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## Having Children and Physical Activity Level and Other Types of Pro-Health Behaviour of Women from the Perspective of the Theory of Planned Behaviour

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## Having Children and Physical Activity Level and Other Types of Pro-Health Behaviour of Women from the Perspective of the Theory of Planned Behaviour

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A – Study Design  
B – Data Collection  
C – Statistical Analysis  
D – Data Interpretation  
E – Manuscript Preparation  
F – Literature Search  
G – Funds Collection

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### Abstract

**Background:** *The subject of the paper is pro-health behaviour of women (N=477) who have children (N=124) and those who have no children (N=353). The Theory of Planned Behaviour (TPB) by Icek Ajzen, in the light of which the differences in the health behaviour level of the sample group are considered, constitutes the theoretical basis of this work.*

**Material/Methods:** *The research group consisted of women at the age of 19–36 (M=27,5 yrs of age SD=4 yrs of age). The Health and Behaviour Survey Questionnaire by Steptoe and Wardle was used for the measurement. Four scales of healthy behaviour values, i.e., taking up physical activity, avoiding addictions, hygienic and medical behaviour and nutritional habits were analysed.*

**Results:** *As a result of the comparison, it appears that childless women demonstrated a significantly higher physical activity level (M=263.03) compared to women who have children (M=170.58) at the significance level ( $p=0.001$ ). As far as the hygienic and medical behaviour is concerned, a significantly higher level was observed in the group of women who have children (M=261.15) than in the group of childless women (M=231.22) at the significance level ( $p=0.037$ ).*

**Conclusions:** *Further research should focus on the determination of the influence of subjective norm change (knowledge) on the health activities undertaken by women.*

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## **Introduction**

When analysing current methods of forming and changing pro-health behaviour we need to emphasise the subtle differences concerning the methods of teaching health care. In the western developed societies women do fall ill more often, but still, they live longer than men [1]. To understand the observed phenomena we need to resort to theories explaining the mechanism of effective interventions aiming to change behaviour, and in particular pro-health behaviour.

The theories explaining the conditions of such a change can be divided into the following groups: motivational, post-intentional, social-cognitive and phase models. Herein the authors adopted the first from the said perspectives [2]. The other theories have been mentioned to keep the order of a lecture.

Motivational models are considered to be the oldest models explaining changes in the quantity and quality of undertaken health behaviour. Their common denominator is the ability to explain single acts; they do not provide, however, the complete explanation of behavior diversity following the limitation of intervention effect. It limits the possibility to draw certain conclusions as to the factors conditioning the said changes. As they had no chance to re-examine the same group, the authors used the above-mentioned model.

The health beliefs model created by Rozenstock [3] in the early 1970s is based on two groups of factors. The author mentions, in the first place the analysis of risks (susceptibility to illness) and the anticipated costs of undertaking an activity (predicted profits and consequences of change). Such a construct enables the statistical analysis of conditions of undertaken healthy behaviour. The other approaches within this group are the Protection Motivation Theory [4] and the Theory of Justified Action and Planned Behaviour by Martin Fishbein and Icek Ajzen [5]. The theory resulted from the combination of two constructs, the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB) and the development of the previous concept. For the sake of this work the theory shall be presented in more detail.

The theory is based on the premise that all actions/attitudes are formed in a perfectly rational way [6]. In the initial form [7] the concept was called the Theory of Justified Behaviour. According to the authors the intention to perform an act is under volitional control, related to the rational course of processing information. The key of this concept is the assumption that the forming of a strong intention increases the probability of an occurrence of given behaviour, e.g. of giving up smoking [8,9]. The authors are convinced that the intention is conditioned on two factors. Subjective norms (SN) or the beliefs of an individual as to the extent his/her behaviour will be accepted by persons perceived as important [5, p. 302] and the attitude, i.e. positive or negative evaluation. The Subjective Norm stems from normative beliefs formed by important for the individual authorities (family, significant others, idols). If an individual is convinced that the significant others authorise or, on the contrary oppose given behaviour, he/she acts similarly copying the behaviour of an authority in his/her own way. Another factor is attitude toward behaviour (ATT). This is a belief referring to the outcome of behaviour and the evaluation of these outcome for an individual. In this case subject's beliefs (i.e., expecting particular outcomes) concerning given behaviour are of key importance. They stem from the earlier experiences of an individual. For instance, a young woman starts a recreational training because as a result of it she expects to lose weight (outcome expectation). The more often we could observe such a cause and effect relationship, the more powerful the outcome expectation is. In later works [5, 8] as a result of re-conceptualisation of TRA the authors included the third factor in the model specified as perceived behavioural control (PBC). PBC is a conviction concerning the capability of performing an action. Icek Ajzen [5] points out the similarity between PBC with the feeling of self efficacy (SE)

the theory of social learning by Albert Bandura [9, p. 184]. The correlation of factors within the scope of TPB is presented in Figure 1.

