

## PSYCHOLOGICAL WELL-BEING IN WOMEN WITH INSULIN RESISTANCE AND THE ROLE OF SENSE OF SELF-DIGNITY

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The aim of this study was to examine the contribution of the sense of self-dignity in accounting for the variability of psychological well-being in women with insulin resistance. The sample consisted of 109 women diagnosed with insulin resistance. The associations between the variables were examined using correlation and regression analyses. The study found significant relationships between dimensions of the sense of self-dignity and psychological well-being in the surveyed women. The loss dimension of the sense of self-dignity had the highest contribution in accounting for all the dimensions of psychological well-being. Although weaker than for the loss dimension, a statistically significant contribution was also found for the total score of the sense of self-dignity in the surveyed women with insulin resistance.

**Keywords:** insulin resistance; psychological well-being; self-dignity; women with insulin resistance.

The purpose of this research was to investigate the correlation between the sense of self-dignity (SSD) and psychological well-being (PWB) in women with insulin resistance (IR). Based on the theory of self-dignity, it was assumed that this inalienable value and psychological resource motivating for continuous efforts and development, including overcoming difficulties and shaping a positive attitude

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towards oneself and the world, could be important for the PWB of women with IR. Thus, the providers of aid for women with IR could be directed towards enhancing SSD as important for PWB. It is crucial because of the empirical research regarding the health benefits of PWB (Boehm, 2021).

IR is a reduced sensitivity of tissues to insulin-mediated biologic activity. IR has adverse effects on women's health from pregnancy to foetus to menopausal woman. IR co-occurs with the polycystic ovary syndrome (PCOS) and, importantly, it also aggravates PCOS (Diamanti-Kandarakis et al., 2012). Moreover, IR is commonly associated with depressive symptoms and the depressive syndrome (Singh & Garg, 2019). Men and women differ substantially in terms of IR severity, energy balance, and body composition (Geer & Shen, 2009). Therefore, we decided to conduct the study only with one of these two groups: women with IR. For over a decade, the psychosocial functioning of individuals in the context of their illness or disability has been more and more described from the perspective of its positive and constructive aspects. This is important because it allows phenomena to be described in a complete and positive way. One of the constructs of positive psychology is PWB, which entails the perception of engagement with existential challenges of life (Keyes et al., 2005), individual's self-realization, and development (Ryff, 2014; 2018). Ryff's model of PWB (1989) adopted the concept of eudaimonia, focusing on positive psychological functioning and development. Eudaimonia is an Aristotelian concept founded on existential and humanistic values, expressing the capacity for human self-realization, development, and flourishing (Keyes, 2005; Ryff & Singer, 2008). Furthermore, there is empirical research regarding the health benefits of PWB, such as life satisfaction, positive emotions, or purpose in life (Boehm, 2021). In a study by Carrol et al. (2006), obese premenopausal women with metabolic syndrome reported low levels of PWB. According to the researchers, their conclusions align with previous findings that body image dissatisfaction is a risk factor for inferior psychological states in treatment-seeking obese populations.

Living with IR has been associated with both negative and positive aspects of psychological functioning. Little is known, however, about determinants of PWB in women with IR. SSD could be one of them. There are various definitions and interpretations of SSD. Here we understand it as a complex construct with three basic dimensions: (1) self-respect based on one's hierarchy of values and acting in accordance with it; (2) confidence in oneself and one's abilities which enable the individual to undertake difficult and responsible life tasks; (3) full acceptance of oneself, assuming the awareness of one's strengths and weaknesses (Studen, 2006). SSD increases as a consequence of being open to other people and decreases or is lost when one resents, disrespects or is prejudiced against other people (Studen, 2006, 2022). Brudek's (2017) research indicates that there are differences in the

level of SSD depending on the level of sexual satisfaction in people's late adulthood. Salwa and Kulik (2019) found that the value preference of women with a high sense of personal dignity is significantly different from that of women with a low sense of personal dignity. Research with female students showed that young women with a high SSD are developmentally oriented, while their colleagues with lower SSD prefer adjustment (Salwa & Kulik, 2019). In addition, women with disability have a higher sense of SSD than men with disabilities in the scope of the dimension of the disability loss and the total result of the Questionnaire of Sense of Self-Dignity (QSSD-3) (Grudziewska & Mikołajczyk, 2020). As a psychological variable, SSD is subject to the influence of many factors, both positive and negative. This means that it is possible to search for predictors of SSD (Brudek & Steuden, 2018).

