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Article

Analysis of Health Behaviours and Personal Values of Childless Women, Pregnant Women and Women Who Recently Delivered

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Abstract: Preconception lifestyle modification and reducing several known risk factors may have an influence on the future pregnancy outcome. The aim of the study was to analyse health behaviour and personal values, as well as to assess the relationship of these factors in women without children, in pregnant ones and in women who had already delivered babies. The questionnaire survey included Health Behaviour Inventory (HBI), Personal Value List (PVL) and the sociodemographic data and was conducted in 538 women. These women were divided into 3 groups: women who recently delivered (n = 235), pregnant women (n = 121) and childless women (n = 182). Pregnant women demonstrated a significantly higher level of declared health behaviours and also they rated higher subscales values "positive mental attitude" and "health practices" in comparison to women who recently delivered and to childless women. In all tested groups the highest rated personal value was "a successful family life", while the most appreciated symbol of happiness was "love and friendship". Our results suggest that the system of values and the perception of happiness symbols may influence women's health behaviours. Positioning “health” in the hierarchy of personal values as the most important one may facilitate introduction of healthy behaviours. This in turn could reduce several adverse pregnancy outcomes that are potentially modifiable with changing preconception health attitudes. Our results also identify several unanswered questions and highlights areas where new research is needed.

Keywords: pregnant and non-pregnant women; health behaviours; preconceptional lifestyle; personal values; symbols of happiness

1. Introduction

Existing studies suggest that that health may be regarded as an instrumental value and tool that can be used to gain other values that are important to the individual. Adults who assign a high value to their health and who are convinced of their personal influence on health status usually show behavioural attitudes directed towards maintaining and improving their general health status. It is well known that women and men may have different attitudes towards health care, preventive health care, health-threatening behaviours and unhealthy behaviours [1]. Stereotypes of the female and male psychological characteristics, as well as stereotypes of gender roles are reflected in patterns of

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behaviour of both sexes also in case of treating health as a highly appreciated value. Women are generally characterized by greater than men interest in their own body and their health in particular [2-4]. Additionally, women present usually a better understanding of the need for prevention and treatment of diseases. In general, they employ these beliefs not only towards their own bodies but also to support their families and their social environment. The female social role of a mother and a housewife is also linked to a range of health behaviours that are more commonly practiced by women than men [5,6]. On the other hand, women increasingly demonstrate a willingness for a stereotypically male-dominated social roles. The examples are well reflected in their health behaviours such as the use of psychoactive substances - alcohol or smoking [7,8]. Lyons et al. and Hutton et al. [8,9] found that excessive drinking in women was associated with seeking pleasure, empowerment, independence and attention from the opposite sex. Toll et al. [10] showed that smoking in women may be associated with attempts to increased femininity and sexual attraction, or even may be a sign of rebellion.

The practical dimension of health care is the realization of health-promoting behaviours in life. Several studies confirmed that health promoting behaviours related to both health and disease prevention and treatment were more frequently found in women as compared to men [11-13]. The behavioural health of women is at least partially determined by various demographical and cultural factors such as socioeconomic status [14,15], age, education [16] or type of work [17,18]. Cultural conditioning as a system of norms, beliefs and patterns of conduct also plays an important role in the determination of personal health behaviours [19,20]. It has been suggested that the system of preferred values and norms not only affects the choice of health behaviours, but also may change the frequency of intentional childlessness occurring in Poland [21]. Importantly, knowledge about the age-related decline in female fertility is still not satisfactory [22].

Female health behaviours may depend on the status of their fertility and their preferences of personal values [18].Because at least some preconceptional risk factors of adverse pregnancy outcomes could be modified, a woman's lifestyle and various behaviours of women who recently delivered and childless women should be an important area of research and the subject of psychosocial monitoring. Therefore, discovering differences in approach to health behaviours related to the system of personal values and the fundamental aspects of maternity or its deficits is a new challenge for the prenatal care in women who wish to maintain their procreation health. Unravelling the new factors potentially affecting health behaviours of pregnant women and women who delivered their babies is now a diagnostic challenge [23-27]. Several published studies proved the effectiveness of various educational activities that are crucial for the planning of promotional activities [28,29]. However, there is only a scant knowledge about the involuntary childlessness and the seeking of possible fertility behaviours modifications. The purpose of our study was to analyse health behaviours and personal values, as well as to evaluate the possible association of these both factors in childless women, in pregnant women and in women who already delivered and had their own babies.

