ORIGINAL ARTICLE

Annals of Agricultural and Environmental Medicine
www.aaem.pl

Interactions between health behaviours and body perception in women of reproductive age – a preliminary study

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A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of the article

Bień A, Korżyńska-Piętas M, Krysa J, Penar G, Pieczykolan A. Interactions between health behaviorus and body perception in women of reproductive age – a preliminary study. Ann Agric Environ Med. doi: 10.26444/aaem/202311

Abstract

Introduction and Objective. Women's health behaviours in reproductive age are activities that directly or indirectly affect their health status, as well as the health of future generations. The aim of the study is to explore the impact of women's health behaviours on body perception, taking into account factors that may influence these interactions.

Materials and Method. The study was conducted in 2020 and 2022. 438 women of reproductive age were surveyed. The study tools were: the Positive Health Behaviour Scale for Women, Body Esteem Scale (BES), and a proprietary socio-demographic questionnaire.

Results. Regarding health behaviours, the highest mean score was for the nutrition domain (19.28 ± 4.75), and the lowest was for physical activity (12.18 ± 3.11). The mean for the overall body assessment score was 108.93 ± 22.67. A better rating of sexual attractiveness was positively associated with greater physical activity (β=0.376; p=0.000). The explanatory variable for the weight concern domain was health behaviour in terms of physical activity (β=0.381; p=0.000), the physical fitness score improved as the physical activity of the female subjects increased (β=0.365; p=0.000).

Conclusions. As positive health behaviours in nutrition, psychosocial health and physical activity increase, body evaluation in weight control and physical fitness decreases. Physical activity is a predictor of body self-assessment in sexual attractiveness, weight control, and physical condition.

Key words

health behaviours, body image, women, reproductive age, lifestyle

INTRODUCTION

Health behaviors play a crucial role in determining human health. These are behavioural patterns, activities and habits related to health improvement, maintenance or recovery. There are two subgroups in health behaviors – health-promoting behaviours (positive) and anti-health-promoting behaviours (negative). Positive health behaviours – include regular physical activity, having a well-balanced diet, undergoing regular checkups, taking care of mental health and avoiding risky behaviours – help maintain and strengthen health. Negative health behaviours include smoking, drinking alcohol, using stimulants, inadequate diet, lack of physical activity and poor stress management which lead to diseases [1]. Health behaviours of women of childbearing age are essential for their overall health, as well as for the health of future generations [1, 2].

Body image refers to how an individual perceives his or her body, including appearance, size, shape and the overall impression it makes on his or her feelings. The perception of 'body image' has various definitions, it includes not only outward appearance and physical attractiveness, but also other elements such as emotional attitude towards the body and beliefs about it [3]. The variability of self-esteem correlates with the emotions, states, or evolves due to experiences. Contemporary aesthetic norms – the media and the social environment – can both support and negatively influence self-esteem. Nowadays, when the model of a slim, athletic figure is promoted in the media, it is even more difficult to accept one's imperfect body [4].

In the group of women of reproductive age, body image can be shaped by social, biological and psychological factors, with social factors focusing on promoting an ideal body image. These norms often create pressure to conform to unrealistic standards of beauty. Biological factors related to such life stages as pregnancy, childbirth, postpartum, and menopause, cause changes in appearance and bodily function, influencing a woman's self-perception. The psychological factors that play a role in body image formation include self-esteem, perfectionism and psychological disorders, for example: depressionand anxiety disorders. Psychological resources, such as emotional resilience, stress management skills and social support, also play a role in shaping body image [5, 6].

The aim of the study is to explore the impact of women's health behaviours on body perception, taking into account factors that may influence these interactions.

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Received: 03.09.2024; accepted: 24.02.2025; first published: 07.03.2025

MATERIALS AND METHOD

The study was conducted in 2020 and 2022 among 438 women of reproductive age, residents of the Lublin and Subcarpathian Provinces of eastern and south-eastern Poland, respectively. Women who visited the clinic for follow-up appointments, such as general examinations or pap smears, were included in the study. Inclusion criteria for women in the study were: age over 18 years, self-identification as a woman, and no chronic diseases. Exclusion criteria included: women under the age of 18, being pregnant, giving birth within 6 months, postmenopausal period, playing sports professionally, diagnosed eating disorders, the presence of chronic diseases, physical disability and cognitive disorders that could affect the results of the study.