Analyses show there is a paucity of literature on the psychological functioning of women with IR, and specifically on their PWB. Perhaps filling the gap in the literature can be used for therapeutic purposes. Gaining an understanding of what promotes PWB is of great value for both women with IR and practitioners. It may be useful for programs supporting those women. Enforcing the positive aspects of their psychological functioning will certainly lead to better therapeutic outcomes (cf. Boehm, 2021).

Based on the available theoretical literature about SSD (Steuden, 2006) and PWB (Ryff, 1989) the hypothesis was posited that SSD plays a significant role in PWB in women with IR.

## METHOD

### Participants and Procedure

A total of 109 women with declaration of IR took part in the research; they all gave verbal consent to participate in the study. We certify that all applicable institutional and governmental regulations concerning the ethical use of human volunteers were followed during the course of this research. The research was a cross-sectional study based on self-reports. The average age of respondents was  $M = 32.07$  ( $SD = 8.63$ ). Sixty-nine of the respondents have PCOS and 98.2% have diabetes. In addition, 40.9% have additional medical conditions. Around 94.5% of respondents have anaemia and 52.3% are obese. The average time from IR diagnosis was 2.57 ( $SD = 1.24$ ) years.

## Instruments

The Questionnaire of Sense of Self-Dignity (QSSD-3) (Steuden & Brudek 2017) consists of 36 statements rated on a 5-point scale, from 1 (*agree*) to 5 (*disagree*). The questionnaire has four dimensions (cognitive, loss, relational, and experience). For the current sample, Cronbach's  $\alpha$  was from .63 to .83, whereas Cronbach's  $\alpha$  for global score is .74. The global score of the QSSD-3 is the sum of the results obtained in the 4 dimensions. The higher the score, the greater the SSD.

The Psychological Well-Being Scale (PWB) by Ryff and Keyes (1995) as adapted by Krok (2009) contains 42 items rated on a 7-point scale, from 1 (*I definitely agree*) to 7 (*I definitely disagree*). Krok's Polish version of the PWB has a six-factor structure which for Cronbach's  $\alpha$  is from .75 to .78; Cronbach's  $\alpha$  for the total PWB is .79. The general level of PWB is the sum of the results obtained in the 6 subscales (autonomy, environmental mastery, personal development, positive relationships, life purpose, self-acceptance).

## Data Analysis

Data were analyzed using SPSS 26 and G\*Power 3.1.9.4, IBM SPSS AMOS 24.0. First, using G\*Power software, we calculated the power equal to our sample size (109). Second, Harman's single-factor test was used in order to test for the presence of the common method bias of the applied measures. Third, descriptive statistics were performed for the examined variables. Next, a correlation analysis was performed to determine the relationship between SSD and PWB (Pearson's correlation coefficient). Then, a stepwise regression analysis was conducted to check the contribution of the independent variable (SSD) in accounting for the dependent variable (PWB). Finally, scatter plots and collinearity were verified to test linearity and normality assumptions.

## RESULTS

The adopted post hoc criteria, the included low and high level effect (from  $f^2 = .16$  to  $f^2 = .54$ ), the maximum value of Cronbach's  $\alpha$  at 0.05, the sample size of 109, and the number of predictors (1 and 2) all received a satisfactory power equal coefficient (from .96 to .99). Harman's single-factor test confirmed the lack of common method bias. All of the scales' items were introduced into an exploratory

factorial analysis and examined through an unrotated factor solution. We assumed that if one component had less than 50% of the variance of all test items, this confirmed the lack of common method bias (Podsakoff et al., 2003). The measure showed the presence of one factor with 21.26% of the variance of all test items.

Autonomy of the surveyed IR women was positively correlated with the loss dimension and negatively with the experience dimension of the QSSD-3 (see Table 1). Also, significant and positive relationships between environmental mastery, personal development, positive relationships, acceptance, PWB total score, and the cognitive, the loss and the relational dimensions were found. Life purpose was positively correlated with the cognitive and the loss dimensions, and with the total score of PWB. However, the experience dimension correlated only with autonomy.