2. Materials and Methods

2.1. Study design

The study was conducted between September 2013 to May 2014 with the use of a two-way paper and pencil interview (PAPI) and computer-assisted web interviewing (CAWI).The PAPI method was

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carried out among the female inhabitants of the Lublin voivodeship who attended the Specialized Medical Centre "INTERMED", the Provincial Occupational Medicine Centre, the Prophylactic and Curative Centre, the "GRAVIMED" School of Birth and the "Active Mother" Maternity School. All these units were located in Lublin, Poland. Respondents were recruited every second week of the month, following attendance of each of the aforementioned medical centers. All women expressed their written informed consent for the participation in this study. Surveys through CAWI method were conducted among women across Poland, using eight "www" web fanpages addressed to women on Facebook platform. Links redirecting to the surveys were located on the portal "www.moje-ankiety.pl" (my-questionnaires.com), and appeared on the fan pages on the first day of the month, for a period of 9 months when the research was conducted.

Criteria for inclusion in the study group were: female sex, residence of Poland, a willingness and signed informed consent to participate in the study. Women who completed questionnaire surveys incorrectly or incompletely were excluded from the survey.

2.2. Participants

In total, 550 questionnaires were collected, of which 538 (97.82%) were fully completed and only these were considered for further analysis. Women were divided into 3 groups: group A - women who recently delivered (n = 235), group B - pregnant women (n = 121) and group C - childless women (n = 182). The data collection flowchart is presented in Figure 1.

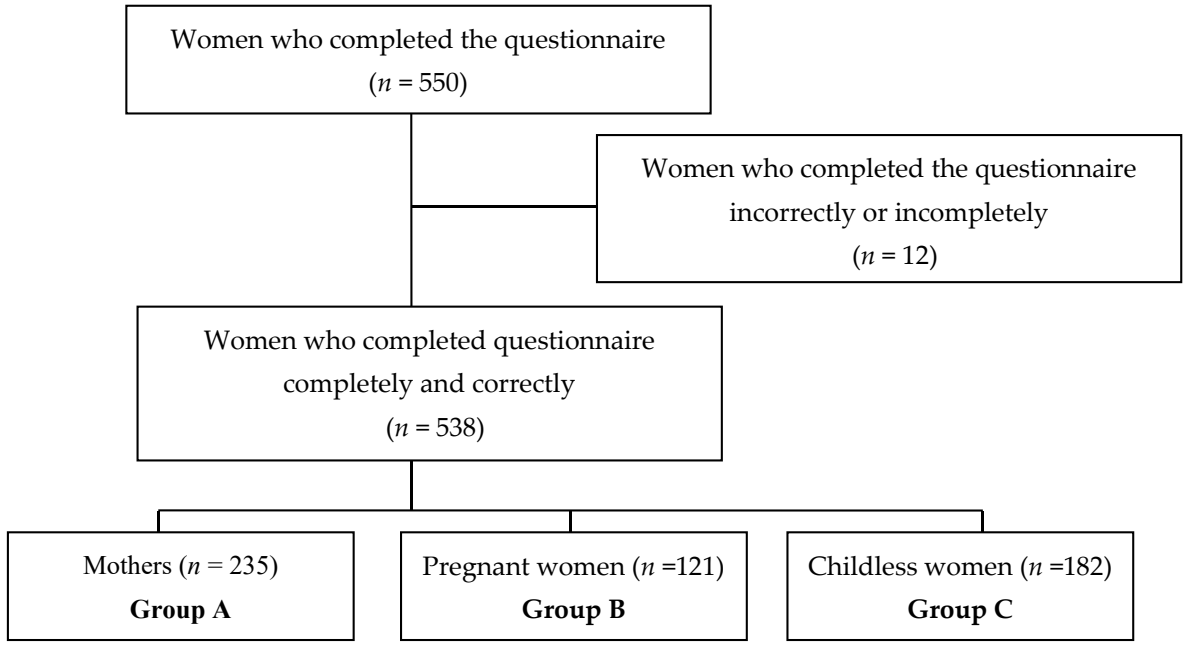

Figure 1. A flow-chart demonstrating the selection of studied groups.

2.3. Ethics approval

The Bioethics Committee of the Medical University of Lublin has approved this study in accordance with the requirements of the Helsinki Declaration (decision number KE-0254/123/2013).