The study was approved by the Bioethics Committee of Lublin Medical University (Approval No. KE-0254/166/2018). Each participant was informed about the purpose of the study and provided with questionnaire completion instructions. Respondents were informed that participation was voluntary and that the study results were anonymous and would be used only for research purposes.

The study used a diagnostic survey with the following questionnaires:

Positive Health Behaviour Scale for Women by Hildt-Ciupinska includes 30 behaviours divided into 5 subscales: nutrition, body care, safety behaviour, psychosocial health (including rest) and physical activity. Respondents specify the frequency of behaviours on a 4-point scale: from almost always – 3 points to rarely – 0 points. The domains of nutrition, psychosocial health and physical activity were used to analyze the purpose of the self-report surveys. The α-Cronbach's reliability index of the original version is 0.81; in the current study, the α-Cronbach's for the domains: nutrition is 0.76, psychosocial health – 0.75, and for physical activity – 0.52 [7].

Body Esteem Scale (BES) by Franzoi and Shields (an adaptation of the Polish version by Lipowska and Lipowski) was used to evaluate respondents' attitudes toward their own bodies. The scale consists of 35 items to be answered on a 5-point Likert scale, ranging from 1 (I have strongly negative feelings) to 5 (I have strongly positive feelings). The scale includes 3 areas related to body self-esteem: sexual attractiveness, weight control, and physical condition. The score is obtained after adding up all the points of each of the 3 subscales; as the number of points increases, body evaluation increases. The α-Cronbach coefficient of the Polish version of the test for women is 0.92, while the reliability coefficients for the individual factors were 0.87 for the sexual attractiveness subscale, 0.90 for the weight control subscale and 0.87 for the physical condition subscale [8].

The structured questionnaire consisted of a set of standard questions used to characterize the study population.

Statistical analysis. The obtained results of the study were collected and statistically analyzed using STATISTICA 13.3. In the descriptive analysis, data were presented using mean and median values, standard deviation, maximum and minimum values, frequency and percentage. To examine differences in parameters, appropriate statistical tests were used. The Lilliefors test and the Shapiro-Wilk test were used to assess normal distribution – the results indicated a distribution close to normal. A parametric Student's t-test was used to assess differences between the dependent variables (health behaviour and body evaluation) and socio-demographic data. The correlation between quantitative variables was calculated. Pearson correlation coefficient was used to test the relationship between the selected variables. A multiple regression analysis was conducted for health behaviours. Stepwise regression is a method of regression model fitting in which the choice of predictive variables is performed using an automatic procedure. Regression analysis with moderating factors was performed to evaluate the variables. The study assumed a significance level of $p < 0.05$.

RESULTS

The study group consisted of 438 women of reproductive age (18–49 years). The average age of the respondents was 32.06 ± 8.21 years. Most of the women lived in a city (71.69%), were married (62.56%), had education other than a university degree (79.22%), described their socio-economic conditions as satisfactory (90.41%), were working (61.42%), had no children (76.03%), were sexually active (60.73%), and had a healthy lifestyle (65.53%). The mean BMI of the respondents was regular – 23.77 ± 22.92 kg/m^2.

Figure 1 shows the mean scores for the health behaviour and body assessment of the women. In terms of health behaviours, the highest mean score was for the nutrition domain (19.28 ± 4.75) and the lowest was for physical activity (12.18 ± 3.11), while in terms of body evaluation, sexual attractiveness was rated highest (46.18 ± 9.23) and physical fitness rated lowest (30.43 ± 6.87). Mean for the overall body evaluation score – 108.93 ± 22.67.

