Body image and maternal fetal attachment

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ABSTRACT

Introduction: Pregnancy is the time of the most dynamic and visible changes in a woman's body. Some researchers have shown that woman's ability to adapt to changes in her body may affect the attitude towards her baby.
Purpose: To study the relation between body image in pregnant women and the attachment to the unborn child.
Materials and methods: 100 women in II trimester completed Maternal Fetal Attachment Scale (MFAS) and Body Image Questionnaire.
Results: The analysis showed a significant relation between the attitudes towards the own body during pregnancy and the quality of the mother-child attachment. According to the research, the mothers who were strongly attached to the child were concurrently dissatisfied with bodily changes. Socio demographic variables (age, education, marital status, place of living), pregnancy-related variables (pregnancy planning, familiarity with child's gender, the level of preparation to maternity) and the variables related to the woman's body (BMI before pregnancy, severity of pregnancy complaints) had no impact on maternal-fetal attachment. Also, the attitude towards the own body was formed regardless of socio demographic variables and pregnancy-related variables. Significant relations between the attitudes towards own body and the variables associated with woman's body (BMI, pregnancy complaints) were observed.
Conclusions: Woman's attitude towards the body and changes during pregnancy is a complex issue. According to the results of this study, it is possible to develop a positive bond with the child despite experiencing dissatisfaction with own body.
Key words: Body image, pregnancy, maternal-fetal attachment

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INTRODUCTION

Body image BI is a complex and multidimensional psychological construct that encompasses body-related self-perceptions and self-attitudes, including thoughts, beliefs, feelings, and behaviours [1]. Studies have demonstrated that body size, and shapes are particularly significant for women who, in contrast to men, are more dissatisfied with their appearance [2,3]. Pregnancy is the time of the most dynamic and visible changes in a woman's body. Publications on women's adaptation to BI changes during pregnancy have not delivered consistent results. A number of studies have documented body dissatisfaction in women before conception [4,5]. Other research has indicated women's ability to adapt to changes occurring in particular weeks of gestation and satisfaction with their own body [6]. Nonetheless, there is consistency in reports from Western countries concerning a greater than recommended gestational weight gain [7,8] and postpartum weight retention among contemporary women [9,10].

Research has revealed that dissatisfaction with one's own body in both the general population, and in pregnant women coexists with lower mood [11-13]. Body dissatisfaction is often associated with maladaptive behaviors such as unhealthy eating, extreme weight loss behaviours, and with ante- and post-natal depression, which have serious negative implications for women's health and well-being, and pose a potential risk to the foetus [14]. Initially, the bond between a mother and her child was understood to be formed after the baby was born. Bowlby described human attachment as a system of evolutionary behaviours beginning at birth and persisting through adulthood [15].

However, subsequently the experiences of pregnant women became the focus of attention, and it was discovered that women developed a bond with their babies as separate objects in the prenatal period [16]. This bond is called maternal-fetal attachment (MFA) and is defined as 'the extent to which a woman engages in behaviours that represents an affiliation and interaction with her unborn child' [17].

According to some reports, the positive MFA is connected with the mother's health behaviours during pregnancy such as following an appropriate diet or restraining from alcohol drinking and cigarette smoking [18,19]. Some studies also indicate that a strong MFA is a predicting factor for a good mother-child relationship and infant developmental outcomes [20-23].

The aim of this study was to determine whether the mother-child attachment during pregnancy is associated with the expectant mother's body image.

MATERIALS AND METHODS

The study included a group of 100 randomly chosen women in their second trimester of pregnancy. The second trimester was selected as the best time to evaluate body image in pregnancy – some changes in the body are noticeable but the negative effects such as heaviness or swelling to occur. The participants were recruited from maternity centres, gynecological clinics and antenatal class providers. The exclusion criteria were: a somatic and/or mental disorder in the expectant mother or a diagnosed congenital defect in the baby.