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2.4. Questionnaires

The survey consisted of two standardized questionnaires and a tool that assessed the socio-demographic status of the respondents:

1. Health Behaviour Inventory (HBI) is a self- assessment tool that consists of 24 statements defining different health behaviours. In this inventory an appropriate numeric value for each test item depending on how the data applies to a given respondents assigned. These values were coded as: 1- "almost never", 2 –"rarely", 3 –"from time to time", 4 –"often", 5- "almost always". HBI also allows to evaluate the subscales of health behaviours in four categories called "healthy dietary habits," it also includes data on the type of food consumed. The evaluated factors included: frequency of consumption of wholemeal bread, fruit and vegetables, salt and avoidance of eating food containing preservatives, "prophylactics" or behaviour related to disease prevention i.e. compliance with health recommendations, regular medical examinations and medical information. Next two evaluated subscales included: "health practices" meaning everyday behaviours associated with the appropriate amount of sleep, exercise, monitoring of body weight or pastime and "positive mental attitude" which meant" avoidance of excessively strong emotions", "stress" or "situations that can cause depression". The overall result of the questionnaire called "the index of health behaviours", produces the values ranging from 24 to 120 points. In general, the higher the score of this index, the higher the rate of positive health behaviours is found. The values of this index are further subdivided into "low", "medium" or "high" scores [30].

2. **Personal Value List (PVL)** was used to estimate the value that is attributed to "health" in relation to other values and personal interests important to an individual. This research tool consisted of two parts: the first part includes 9 symbols of happiness, defining different forms of human values; whereas the other listed 10 personal values enabling their ratings. Respondents had to select only 5of 9 symbols that were most important for them and were asked to assign the values from 5 points (the most important) to 1 point (the least important) to each chosen symbol. Following this selection, participants were asked to assign scores of 10 personal values, according to the above described rule. Symbols of happiness and personal values, which were not selected, were given a value of "0".Rank assigned by the respondent to "health" reflected the value given in this category in comparison to other values and personal property [30].

3. **Questionnaire collecting data about the respondents**- a separate sheet of paper was prepared for responder's socio-demographic data such as age, place of residence, education and occupational status.

2.5. Statistical analysis

Statistical analysis included the calculation of average values, standard deviations, minimum, maximum and median for measurable values. For non-measurable parameters the estimated frequencies and percentages were used. For measurable characteristics, normality of the distribution was checked with the Shapiro-Wilk test. The Kruskal-Wallis test, along with the post-hoc NIR test were used to investigate differences between the groups in measurable parameters. The Pearson r correlation was used to check for the possible relationship between the level of health behaviours, symbols of happiness and personal values. A p value < 0.05 was considered statistically significant. All analyses were performed with the use of Statistica v.9.1 (StatSoft, Poland) software.

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3. Results

3.1. Participants characteristics

Table 1 presents selected socio-demographic structure of respondents in terms of age, place of residence, education and their occupational status. The mean age (±SD) of the studied women was 28.9 ± 4.3 years in group A, 28.7 ± 3.7 years in group B and 28.3 ± 4.5 years in group C.

Table 1. Selected features of sociodemographic characteristic of studied women.

Variable	Group A (*n* = 235)	Group B (*n* = 121)	Group C (*n* = 182)
Age, years:	28.9 ± 4.3	28.7 ± 3.7	28.3 ± 4.5
< 26 years	69 (29.36)	34 (28.10)	62 (34.07)
27 - 30 years	76 (32.34)	54 (44.63)	60 (32.97)
31 years <	90 (38.30)	33 (27.27)	60 (32.97)
Place of residence:			
City > 20.000	139 (59.15)	94 (77.69)	116 (63.74)
City < 20.000	47 (20.0)	10 (8.26)	33 (18.13)
Countryside	49 (20.85)	17 (14.05)	33 (18.13)
Education:			
Primary	0 (0.0)	1 (0.83)	1 (0.55)
Vocation	16 (6.81)	1 (0.83)	1 (0.55)
High school	63 (26.81)	8 (6.61)	34 (18.68)
Partial high education	37 (15.74)	10 (8.26)	35 (19.23)
University	119 (50.64)	101 (83.47)	111 (60.99)
Employment status:			
White-collar worker	111 (47.23)	90 (74.38)	94 (51.65)
Manual-labourer	47 (20.0)	17 (14.05)	44 (24.18)
Physical and white collar worker	9 (3.83)	7 (5.79)	11 (6.04)
Student	19 (8.09)	3 (2.48)	22 (12.09)
Unemployed	49 (20.85)	4 (3.31)	11 (6.04)

Date are mean ± SD or *n* (%)

3.2. Health behaviour of women (HBI)

The highest mean HBI score of 86.13 (SD = 10.30) was found in women from group B. Group C had a mean HBI score of= 82.44 (SD = 11.80) and group A had the lowest HBI score with the mean=81.93 (SD = 14.51). The differences between the groups of pregnant women who had higher score on a HBI scale and the groups of women who recently delivered and childless women were statistically significant ($p < 0.05$).