Statistical analysis showed that age was a significant determinant of health behaviour and body evaluation. As age increased, health behaviours improved in nutrition (p=0.000) and physical activity (p=0.000), while they decreased in

Table 1. Characteristics of the study group

Socio-demographic data		n	%
Age (years)		32.06 ± 8.21 (M ± SD)	
Place of residence	City	314	71.69
	Village	124	28.31
Marital status	Married	274	62.56
	Single	164	37.44
Education	Higher education/ university degree	91	20.78
	Other than higher education	347	79.22
Socio-economic conditions	Satisfactory	396	90.41
	Unsatisfactory	42	9.59
Employment	Employed	269	61.42
	Unemployed	169	38.58
Having children	Yes	105	23.97
	No	333	76.03
Sexual activity	Yes	266	60.73
	No	172	39.27
Healthy lifestyle	Yes	287	65,53
	No	151	34,46
BMI		23.77 ± 22.92 (M ± SD)	

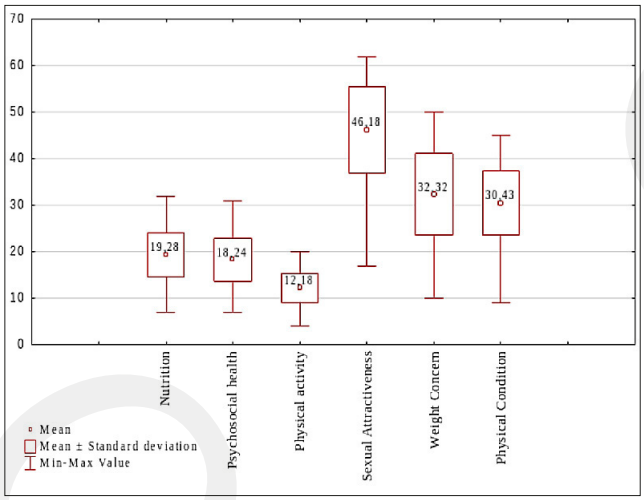

Figure 1. Means health behaviours and body assessments of respondents

psychosocial health (p=0.000); at the same time, body evaluation improved in sexual attractiveness (p=0.000), weight control (p=0.000) and physical fitness (p=0.000). Women with university degrees presented higher levels of health behaviours in the subscales of nutrition (p=0.040) and physical activity (p=0.004), while at the same time body scores for physical fitness were higher than in the group of women with education other than university. Surveyed women with satisfactory socio-economic conditions presented higher levels of health behaviours in the subscales of nutrition (p=0.050) and psychosocial health (p=0.003); at the same time, they rated their bodies better in the dimensions of sexual attractiveness (p=0.002), weight control (p=0.001) and physical fitness (p=0.007). Furthermore, non-working women presented lower levels of health behaviour in terms of physical activity, compared to working women (p=0.049).

The study results indicate that women with children exhibited significantly higher levels of health behaviours related to psychosocial health (p=0.031), compared to women without children. No differences were found between place of residence, marital status and sexual activity of women and health behaviours and body assessment (p > 0.05) (Tab. 2).

The women who reported following a healthy lifestyle presented higher levels of health behaviours in the dimensions of nutrition (p=0.000), psychosocial health (p=0.000) and physical activity (p=0.000). They also rated their bodies more favourably in terms of sexual attractiveness (p=0.000), weight control (p=0.000), and physical fitness (p=0.000). As BMI increased, health behaviours in the dimensions of nutrition (p=0.000), psychosocial health (p=0.000) and physical activity (p=0.000) decreased, and body ratings in sexual attractiveness (p=0.000), weight control (p=0.000) and physical fitness (p=0.000) decreased (Tab. 3).

Table 3. Health behaviours and body assessment vs. lifestyle and BMI of respondents

Variables		Lifestyle		BMI	
		t	p	t	p
Health behaviours	Nutrition	8.527	0.000	-10.760	0.000
	Psychosocial health	6.473	0.000	-13.411	0.000
	Physical activity	7.583	0.000	-33.165	0.000
Body Esteem	Sexual attractiveness	5.600	0.000	-34.321	0.000
	Weight concern	4.843	0.000	-13.620	0.000
	Physical condition	7.365	0.000	-12.749	0.000

Table 4 shows the correlation between health behaviours and body assessment. Statistical analysis showed positive correlations between dietary health behaviours and psychosocial health behaviours (p=0.00), physical activity (p=0.000) and body assessment in the area of sexual attractiveness (p=0. 000); in psychosocial health and health behaviours in physical activity (p=0.000) and body assessment in sexual attractiveness (p=0.000), as well as in physical activity and body assessment in sexual attractiveness (p=0.001). Negative correlations were found between health behaviours in terms of nutrition, psychosocial health, physical activity and body assessments in terms of weight control and physical fitness. Correlations had values ranging from -0.214 to -0.488. Positive correlations between the variables were found for individual body assessment dimensions, with values ranging from 0.736 – 0.748.