The next stage of the analyses involved checking whether SSD plays a predictive role for each of the PWB dimensions. For this purpose, a stepwise regression analysis was performed (see Table 2). The regression equation for autonomy including the loss dimension of QSSD-3 accounts for 18% of the variance of this dimension. Higher levels of the loss dimension are associated with higher levels of autonomy in the respondents. In the case of environmental mastery, variables from the regressive model account for 32% of the variance. This PWB dimensions better accounted for by the loss dimension of the QSSD-3. The variance of personal development is accounted for in 33%, by the loss dimension and the total QSSD-3 score. Higher levels of these dimensions are linked to stronger personal development. In the case of positive relationships, the total QSSD-3 score and the loss dimension account for 30% of the variance. This means that higher levels of the QSSD-3 and the loss dimension are associated with an improved ability to establish and maintain lasting relationships with others, as well as to experience the joy of human contact. The variance of life purpose is accounted for by a 14% contribution of the loss dimension and the total score of the QSSD-3. This means that if individuals with a higher SSD experience more situations and life circumstances where they lose their SSD, their ability to recognize meaning and direction in their life will improve. The regressive model of acceptance consists of two components of the QSSD-3: the loss dimension and the total score, which together account for 21% of the variance. Higher results in the loss dimension and the total score of the QSSD-3 are associated with a more positive attitude towards oneself. The variance of the total score of psychological well-being is accounted for in 35%, using also the loss dimension and the total QSSD-3score. The total PWB score is better accounted for by the loss dimension.

**Table 1***Descriptive Statistics for the Analyzed Variables and Correlations (Pearson's r) Between the Analysed Variables*

	Variables	<i>M</i>	<i>SD</i>	Score range (min–max)	Scale range (min–max)	1	2	3	4	5	6	7	8	9	10	11	12	
Sense of self-dignity	1. Cognitive dimension	46.47	6.86	23–60	12–60	–												
	2. Loss dimension	32.62	7.52	9–45	9–45	–.52	–											
	3. Relational dimension	27.34	6.37	7–35	7–35	.75**	–.16	–										
	4. Experience dimension	28.70	6.73	8–40	8–40	.61**	–.36**	.57**	–									
	5. Total score	135.13	17.44	83–174	36–180	.88**	.22*	.81**	.68**	–								
Psychological well-being	6. Autonomy	29.72	6.65	13–48	7–49	.12	.42**	–.04	–.20*	.14	–							
	7. Environmental mastery	30.70	5.46	19–46	7–49	.34**	.49**	.22*	–.05	.41**	.61**	–						
	8. Personal development	33.10	5.52	16–48	7–49	.39**	.47**	.27**	–.02	.45**	.48**	.71**	–					
	9. Positive relationships	32.70	6.91	22–49	7–49	.38**	.38**	.32**	.11	.47**	.41**	.63**	.55**	–				
	10. Life purpose	31.16	6.72	16–49	7–49	.20*	.32**	.07	.10	.29**	.49**	.65**	.52**	.51**	–			
	11. Acceptance	28.36	7.59	10–48	7–49	.27**	.38**	.20*	.05	.37**	.48**	.66**	.69**	.71**	.59**	–		
	12. Total score	185.72	31.29	118–280	42–294	.37**	.50**	.21*	.01	.43**	.72**	.87**	.81**	.80**	.78**	.87**	–	

*Note.* \* $p < .05$ , \*\* $p < .01$ .