The highest mean score of the HBI subscale "positive mental attitude" was found in women from group B – 3.62 (SD = 0.52), followed by women from group A – 3.57 (SD = 0.75) and the lowest mean score in this HBI subcategory was found in women from group C – 3.38 (SD = 0.69). Pregnant women

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had significantly higher scores in the subscale "positive mental attitude" compared with women who had their own babies and with a group of childless women($p < 0.01$).

"Health practices" was another HBI subscale that differentiated studied groups. The highest mean level for this feature was 3.68 (SD = 0.56) found in group B, followed by the value of 3.40 (SD = 0.57) from the C group and the lowest mean of 3.22 (SD = 0.68) found in respondents from group A. The use of this subscale revealed significant differences between the studied groups ($p < 0.001$). Detailed data is shown in Table 2.

Table 2. Health behaviours comparisons according to HBI inventory in studied groups

Group		General indicator of HBI	Health eating habits	Prophylactic behaviours	Positive mental attitude	Health practices
A (I)	M±SD	81.93±14.51	3.45±0.77	3.41±0.78	3.57±0.73	3.22±0.68
	Min.-Max	36.00-116.00	1.5-5.00	1.17-5.00	1.17-5.00	1.17-4.83
	Me	83.00	3.50	3.50	3.67	3.17
B (II)	M±SD	86.13±10.30	3.54±0.60	3.51±0.53	3.62±0.52	3.68±0.56
	Min.-Max	54.00-108.00	1.50-4.67	2.33-4.83	2.00-5.00	2.17-5.00
	Me	88.00	3.50	3.50	3.67	3.67
C (III)	M±SD	82.44±11.80	3.53±0.75	3.43±0.67	3.38±0.69	3.40±0.57
	Min.-Max	56.00-113.00	1.67-5.00	1.50-4.83	1.50-4.83	1.67-4.83
	Me	83.00	3.67	3.50	3.33	3.50
Statistical analysis		H=8.725*	H=1.434	H=0.696	H=11.578**	H=42.033***
Intergroup differences		I-II, II-III	-	-	I-III, II-III	I-II, I-III, II-III

Key: M-mean, SD- standard deviation, Me-median, H-Kruskal-Wallis test result

Statistical significance: *p≤0.05; **p≤0.01; ***p≤0.001

3.3. Symbols of happiness and personal values in the studied groups (PVL)

The results of the PVL survey in the category of 9 symbols of happiness indicated that the top priorities of studied women were: "successful family life", "good health", "working in favourite job, profession" and "good substantive conditions."Successful family life" ($p < 0.001$) and good "substantive conditions" ($p < 0.001$) were scored significantly higher when assessed by women who delivered babies (group A) and by pregnant women (group C) as compared to group of childless women."Performing favourite job" feature had a significantly increased value among women in groups C and B compared to group A ($p < 0.05$). Detailed results are presented in Table 3.

When the category of 10 personal values was considered, the highest value was assigned to "love and friendship", followed by "good health", "physical fitness and mental health"; "joy and satisfaction" and "intelligence and mental acuity". Significant differences were found between the groups of women who delivered babies (group A) and pregnant women (group B) who valued higher a category "love and friendship" ($p < 0.01$) when compared to the group of women who delivered babies and to women without children (group C). Interestingly, women from group C valued higher a category "intelligence and mental acuity" ($p < 0.001$) than women from groups A and B. The detailed results are presented in Table 4.