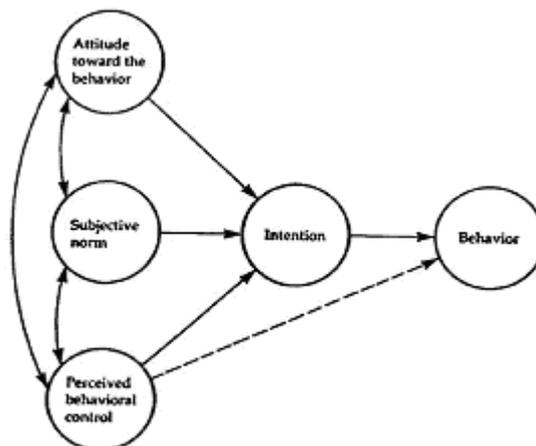


Fig. 1. Theory of Planned Behaviour  
Source: [5]

Whether or not an individual undertakes an action depends on the forming of an attitude, the sense that an action may be performed and subjective norms [7] concerning this action. The above-mentioned components decide on the strength of the intention and explain between 40 and 50% of intention variances, and, according to various sources between 18 and 38% of health behaviour variances [2]. Subjective norms result, to a large extent, from the cultural messages, perceived as important by an individual. They are internalised from the social message as beliefs on the advisability of given actions. They may be seen in the case of a subject's deferring to authorities. The observation of sex roles and their impact on the formation of women and men's behaviour shows particularly interesting differences. Already Margaret Meed [13] drew our attention to the fact that social conditions of sex roles acquisition results not so much from biological conditions as from the cultural context in which an individual functions. According to Jacek Szmatka [14] the norm forming process is structurally imposed. It conditions the model of beliefs about the world, the departure from which is automatically stigmatised. We know that women usually undertake more pro-health activities than men [15]. No research has been conducted, however, as far as the particular character of healthy behaviour of women with or without off-springs is concerned.

The subject of the research is pro-health behaviour of women. The objective of the research is the comparison of pro-health behaviour of women who have children and those who are childless and an attempt to explain the observed differences with the use of the Theory of Planned Behaviour. It was assumed for the sake of the research that women who have children will not differ significantly with respect to undertaken pro-health behaviour from those who are childless.

## Material and methods

The research sample consisted of women (N=477) at the age of 19 to 36 (M=27.5; SD=4.1). Two groups were selected from the population: women who have children (N=124) and women who are childless (N=353). The sample group was selected at random from the population of Tricity companies and universities. By random stratification female students of the Faculty of

Pedagogy of the University of Gdańsk, Faculty of Medicine of the Medical University of Gdańsk and Faculty of Physical Education of the Academy of Physical Education and Sport were selected. Analogically, the other part of population was selected, choosing female teachers, doctors and PE teachers from the Tricity. The research was conducted at the end of 2008 and the beginning of 2009.

The modified Health and Behaviour Survey Questionnaire created by A. Steptoe and J. Wardle was used for the research. It consists of 28 questions concerning five classes of behaviour: using stimulants, health reinforcing behaviour, diet and nutritional habits, behaviour connected to driving and health. Two unchanged scales of the questionnaire (*ADDICTIONS AND NUTRITION*) and two modified ones were used in the analysis. The first of them measuring Physical Activity (*PHYSICAL ACTIVITY*) was completed with two questions – concerning the type of the physical activity undertaken and specifying whether this activity is undertaken voluntarily or out of obligation. The last from the scales (*HYGIENIC and MEDICAL*) is related to actions undertaken in order to maintain health. In addition, the psychological and social variables were controlled: education and social class of parents, place of birth of the sample group.

## Results

The outcome analysis shall start with the presentation of descriptive statistics regarding particular aspects of healthy behaviour in the research group consisting of mothers and childless women.

Tab. 1. Descriptive statistics for healthy behaviour measurements in the research group (N=477) and expert judges (N=38)

Variables PRO-HEALTH BEHAVIOUR	Childless Women (N=353)				Women having children (mothers) (N=124)			
	M	SD	Min	Max	M	SD	Min	Max
PHYSICAL ACTIVITY	6.72	5.14	0.00	31.00	3.69	3.82	0.00	17.00
ADDICTIONS	18.91	3.45	9.00	25.00	18.48	3.43	10.00	25.00
HYGIENIC AND MEDICAL	14.06	3.01	6.00	20.00	14.61	2.69	6.00	19.00
NUTRITION	20.10	2.93	10.00	30.00	20.62	2.29	16.00	25.30

Another step of the outcome analysis was the verification of statistical significance of the observed differences (with reference to the descriptive statistics) in the area of interest of healthy behaviour in both groups. The first stage of this procedure consists in the checking of normality of distribution of dependent variables included in the research in the whole sample by Kolmogorov-Smirnov test.