Table 4. Correlation analysis between health behaviours and body assessment

Predictors	Psychosocial health	Physical activity	Sexual Attractiveness	Weight Concern	Physical Condition
Nutrition	0.553 p = 0.00	0.460 p = 0.000	0.313 p = 0.000	-0.309 p = 0.000	-0.388 p = 0.000
Psychosocial health	---	0.424 p = 0.000	0.435 p = 0.000	-0.437 p = 0.000	-0.488 p = 0.000
Physical activity	---	---	0.213 p = 0.001	-0.214 p = 0.001	-0.333 p = 0.000
Sexual attractiveness	---	---	---	0.748 p = 0.00	0.745 p = 0.00
Weight concern	---	---	---	---	0.736 p = 0.00

Table 2. Analysis of differences between health behaviours and body assessment and socio-demographic variables

Variables		Age		Education		Socio-economic conditions		Employment		Having children	
		t	p	t	p	t	p	t	p	t	p
Health behaviours	Nutrition	10.287	0.000	-2.066	0.040	1.972	0.050	1.226	0.221	-1.024	0.307
	Psychosocial health	-23.083	0.000	1.760	0.080	3.024	0.003	-0.558	0.577	-2.168	0.031
	Physical activity	22.230	0.000	-2.926	0.004	-1.780	0.076	1.980	0.049	-0.445	0.657
Body esteem	Sexual attractiveness	23.936	0.000	-1.637	0.103	3.159	0.002	-0.925	0.356	0.770	0.442
	Weight concern	7.541	0.000	-0.309	0.758	3.307	0.001	-0.245	0.807	0.896	0.371
	Physical condition	5.777	0.000	-2.239	0.026	2.701	0.007	-1.670	0.096	-0.255	0.799

Regression analysis showed that the explanatory variable for the sexual attractiveness domain was health behaviours in terms of physical activity (β=0.376; p=0.000) and better ratings of sexual attractiveness were positively associated with greater physical activity. The explanatory variable for the weight concern domain was health behaviours in terms of physical activity (β=0.381; p=0.000). It was shown that weight control scores increased with higher physical activity. Health behaviours in terms of physical activity were statistically significant predictors in this model (β=0.365; p=0.000). Physical condition scores improved with increased physical activity in the women (Tab. 5).

Table 5. Regression analysis of body evaluation with health behaviours

Predictors	Sexual Attractiveness F = 19.939; p < 0.000; R2 = 0.187		Weight Concern F = 19.065; p < 0.000; R2 = 0.187		Physical Condition F = 29.821; p < 0.000; R2 = 0.259	
	β	p	β	p	β	p
Nutrition	0.101	0.161	0.093	0.197	0.132	0.056
Psycho-social health	0.007	0.922	0.010	0.883	0.117	0.066
Physical activity	0.376	0.000	0.381	0.000	0.365	0.000

DISCUSSION

The health behaviours of women in their reproductive years are activities that directly or indirectly affect their health. Optimal eating habits predominated among the respondents, as confirmed by authors of other studies, emphasizing the importance of a balanced diet for maintaining normal body weight, health and well-being [6]. The findings of the current study indicate that women are aware of the importance of healthy eating, and potentially use strategies to ensure the quality of their diets. In contrast, a study of British women found that many of childbearing age are not adequately prepared nutritionally for pregnancy, as their nutrient intake falls below the minimum recommended reference values [9].

Psychosocial health includes concern for getting enough sleep, relaxation, stress management, coping with difficult situations, receiving support from others, and maintaining relationships. The high average obtained in this domain reflects the importance of emotional and social factors in the perception of overall health. Awareness of the impact of psychosocial health affects self-esteem and quality of life is conducive to better stress management and promoting positive interpersonal relationships [10].