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203

204 Table 3. Comparison of symbols of happiness scoring in the studied groups according to PVL inventory.

Symbols of happiness	Group	The mean weight	Range (choices in %)					
			1	2	3	4	5	0
Major circle of friends	A (I)	1.24	13.62	11.49	14.04	5.96	4.25	50.64
	B (II)	1.16	13.22	10.74	15.70	7.44	0.83	52.07
	C (III)	1.23	14.29	9.89	18.68	6.04	1.65	49.45
Statistical analysis			H=0.185					
Successful family life	A (I)	4.60	2.13	4.68	3.40	17.45	69.36	2.98
	B (II)	4.57	2.48	0.0	3.31	18.18	74.38	1,65
	C (III)	3.80	7.69	4.95	4.95	20.87	52.75	8.79
Statistical analysis			H=23.987*** (ID: I-III, II-III)					
Working in a dream job/profession	A (I)	1.88	17.87	15.32	22.55	13.62	3.40	27.24
	B (II)	2.15	13.22	31.40	21.49	12.40	4.96	16.53
	C (III)	2.30	14.84	28.02	23.63	16.48	4.39	12.64
Statistical analysis			H=8.396* (ID: I-III)					
Success in education/ work	A (I)	1.13	9.79	10.21	10.21	9.36	2.98	57.45
	B (II)	0.56	16.53	14.05	1.65	1.65	0.0	66.12
	C (III)	1.20	20.34	8.79	7.15	5.49	7.69	50.54
Statistical analysis			H=10.946** (ID: II-III)					
Good health	A (I)	3.75	3.83	9.79	11.49	42.13	29.78	2.98
	B (II)	3.60	3.31	9.92	22.31	43.80	19.01	1.65
	C (III)	3.64	3.30	11.53	14.84	34.07	31.32	4.94
Statistical analysis			H=3.474					
Being needed by other people	A (I)	1.55	14.47	20.00	11.06	6.81	8.08	39.58
	B (II)	1.10	13.22	9.09	10.74	7.44	3.31	56.20
	C (III)	1.50	8.79	13.19	20.34	6.59	5.49	45.60
Statistical analysis			H=7.726* (ID: I-II)					
Good substantive condition	A (I)	2.18	13.62	12.77	25.53	14.89	8.51	24.68
	B (II)	1.83	25.62	18.18	19.84	13.22	1.65	21.49
	C (III)	1.35	18.13	15.38	9.89	12.09	1.65	42.86
Statistical analysis			H=27.432*** (ID: I-III, II-III)					
Adventurous life	A (I)	0.69	16.17	5.96	8.51	3.40	0.43	65.53
	B (II)	0.31	9.92	2.48	2.48	0.0	1.65	83.47
	C (III)	0.57	8.79	7.14	1.65	1.65	4.40	76.37
Statistical analysis			H=14,215*** (ID: I-II)					
Fame, popularity	A (I)	0.22	6.81	3.40	0.85	0.43	0.85	87.66
	B (II)	0.02	1.65	0.0	0.0	0.0	0.0	98.35
	C (III)	0.13	1.10	1.65	2.20	0.55	0.0	94.50
Statistical analysis			H=14.443*** (ID: I-II)					

205 Key: M-mean, SD-standard deviation, Me-median, H-Kruskal-Wallis test results, ID-intergroup differences

206 Statistical significance: *p≤0.05; **p≤0.01; ***p≤0.001

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207 **Table 4.** Comparison of personal values scoring in studied groups according to PVL inventory.

Personal values	Group	The mean weight	Range (choices in %)					
			1	2	3	1	5	0
Love and friendship	A (I)	4.29	4.68	2.13	3.41	19.57	66.38	3.83
	B (II)	4.58	2.48	0.83	3.31	14.87	76.86	1.65
	C (III)	4.03	3.85	1.10	6.04	21.98	58.24	8.79
Statistical analysis			H=12.662** (ID: II-III)					
Good health, physical and mental efficiency	A (I)	3.79	2.55	5.11	8.08	45.11	32.34	6.81
	B (II)	3.97	0.0	4.96	8.26	63.64	21.49	1.65
	C (III)	3.70	4.95	6.59	9.89	37.91	34.07	6.59
Statistical analysis			H=0.228;					
Sense of humour, wit	A (I)	1.00	9.79	5.53	14.89	6.39	1.70	61.70
	B (II)	0.55	15.71	6.61	6.61	1.65	0.0	69.42
	C (III)	1.04	17.03	6.59	10.44	7.15	2.75	56.04
Statistical analysis			H=7.801* (ID: I-II)					
Intelligence, sharp mind	A (I)	1.80	8.08	17.87	24.26	11.07	3.83	34.89
	B (II)	1.40	12.40	19.01	23.14	4.96	0.0	40.49
	C (III)	2.06	11.54	18.13	25.82	15.39	3.85	25.27
Statistical analysis			H=13.351*** (ID: II-III)					
Knowledge and wisdom	A (I)	1.39	9.36	14.89	17.45	7.66	3.41	47.23
	B (II)	1.00	10.75	10.75	11.57	4.13	3.30	59.50
	C (III)	1.39	7.14	15.94	15.38	9.34	3.30	48.90
Statistical analysis			H=6.255* (ID: I-II)					
Happiness, contentment	A (I)	1.97	7.23	19.58	26.81	8.08	7.66	30.64
	B (II)	2.02	7.44	31.40	27.27	8.26	3.31	22.32
	C (III)	1.74	13.74	29.67	14.84	6.59	6.04	29.12
Statistical analysis			H=4.297					
Courage, firmness	A (I)	0.69	11.49	6.38	5.11	4.26	2.55	70.21
	B (II)	0.40	9.92	5.78	3.31	0.0	1.65	79.34
	C (III)	0.62	7.14	3.30	2.74	4.40	4.40	78.02
Statistical analysis			H=4.832					
Kindness, consideration	A (I)	1.21	17.02	15.32	7.66	6.81	4.68	48.51
	B (II)	0.97	18.18	9.92	13.22	1.65	2.48	54.55
	C (III)	0.96	12.09	9.34	9.89	5.49	2.75	60.44
Statistical analysis			H=4.831					
Fine appearance, presence	A (I)	0.46	6.81	2.55	3.40	1.28	3.83	82.13
	B (II)	0.14	7.44	0.83	1.65	0.0	0.0	90.08
	C (III)	0.38	6.59	5.49	4.40	1.10	0.55	81.87
Statistical analysis			H=5.296					
Wealth, fortune	A (I)	0.63	11.06	5.11	5.53	4.26	1.70	72.34
	B (II)	0.50	13.22	7.43	4.96	0.83	0.83	72.73
	C (III)	0.45	8.24	3.84	4.95	2.20	1.10	79.67
Statistical analysis			H=3.168					

