań związanych z pićm alkoholu. *Alkoholizm i Narkomania*. 2012, 25, 2, 215–227.
- Łuszczńska A. Zmiana zachowań zdrowotnych. Gdańsk: Gdańskie Wydawnictwo Psychologiczne. 2004, 22–46.
- Czynniki determinujące wybór żywności <http://www.eufic.org/article/pl/expid/37/> [24.07.2014]
- Rasińska R. Analiza wybranych wyznaczników kształtowania postaw prozdrowotnych młodzieży akademickiej. Praca doktorska. www.wbc.poznan.pl/Content/169184 [24.07.2014]
- Stubenitsky K, Mela DJ. UK consumer perceptions of starchy foods. *Br J Nutr*. 2000 Mar; 83(3): 277–85.
- Juczyński Z. Poczucie własnej skuteczności – teoria i pomiar. *ACTA Universitatis Lodzensis Folia Psychologica* 4, 2000.
- Schwarzer R, Fuchs R. Self-efficacy and Health Behaviours. W: Conner M, Norman P (red.), *Predicting Health Behaviour*, Open University Press, Buckingham–Philadelphia, 1996, 163–196 cyt. za: Juczyński Z. Poczucie własnej skuteczności – teoria i pomiar. *ACTA Universitatis Lodzensis Folia Psychologica* 4, 2000.
- Dlaczego jemy to co jemy – etapy modelu dokonywania zmian. <http://www.eufic.org/article/pl/5/18/artid/stages-of-change-model/> [24.07.2014]
- Sęk H. *Zdrowie behawioralne*. W: Strelau J (red.) *Psychologia – podręcznik akademicki. Jednostka w społeczeństwie i elementy psychologii stosowanej*. T. 3. Gdańsk: Gdańskie Wydawnictwo Psychologiczne. 2005, 533–553.

The manuscript accepted for editing: 25.06.2014

The manuscript accepted for publication: 27.08.2014

Funding Sources: This study was not supported.

Conflict of interest: The authors have no conflict of interest to declare.

Corresponding author:

Renata Rasińska
Smoluchowskiego 11
60-179 Poznań, Poland
phone: +48 61 861 22 54
e-mail: rasinska@ump.edu.pl
Department of Organization and Management in Healthcare
Poznan University of Medical Sciences