The research findings indicate that despite favourable conditions – such as residing in urban areas and having a satisfactory socioeconomic status – respondents showed insufficient physical activity. This is particularly concerning, given that regular physical activity offers significant health benefits, prevents non-communicable diseases, reduces depression and anxiety symptoms, improves cognitive function, mental health, and overall well-being [11]. The results obtained in the current study align with those described by Strain et al. [12], who reported that the global age-standardized prevalence of insufficient physical activity increased by 8 percentage points over 22 years (2000 – 2022). The lack of physical activity among the surveyed women, despite the urban amenities and favourable economic conditions available to them, highlights the complexity of the issue and suggests that external factors alone may not be enough to encourage a healthy lifestyle.

Positive body image protects against mental and physical problems, improves self-esteem and promotes healthy behaviours [5]. In terms of body assessment and perception, self-reported results showed the highest mean score in the domain of sexual attractiveness. These results may reflect self-acceptance and acceptance of the body. In the current approach to promoting different silhouettes, this finding appears to reflect a growing value of appearance in its numerous forms [13].

The current findings indicate that women's diet and physical activity improve with age. Increased awareness of healthy diet and life experiences, such as pregnancy or caring for children or parents, may lead women to make better decisions about diet and physical activity [9]. Age also often brings more emotional stability and the ability to cope with stress, which promotes healthier decisions [14]. The current study shows that older respondents presented worse psychosocial health behaviours; additionally, women attach less importance to their bodies and appearance as they get older, even though their physical appearance tends to deviate further from externalized ideals of beauty [15].

The results indicating higher levels of health behaviours in the nutrition and physical activity subscales among women with a university degree may be a result of their greater accessibility to health information. Women with higher education tend to have better critical thinking skills and the ability to process information, which translates into informed dietary choices and physical activity. Higher education is often associated with higher salaries and better access to health resources, such as healthy foods and places to exercise [16].

Socio-economic status influences the implementation of health behaviours, taking care of one's health and lifestyle, as well as access to health information and services [17]. The current study shows that women who rated their socio-economic conditions as satisfactory presented higher levels of health behaviours in the areas of nutrition and psychosocial health, while at the same time, they rated their bodies better in the dimensions of sexual attractiveness, weight control and physical fitness. Women with higher socio-economic status had easier access to healthy foods, services, and promotion programmes, thereby promoting better eating habits and making it easier to care for their health [16].

Individuals who engage in healthy behaviours, such as regular physical activity, a balanced diet and adequate sleep, often experience better performance at work. On the other hand, intense work demands can affect lifestyle, sometimes leading people to neglect their health due to lack of time or excessive stress. The finding of lower levels of physical activity among non-working women compared to working women, may be related to differences in lifestyle. Working women may be more organized in planning their day and work may be conducive to a more active lifestyle, including physical activity [18].

According to the results of this study, women with children show higher levels of psychosocial health behaviours compared to women without children. Having children is often associated with intensified interpersonal relationships and a greater focus on emotional health, which can translate into a better quality of life and psychosocial well-being [19].

The findings of the current study indicate that the surveyed women who claimed to follow a healthy lifestyle, presented higher levels of health behaviours in all the domains analyzed, as well as better assessments of their bodies in terms of sexual attractiveness, weight control and physical fitness, which confirmed a significant links between health behaviours and body perception. With greater health awareness, women engaged in healthy lifestyles made better choices about diet, physical activity, rest. Knowledge of the benefits of these activities promoted higher self-esteem and positive body perception. Women who are aware of the benefits of a healthy lifestyle are more likely to take steps to improve their health and well-being, which can translate into a positive perception of their bodies. Psychosocial health behaviours, such as caring for interpersonal relationships, stress management techniques and mindfulness practices, can lead to better mental well-being [20].

The relationship between increased BMI and decreased levels of health behaviour in the areas of nutrition and physical activity among women can be interpreted as a negative effect. Women with higher BMIs may experience reduced motivation to engage in healthy activities due to negative attitudes about their bodies, which can lead to a vicious cycle – a higher BMI causes a decrease in motivation for healthy lifestyles which, in turn, leads to a further increase in BMI. The current study shows that as BMI increased, body evaluation of sexual attractiveness, weight control and physical fitness decreased. Similar findings were presented by Razmus et al. [21], which showed that higher BMI is associated with increased embarrassment and feelings of shame related to body image. However, this effect is moderated by self-esteem: in women with low or moderate levels of self-esteem, higher BMI was associated with higher body-related shame.