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Key: M-mean, SD-standard deviation, Me-median, H- Kruskal-Wallis test results, ID- intergroup differences
Statistical significance : *p≤0.05; **p≤0.01; ***p≤0.001

3.1. Relationship between personal values (PVL) and health behaviours (HBI) of examined women

A statistically significant positive correlation (r = 0.217, p = 0.001) was found between the health behaviours and a category "being needed by other people" in the examined group of women who recently delivered. Mothers who elected a feature “to be needed by other people” at the same time were characterized by better health behaviours. A significant negative correlation (r = -0.130, p <0.05) was found between health behaviours and the choice of "wealth, fortune” feature. A group of women who delivered babies and who highly valued “wealth and fortune” category were also characterized by worse health behaviours. Significant negative correlations between pregnant women health behaviours and the selection of happiness symbol "large circle of friends" (r = -0.234, p = 0.01); as well as "wealth, fortune" symbols (r = -0.238, p < 0.01) were found. Pregnant women who valued highly having a “large circle of friends” or “wealth and fortune” selected at the same time worse health behaviours as assessed by HBI inventory.

The selection of categories "intelligence, quickness of mind" and "sense of humour" was negatively correlated with health behaviours of childless women. The respondents who regarded highly both above-mentioned values also exhibited worse health behaviours. Additionally, a statistically significant positive correlation was observed between health behaviours and the choice of values “joy, satisfaction" (r = 0.172, p < 0.05). Childless women who assessed highly the value of "joy, satisfaction" were also characterized by better health behaviour son the HBI inventory subscale called "positive mental attitude". Tables 5 and 6 present detailed data on the correlations of selected personal values and happiness symbols with the level of health behaviours.

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Table 5. Pearson correlation test for health behaviours as assessed by HBI inventory and symbols of happiness (PVL inventory) in studied groups.

Symbols of happiness	Group	Health behaviours				
		General indicator of HBI	Health eating habits	Prophylactic behaviours	Positive mental attitude	Health practices
Major circle of friends	A	0.028	0.020	-0.017	0.032	0.060
	B	-0.234**	-0.264**	-0.056	-0.202*	-0.191*
	C	-0.055	-0.083	-0.069	0.027	-0.030
Successful family life	A	0.017	0.049	-0.030	-0.014	0.054
	B	-0.010	0.103	-0.008	-0.012	-0.121
	C	0.116	0.070	0.043	0.217**	-0.003
Working in a dream job/profession	A	-0.034	-0.009	0.008	-0.069	-0.045
	B	0.025	-0.024	-0.019	-0.073	0.189*
	C	-0.017	0.076	-0.011	-0.061	-0.072
Success in education/ work	A	0.016	-0.080	0.091	0.037	0.004
	B	-0.030	-0.006	0.092	-0.063	-0.113
	C	-0.093	-0.011	-0.027	-0.071	-0.189*
Good health	A	0.177**	0.188**	0.202**	0.073	0.105
	B	0.002	0.070	-0.131	0.014	0.044
	C	0.022	-0.090	0.066	0.022	0.089
Being needed by other people	A	0.217***	0.252***	0.227***	0.158*	0.054
	B	0.013	0.015	0.035	-0.028	0.017
	C	0.080	0.100	0.071	0.010	0.052
Good substantive condition	A	-0.109	-0.072	0.011	-0.133*	-0.175**
	B	0.086	0.081	-0.097	0.141	0.135
	C	-0.049	-0.106	-0.036	-0.106	0.141
Adventurous life	A	0.115	0.116	0.112	0.068	0.077
	B	0.051	0.076	-0.123	0.047	0.145
	C	0.120	0.115	0.049	0.095	0.091
Fame, popularity	A	-0.037	-0.032	0.002	-0.069	-0.023
	B	-0.090	-0.081	-0.166	-0.114	0.075
	C	-0.038	-0.073	-0.046	0.075	-0.071

Statistical significance: *p≤0.05; **p≤0.01; ***p≤0.001

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Table 6. Pearson correlation test results for health behaviours (HBI inventory) and personal values (PVL) in studied groups of women.