Maternal-Fetal Attachment Scale MFAS [24], which is the most commonly utilized scale for MFA measurement, was used in the study [16,25] and adapted to Polish conditions by Bielawska-Batorowicz with the author's consent [26]. MFAS questionnaire encompasses various aspects of the mother-child emotional bond during pregnancy such as playing the role of a parent (I imagine myself feeding my baby), treating the child as an individual person (I am looking forward to seeing what my child looks like), starting interaction with the child (I talk with my unborn child), attributing features to the child (I think I can determine what my child will be like based on his/her or her or her movements) and submitting to the child's interest (I eat meat and vegetables to provide my child with appropriate nutrients). Since some analyses failed to confirm the multifactor MFAS system [27], only the general test result was used in the analyses in this study. MFAS consists of 24 statements with a five-point scale of responses from definitely no (1 point) to definitely yes (5 points). Higher results of the test indicate better the mother-child attachment. The Cronbach's alpha coefficient for the original version of the test was 0.85 [24] while for the Polish version, it stood at 0.81 [26].

The Body Image Questionnaire is a research tool measuring BI in four aspects, which also constitute the test scale: cognition-emotions, behaviour, criticism from the people around and pretty-ugly stereotypes [28]. The cognition-emotions subscale is used to measure the opinions regarding one's own appearance formed through the prism of one's own surroundings and the affective component, namely: feelings (positive/negative) towards one's own body, attitudes towards the body's physical appearance, general mood, feelings of guilt or fear. The behaviour subscale contains statements referring to a healthy lifestyle. The criticism subscale allows determining a subjective level of the individual's acceptance by the people

around him/her, which is reflected in critical remarks on his/her or her or her appearance. The pretty-ugly stereotype subscale measures the level or internalization of modern beauty standards and the awareness of negative stereotypes of obese people [28]. The Body Image Questionnaire consisted of 40 statements. The respondents answer questions on a five-point scale from 'definitely no' (1 point) to 'definitely yes' (5 points). Some questions are reversed, in accordance with the key. The higher results were obtained by the respondents with more negative body image. The Cronbach's alpha reliability coefficient for particular scales was 0.93, 0.88, 0.83, 0.67 respectively and 0.93 for the whole questionnaire [28].

Statistical analysis

Normality of distribution was established for the data analysed. The evaluations of the correlations between variables were conducted using parametric tests (Student's *t*-test for independent samples) and non-parametric tests (Mann-Whitney test), depending on subgroup size. The correlations between the general results from the questionnaires (MFAS, BI) and between the general results and BMI, the degree of preparedness for motherhood and the severity of pregnancy-related discomfort experienced by expectant mothers were measured using Pearson's correlation coefficient. A p value lower than 0.05 was considered statistically significant.

RESULTS

The individuals were aged 16–41 years (mean=28.55 SD=5.17). 68 women had higher education, 25 secondary, 5 vocational, and 2 primary. 88 women were married, 11 were single, and 1 divorced. 80 women lived in the urban areas while 20 resided in the rural areas. 71 women declared that they had planned the pregnancy while 29 stated that they had not. Almost all the respondents (93) knew the gender of the unborn child. The surveyed women positively evaluated their birth preparedness and parenthood readiness (mean=7.90 SD=1.55). The rating scale ranged from minimum 0 to maximum 10.

Prior to conception, 70 women had normal body mass; 29 were overweight (BMI over 25) and 1 was underweight (BMI less than 18). Patients described their pregnancy-related problems as moderate (mean=4.87 SD=2.31). The level of problems subjectively experienced by the studied women was marked on the scale from min 0 to max 10.

The attachment to the child determined with the general MFAS results in the studied group was: mean=97.91 SD=7.99. No significant correlations between the mother-child bond and the socio-demographic variables (age, education, marital status, place of residence) as well as the pregnancy-related variables (pregnancy planning, knowledge of the child's gender, the level of preparedness for motherhood) and the variables related to the woman's body (BMI before pregnancy, the level of health problems experienced during pregnancy) were observed. Results are presented in Table 1.

Table 1. The results of the correlations' analysis.