The results of the presented study indicating a decline in body evaluation in the dimensions of weight control and physical fitness, despite an increase in positive health behaviours, are somewhat surprising, a phenomenon for which there are several potential reasons. The first may be related to the increased self-criticism that often accompanies women who are striving to improve their health. As they engage in health-promoting activities, they may become more aware of their body's imperfections and compare themselves to beauty standards promoted in the media. Women's dissatisfaction with their appearance may also be caused by the internalization of societal expectations about their appearance. Another factor may be the pressure of achieving desired health goals, which can lead to frustration when they do not meet their expectations for expected weight loss or improved physical fitness [22, 23]. Finally, it is worth noting that changes in body perception may be part of the process by which women learn to accept their bodies in the context of changing health priorities, which takes time and can lead to temporary negative self-evaluation [24].

The results of the regression analysis show a significant impact of health behaviours in terms of physical activity on the perceived sexual attractiveness, weight control and physical condition of the women. The positive association between greater physical activity and better assessment of sexual attractiveness can be interpreted in the context of the theory of the positive effects of physical activity on psychological well-being and body image, which may lead to higher self-esteem and the perception of oneself as a more attractive person. This phenomenon may be related to the psychological effects of physical activity, such as increased self-confidence, improved well-being and positive effects on body image [25].

In conclusion, the relationship between health behaviours and satisfaction with body image appears to be a combination of complex factors related to women's individual experiences; hence, more research is needed to understand the factors explaining the variations.

The results show significant relationships between health behaviours and body perception, highlighting the role of physical activity as a predictor of positive body image, which has universal implications for health promotion. Further research in this area may help in the development of more effective interventions aimed at women at different life stages, and socio-demographic profiles.

Strengths and limitations of the study. The use of standardized questionnaires in the study increased the reliability of the results; it also allowed comparison of the results obtained between different studies and populations. Although the studied group may not be fully representative of the entire population of reproductive-age women, the results provided valuable insights into health behaviours and body perception among women from urban areas with satisfactory socio-economic status. These findings contribute to understanding the specific needs of this group, which may be important for designing targeted health interventions. They may also inspire future research projects to explore a greater diversity in various communities, thus representing a step towards more inclusive analyses that take into account the importance of diverse socio-demographic groups in the context of health behaviour and body perception. Cross-sectional studies make it possible to examine relationships between variables at a single point in time, which can be useful for identifying associations between health behaviours and body image. The results obtained can be used as a baseline for longitudinal studies or interventions designed to improve health behaviour in this demographic group.

The study was conducted in a correlation scheme, rendering it impossible to draw causal conclusions based on the obtained results. The results presented are exploratory. The homogeneity of the studied group limits the possibility of generalising the results to the wider population of women of reproductive age.

Future studies should aim to include a larger cross-section of women of reproductive age, taking into account differences in geography, socio-economics and level of access to healthcare. This approach will enhance the value of the findings and indicate potential directions for further research

CONCLUSIONS

The highest-rated health behaviours regarding nutrition and psychosocial health suggest that women of reproductive age pay a lot of attention to positive health behaviours. The lowest-rated health behaviour on physical activity may indicate the need for more motivation to promote and engage in regular physical activity among women. As positive health behaviours in the areas of nutrition, psychosocial health and physical activity increase, body assessment in the dimensions of weight control and physical fitness decreases.

A predictor of body self-esteem in the areas of sexual attractiveness, weight control and physical condition is physical activity. In the context of interventions, it makes sense to focus on encouraging women to be more physically active. This could not only benefit the physical health of women, but could also change the perception of their bodies, emphasizing functionality over appearance.

Acknowledgements
This publication was funded by the Polish Ministry of Education and Science under the project 'Doskonała Nauka II', 'Wsparcie bezpieczeństwa pacjenta przez popularyzację dowodów naukowych w praktyce zawodów medycznych'. Project No. KONF/SP/0265/2023/01.

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