Personal values	Group	Health behaviours				
		General indicator of HBI	Health eating habits	Prophylactic behaviours	Positive mental attitude	Health practices
Love and friendship	A	0.106	0.085	0.104	0.082	0.073
	B	-0.017	-0.060	-0.024	-0.029	0.062
	C	0.079	0.008	0.029	0.216**	-0.031
Good health, physical and mental efficiency	A	0.226***	0.220***	0.288***	0.131*	0.079
	B	0.104	0.056	0.046	0.151	0.074
	C	0.069	0.012	0.215**	-0.066	0.049
Sense of humour, wit	A	-0.067	-0.082	-0.010	-0.026	-0.104
	B	-0.077	-0.115	-0.142	-0.096	0.109
	C	-0.267***	-0.253***	-0.233**	-0.143	-0.142
Intelligence, sharp mind	A	-0.044	-0.039	-0.011	-0.016	-0.081
	B	-0.111	-0.077	-0.059	-0.054	-0.149
	C	-0.153*	-0.049	-0.120	-0.141	-0.154*
Knowledge and wisdom	A	-0.108	-0.101	-0.011	-0.149*	-0.098
	B	0.112	0.115	0.043	0.020	0.158
	C	-0.139	-0.053	-0.055	-0.140	-0.177*
Happiness, contentment	A	0.139*	0.076	0.100	0.114	0.172**
	B	0.027	0.033	-0.035	-0.121	0.192*
	C	0.172*	0.119	0.064	0.196**	0.126
Courage, firmness	A	-0.109	-0.129*	-0.043	-0.079	-0.107
	B	-0.047	-0.033	-0.002	-0.081	-0.033
	C	0.049	-0.002	0.036	0.131	-0.028
Kindness, consideration	A	0.035	0.036	0.076	-0.018	0.015
	B	-0.051	-0.016	-0.067	-0.095	0.012
	C	-0.113	-0.208**	-0.118	0.083	-0.079
Fine appearance, presence	A	-0.032	-0.098	0.058	-0.010	-0.060
	B	-0.125	-0.092	-0.199*	0.007	-0.101
	C	-0.110	-0.177*	-0.052	-0.092	0.025
Fortune, wealth	A	-0.130*	-0.163*	-0.038	-0.112	-0.111
	B	-0.238**	-0.173	-0.214*	-0.079	-0.264**
	C	-0.053	-0.161*	0.056	-0.039	0.009

Statistical significance: *p≤0.05; **p≤0.01; ***p≤0.001

4. Discussion

In recent years studying of preconceptional women's health behaviours became an important area of perinatal research. Several countries already support the use of professional psychosocial services in infertility treatment. Developing and evaluating selected psychosocial interventions are

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necessary to offer an adequate support needed for women who plan parenthood. These facts highlight the importance and high rating of modern patient-centred healthcare. General female health status varies between women with various factors that include demographic distribution such as age, place of living and socioeconomic conditions. Women who do not receive adequate health services support are more likely to present decreased care for their preconceptional health. Several factors that may enhance positive health behaviours or could restrict healthy lifestyle have been recently proposed. As suggested by Zielińska and Nowicka [31] reproductive health problems in women could beat least in part related to their socioeconomic status and social condition. The direct or indirect causes of these problems are often related to female gender discrimination such as lower wages, economic dependence on men, unequal distribution of family responsibilities, including their almost exclusive childcare, care for the sick, disabled and elderly. Our results indicated that several other not well recognized yet factors may affect selected conditions of womens health. Pregnant women who regarded “wealth and fortune” as more important than other values were significantly more likely to exhibit negative health behaviours. Moreover, childless women were significantly more likely to exhibit a positive correlation between health behaviour and the choice of health categories related to "joy and/or satisfaction". On the other hand, women who recently delivered and pregnant women who were questioned more frequently elected positive health attitudes in terms of mental health as compared to the group of childless women.