	MFAS	**BIQ**
education	t=1.561 p=0.122	t=-0.073 p=0.942
marital status	U=426.5 p=0.521	U=317.5 p=0.064
place of residence	t=-0.26 p=0.79	-
pregnancy planning	t=0.478 p=0.634	t=-0.65 p=0.517
knowledge of the child's gender	U=210.5 p=0.12	-
the level of preparedness for motherhood	r=0.151 p=0.133	-
body mass index	r=-0.002 p=0.99	r=0.526 p<0.001***
pregnancy-related complaints	-	r=0.219 p=0.029
MFAS	-	r=0,34 p=0.001***

The attitude towards one's own body measured with Body Image Questionnaire in the women surveyed was: mean=100.14 SD=19.89. As in the case of the mother-child attachment, no statistically significant correlations between the attitude towards one's own body and socio-demographic variables and pregnancy-related variables were observed. Nonetheless, statistically significant correlations between BI and the variables related to the woman's body were noticed. The BI in pregnant women was significantly related to their pre-pregnancy BMI. The higher the pre-pregnancy BMI, the greater the body dissatisfaction (r=0.53 p<0.001). The analysis of particular test subscales showed that higher the pre-pregnancy BMI of the patients, more negative appearance-related emotions they experienced (cognition-emotions subscale r=0.61 p<0.001), they felt that their physical appearance was criticized by others (the outside world criticism subscale r=0.37 p<0.001) and felt discouraged form undertaking health-promoting behaviours (behaviour subscale r=0.42 p<0.001). In addition, a significant correlation between BI and an increased severity of pregnancy-related complaints was observed (r=0.22

p<0.05). Women who reported more pregnancy-related problems had more negative emotions related to their bodies (cognition-emotions subscale r= p<0.05), showed less readiness to undertake health-promoting behaviours (behaviour subscale r=0.28 p<0.001) and were more sensitive to the criticism from the people around them (the outside world criticism subscale r=0.22 p<0.05).

Significant correlation between BI during pregnancy and MFA (r=0.34 p=0.001) was found. A positive mother-child attachment coexisted with the mother's dissatisfaction with her own body. In regards to the subscales describing BI, the strongest correlations with MFA were found as follows: pretty-ugly stereotype subscale (r=0.43 p<0.001) and cognition-emotions subscale (r=0.23 p<0.5).

DISCUSSION

The study group included only 4 women under 18 years of age, which reflected population trends. In 2013, the percentage of underage mothers in Poland amounted to 4%. As many as 70% of the women surveyed declared that they had planned a pregnancy, which constitutes a high percentage compared to other countries, e.g. 50% in the USA [29]. Informed family planning has been reported by other researchers studying the Polish population and is explained by socio-cultural and economic factors [30]. Informed family planning is also coincident with an increase in the median age of women giving birth from 26.1 years in 2000 to 29.0 years in 2012 and with a rising educational level among women [31].

The BMI of 30% of the women surveyed was too high before conception. This percentage is worrying, yet lower than those observed in other Western countries: approximately 40% in Portugal and over 50% in the USA [7,8].

The mother-child bond was not significantly related to socio-demographic variables. Some studies have shown a stronger attachment to the child in younger mothers [32-35]. The bond with the child was unrelated to the variables connected with pregnancy (planning a pregnancy, knowledge of the baby's gender, preparedness for motherhood) although the theoretical assumptions of the MFA construct to include the element of attributing individual characteristics to the child, which is simpler in the context of knowing the unborn child's gender. The mother-child attachment was unrelated to the severity of pregnancy problems experienced by the expectant mother, a finding corresponding to the results of the study by Siddiqui [35]. Additionally, the attachment to the child was unrelated to preconception BMI. Lack of relationship between the mother-child bond and socio-demographic variables, the variables related to both the woman's body, and the course of pregnancy indicate that the mother's attachment to the child develops regardless of these factors. Some researchers emphasize the role of both the biological and psychological aspects in forming the mother-child attachment [25,36] and indicate that it is due to biology that this attachment is the strongest among human relationships [37].