The elicited outcomes let us assume that the distribution of dependent variables included in the sample is not close to normal distribution (Z test value is statistically significant). The comparison of all tested variables and statistics values is presented in Table 2. For verification of statistical significance of the elicited differences the Mann-Whitney test for independent trials (U statistics) was used. The outcomes of the applied procedure are presented in Table 3.

Tab. 2. Verification of normality of distribution of dependent variables in the research group (N=477) (Kolmogorov-Smirnov Test)

Variables	THE RESEARCH GROUP		Z Value	p
	M	SD		
PHYSICAL ACTIVITY	5.94	5.01	2.22	0.001***
ADDICTIONS	18.79	3.44	2.46	0.001***
HYGIENIC AND MEDICAL	14.22	2.94	2.05	0.001***
NUTRITION	20.23	2.79	1.46	0.027*

\*\*\* Difference significant at  $p \leq 0.001$ ; \* Difference significant at  $p \leq 0.05$

Tab. 3. Verification of the significance of the differences in particular types of pro-health behaviour in the sample group of childless women (N=353) and women who have children (N=124) compared by the U Mann-Whitney test

Variables	Childless women N=353		Women having children N=124		U Value	p
	average range	range sum	average range	range sum		
PHYSICAL ACTIVITY	263.03	92851.00	170.58	21152.00	13402.00	0.001***
ADDICTIONS	243.46	85942.00	226.30	28061.00	19139.50	0.231
HYGIENIC AND MEDICAL	231.22	81620.50	261.15	32382.50	28869.00	0.037*
NUTRITION	232.83	82188.00	256.57	31815.00	19707.00	0.098

\*\*\* Difference significant at  $p \leq 0.001$ ; \* Difference significant at  $p \leq 0.05$

The analysis of the outcome indicates a significantly higher level of physical activity among women who have no children. In the case of hygienic and medical habits a contrary interrelation was observed. In the case of other behaviour (dietary habits, avoidance of addictions) there were no statistically important differences.

## Discussion

To sum up, we have to say that in the sample groups a significant change in the pattern of health functioning was observed. We may put forward a hypothesis that the change is connected with the modification of the conditions of personal functioning of the women who were tested upon. Having children causes considerable changes in the time budget of mothers. It is hard not to see the connection between the two facts: the change in the time budget (cause) brings about a change in the quantity and quality of healthy behaviour (decrease in the number of physical activities undertaken due to the lack of time (effect)). However, a large group of variables: from the change of subjective norms and behavioural control influencing the strength of intention to the very undertaken actions [1] may be a mediator in the observed change. The unsolved conflict between the possessed identity [20] and the new-role identity may be an important modifier of behaviour of mothers who have children. The discord between what women want and what – according to the

internalised external subjective norms – they should do invokes additional tension. According to Albert Bandura, the author of the self-efficacy theory within the theory of social learning [11] it is the self-efficacy that becomes the mediator for taking up and/or modifying healthy behaviour [1]. Unfortunately, the applied research procedure (single study and comparison of the sample group) makes a positive and parametrical verification of the above factors impossible. In the successive works twofold or, even better, longitudinal sample group behaviour evaluation should be considered. The first measurement should comprise the strength of intention to undertake healthy behaviour and the quantity of health behaviour at the time of childlessness. The second measurement (using the same methodology) should take place once the women in the sample group have given birth. The procedure conducted in such a way, assuming the control of mediator variables [15] connected to, e.g., developmental task implementation enables a more complete control and elicitation of more credible outcomes. C.L. Sheridan [16] draws particular attention to the formation of research plans in the health factor area quoting numerous examples of the influence of redundant variables and other distortions of reasoning. Women's physical activity is particularly important, as it perfectly prevents the involitional bodily changes. Mariusz Lipowski [17] in his study on the recreational activity of women puts an emphasis on a wide range of negative results of hypokinesia. It influences the etiology of circulatory system and joint illnesses, osteoporosis, type II diabetes and a broad spectrum of symptoms related to depression (headaches, anxiety attacks, mood depression). On the other hand, physical activity boosts the self-evaluation of the persons who exercise [18]. Considering the following information the change in subjective norms concerning undertaking physical activity by women becomes more and more important. It is pivotal to include physical activity in their subjective norms from the earliest age possible.

The formation of pro-health attitude may consist in creating positive beliefs concerning physical activity and connecting them with pleasant experiences.

## **Conclusion**

The observed increase in healthy hygienic and medical behaviour may be interpreted as compensational. As being a mother means being the protector of child's health and life, a limited time budget makes it impossible for mothers to freely undertake physical activity. A natural need of maintaining the balance of health-protecting activities may trigger compensational healthy activities. The belief that administering medicines boosts the immune system may be the heuristics of availability [19] for the subject, as he/she is often exposed to the attractive stimulus (advertisements), more appealing than the faith in the effectiveness of physical activity. This mechanism, obviously, needs to be verified empirically. The promotion of a new model of woman who eagerly takes up physical activity at any age is a challenge for specialists and the media. In the central point of this change lies the formation of the new identity of a health-aware woman and mother.

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