Cultural, demographic and socioeconomic considerations are important in planning and developing strategies that could effectively address the persistent disparities in various preconceptional health indicators. Several factors are responsible for these disparities, but family role is particularly important for the creation of pro- or anti-health behaviours [32]. For instance, physically active women exhibit moderate intensity of health behaviour as reported in studies conducted by Kaczyńska-Witkowska et al. [33]. According to Weber-Rajek et al. [34] in postmenopausal women, the highest rate of health behaviours are observed among respondents who have received hormone replacement therapy (HRT). The relationship between female gender and better health behaviours is also commonly reported [11,12,35].Women's health behaviours in cancer prevention [36] or in women diagnosed with cancer have been studied extensively [37-39],but the results of these studies are difficult to compare with our results presented in this paper. We have not found other studies including comparable groups of women in who preconceptional health behaviours were assessed with the use of HBI inventory. Our studied population was characterized by higher rate of positive health behaviours as compared to the population of 315 women over 65 years of age surveyed by Młynarska et al. [40]. Bojar et al. [41] employed the same research method and analysed levels of healthy eating habits among 88 pregnant women hospitalized in one of Lublin’s hospitals. In our study all groups of studied women had higher levels of eating habits as compared to the population studied by Bojar et al. [41] and the highest rate was found in pregnant women. Wierzejska et al. [42] has found similar results and demonstrated significant reduction or complete elimination of alcohol drinking, smoking, drinking coffee or energy drinks among pregnant women. These observations along with our own results that pregnancy may be related to better health education and positive changes in lifestyles of pregnant women.

Preconceptional health behaviours in women may be modified during preventive health visits. Such contact with health professionals may give an opportunity to counsel to the patients who plan pregnancy as well as to women who currently do not actively try to get pregnant. The impact of the

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values on the level of health behaviours has been described in the literature. For instance, Pohjanheimo et al. [43] investigated the relationship between personal values and food choices. They have found a positive correlation between high perceptions of health values in the hierarchy of personal values and a better, i.e. "healthier" choice of food intake. Similar results concerning the effect of values on the level of physical activity were presented by Duncan et al. [44].

The findings of our current study indicated that categories "happiness of family life" followed by "good health" were the highest rated values among the studied groups of women. Ślusarska et al. [45] used the same tool (PVL) to investigate 200 nurses opinions on their health related values. This group had the highest rated symbols of happiness for "good health" and "happy family life". In another study conducted in 50 subjects with type 2 diabetes Derkacz et al. [46] found the highest rated "happiness" symbol, reported as "successful family life". This category was followed by "good health" feature as the second most frequently selected. In our study, all the surveyed women indicated the selection of "love and friendship" and "good health, physical and mental" as the highest ranked values. Similarly, Rasińska and Nowakowska [47] who studied opinions of a group of nurses older than 40 years of age have found that the most esteemed personal values of this research group were "good health, physical and mental fitness" and "love, friendship". Rudnicka-Drożak et al. [48] analysed a group of 170 participants who were asked to choose one of the provided values that they appreciated the most highly. These values included: love, money, career, religion, family, friendship, health. The most commonly chosen value was health; followed by the "family", followed by "religion", "love", and "money".

Published data indicate that most studied women greatly valued and had a positive perception of their future parenthood [25-27]. Our results might also suggest that women in the reproductive age valued more "the family", than "health" categories. When comparing these results with other similar studies, it could be concluded that "health", "love" and "a happy family life" were the most appreciated social values. An attempt to rank these values starting from the most to the least important would probably be unreliable and unjustified. However, it could be presumed that the nature of the research determines the final result. In our study, the nature and the title of the questionnaire used term "motherhood", therefore, most respondents marked "love and friendship" as the cherished values. The term "happy family life" was not used in this scale, instead "good health, physical and mental" was offered as a choice. As the nature of health status in terms of planning maternity or its deliberate avoidance is relative in nature, there is an apparent need to strengthen health education and to promote healthy behaviours among women during their preconceptional period. This is a new domain of knowledge regarding the determinants of healthy behaviours necessary to maintain health of women. It is still to be determined if wider implementation of knowledge on these values and changing lifestyles during preconception could influence perinatal complications rate through appropriate prevention in the future.

4.1. Study limitations

The most important limitations of the study are related to the relatively low number of participants and the fact that the majority of respondents had higher education which may have affected the types of the answers. No analysis of the women's personal values in terms of their religious preferences was attempted and this category may have influenced both to the choice of motherhood and to health behaviours. These factors highlight areas where new research is needed

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for the better understanding of the personal values concerning religious life and their possible relationship with health behaviours.

5. Conclusions

Pregnant women are significantly more likely to present a higher overall rate of health behaviours as assessed by HBI test compared to childless women and women who recently delivered. Based on the PLV test results, the perceived value system of childless women differs from the values of pregnant women and women who recently delivered with a "successful family life" assessed higher than "health" in women who recently delivered and in pregnant women groups. Highly grading symbol "happy family life" on PVL test and reported health behaviours on HBI test do not appear to be associated with each other in studied respondents. However, regardless of age or health status of individuals, "health" and "family" were considered timeless values and the basis of all happiness in life.

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