Furthermore, body image was unrelated to socio-demographic variables and pregnancy-related variables, yet a correlation with the preconception BMI was observed. The higher BMI preconception, was related with higher the expectant mothers' dissatisfaction from her body image during pregnancy. A high pre-pregnancy BMI is most commonly associated with further weight gain during pregnancy, which is typically more considerable than recommended [7] and hence a particularly negative body image in the women studied who were obese before conceiving was observed. Unfortunately, neither high body mass nor the awareness of unattractive physical appearance sufficiently motivated the pregnant women to adopt a healthier lifestyle. In fact, the opposite reaction was observed: this group of patients displayed less health-promoting behaviour. Similar observations were made in other studies according to which a negative body image was associated with an increase in body mass during pregnancy [7,8,14].

In this study, a relationship between body image and an increased severity of pregnancy-related problems was observed. This correlation was confirmed by another research on both pregnant women [38-40] and other patient populations suffering from various somatic symptoms [41]. Although research has confirmed the positive impact of physical and relaxation exercises on well-being during pregnancy [12,42,43], women who felt unwell were less inclined to exercise.

BI was significantly related to MFA, however, a few studies on these two variables could be found. Haedt and Keel studied a group of 196 pregnant women and observed no relationship between body dissatisfaction (measured with BSQ-R-10) and MFA (measured with MFAS) [44]. Importantly, the group analysed included women between the second and fortieth week of pregnancy while a number of longitudinal observations confirm that both MFA and BD increase with pregnancy progression [45,46]. Huang et al. analysed a group of 195 women in the third trimester of pregnancy and confirmed the correlation between BI (measured with ABIS) and MFA (measured by MFAS and PAI) [47]. The study by Huang et al. [47] and earlier study by Foster et al. showed a correlation between MFA and the way in which the mother fed her newborn baby. Women who displayed a more positive

attitude towards their own body and formed a stronger bond with their child during pregnancy were more likely to breastfeed their babies [47,48].

The current study demonstrated that the mothers whose attachment to the child was stronger were concurrently more dissatisfied with the changes occurring in their bodies. The women who focused on developing a bond with their child were simultaneously more aware of negative stereotypes regarding obesity. They experienced a great number of negative emotions related to being too fat; they felt heavy and unattractive. The results of our study indicate that it is possible for a woman to develop a close emotional bond with her child despite the woman's feelings of dissatisfaction with her own body.

Furthermore, it was observed that the mother focused even more intensely on building her relationship with the unborn child in the context of her feeling unattractive and unshapely. It is conceivable that concentrating on forging a bond with the child and being aware of the purposefulness and functionality of body changes helped the women cope with negative emotions associated with the changing body shape and size.

This hypothesis was confirmed by a qualitative study by Clark et al. according to which women reported several events unique to pregnancy which helped them cope positively with bodily changes, e.g. increased body functionality, a new sense of meaning in life thus placing well-being of the developing fetus above esthetics, feeling the baby kick, an increased sense of social connectedness due to pregnancy body shape and positive social commentary [49].

Similar observations were made by Chang et al. in the qualitative study according to which the women's following reflection was observed repeatedly : 'My body = my baby's body'. This issue reflected women's view of bodily changes as an indication of their baby's health and growth and as a sign of their adequacy as mothers [39].

The results of this study show a coexistence of a strong mother-child attachment and the expectant mother's negative body image. This interdependence should be interpreted with caution due to the low correlation coefficient observed (r=0.34).

These results are not consistent with previous studies by Headt and Keel who observed no relationship between BI and MFA as well as with the study by Huang et al. who showed a positive correlation: a strong mother-child bond coexisted with a positive body image. The discrepancy in the observations may result from different methods of body image measurement, the selection of study groups and cultural variables.

Regardless of the differences between the results, one conclusion is obvious: prophylactic activities regarding pregnant women ought to include the actions aimed at both forming a positive body image in expectant mothers and strengthening the mother-child emotional attachment.

Conflicts of Interest

None

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