**Table 2***Results of the Stepwise Regression Analysis Explaining Dimension of Psychological Well-Being*

Dimension of Psychological well-being: Autonomy <i>Adjusted R<sup>2</sup> = .17, F = 22.78, p &lt; .001</i>					
Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Loss dimension	0.37	0.08	0.42	4.77	.001
Dimension of Psychological well-being: Environmental mastery <i>R = .58, R<sup>2</sup> = .34, Adjusted R<sup>2</sup> = .32, F = 26.94, p &lt; 0.001</i>					
Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Loss dimension	0.31	0.06	0.42	5.23	.001
Total score of sense of self-dignity	0.10	0.03	0.32	3.91	.001
Dimension of Psychological well-being: Personal development <i>Adjusted R<sup>2</sup> = .33, F = 27.60, p &lt; .001</i>					
Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Loss dimension	0.29	0.06	0.39	4.83	.001
Total score of sense of self-dignity	0.11	0.03	0.36	4.48	.001
Dimension of Psychological well-being: Positive relationships <i>Adjusted R<sup>2</sup> = .30, F = 23.51, p &lt; .001</i>					
Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Total score of sense of self-dignity	0.16	0.03	0.41	4.94	.001
Loss dimension	0.27	0.08	0.30	3.59	.001
Dimension of Psychological well-being: Live purpose <i>Adjusted R<sup>2</sup> = .14, F = 9.44, p &lt; .001</i>					
Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Loss dimension	0.24	0.08	0.27	2.95	.004
Total score of sense of self-dignity	0.09	0.04	0.23	2.47	.01
Dimension of Psychological well-being: Acceptance <i>Adjusted R<sup>2</sup> = .21, F = 6.73, p &lt; .001</i>					
Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Loss dimension	0.32	0.09	0.32	3.62	.001
Total score sense of self-dignity	0.13	0.04	0.30	3.41	.001
Psychological well-being: Total score <i>Adjusted R<sup>2</sup> = .35, F = 30.33, p &lt; .001</i>					
Predictors	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>
Loss dimension	1.79	0.33	0.43	5.42	.001
Total score of sense of self-dignity	0.61	0.14	0.34	4.30	.001

## DISCUSSION

The aim of this study was to determine the contribution of SSD in accounting for the variability of PWB in the surveyed women with IR. The results confirmed the predictive role of SSD for this variable in the surveyed women. The proposed hypothesis was only partially confirmed.

Two subscales of the QSSD-3 (loss dimension and total score) were found to predict PWB in women with IR. What is important, the loss dimension was a strong predictor in accounting for the variance of the dimensions of PWB. The loss dimension was found especially significant for three of the PWB dimensions: personal development, environmental mastery, and positive relationships. The contribution of the loss dimension of SSD in accounting for PWB shows that experiencing negative life events due to e.g. illness may strengthen positive life assessment. In their meta-analysis, Xiao et al. (2019) show that dignity therapy is a promising approach to improve PWB among patients with cancer under palliative care, and older adults with cognitive impairments (Tedeschi & Calhoun, 1996).

For the IR women, self-dignity is an important factor in how they perceive themselves and their functioning. When these women's attitudes are inconsistent with their system of values and accepted principles, they experience lower levels of SSD (Brudek & Steuden, 2017). As indicated by Brudek and Steuden (2017), the level of self-dignity depends largely on the hierarchy of values a person recognizes and the ways they enact these values. IR has manifold adverse effects on women's health, thus it would be important to consider how to mitigate them to increase women's PWB (Legro, 2009).

Established predictors explain 14–35% of the variance of individual dimensions of PWB in the study group. Higher results in the loss dimension are associated with higher levels of respondents' autonomy. Perhaps the more difficult situations and life circumstances the surveyed women experience that cause them to lose their SSD (e.g. illness), the greater their ability to act in accordance with individually established rules and to resist social pressures to think and act in other ways. Such functioning may be seen as growth after a traumatic event—an illness in this case. Also, it was found that higher scores in the loss dimension and the total score of the QSSD-3 are linked to stronger personal development as one of the PWB dimensions. Perhaps, women who have experienced a loss of self-dignity and are characterized by a high SSD have a feeling of continued development and are open to new experiences (Ryff, 2014). Higher scores in the total QSSD-3 and in the loss dimension are associated with an improved ability to establish and maintain lasting relationships with others, as well as to experience the joy of human contact. It is possible



that women who are characterized by a high SSD, and have experienced a loss of self-dignity, have warm, satisfying, trusting relationships with others (Ryff, 2014). Higher scores in the loss dimension and total score of sense self-dignity are associated with a higher level of life purpose and acceptance in the study group. Perhaps women with high levels of self-dignity who have experienced situations where they can lose their SSD have goals in life, a sense of directedness, and a positive attitude toward themselves (Ryff, 1989). The obtained data showed the experience of loss of self-dignity may promote high levels of PWB in the surveyed women with IR. The results of the present study indicate that the experience of losing self-dignity is important for PWB in the surveyed women with IR.

This study contributes to the research directed at seeking answers to the question: What influences the PWB of women with IR? Researchers have studied how personality traits predict reported levels of well-being (Ryff, 2016). Our research supplements existing knowledge with another PWB predictor. This is important because the issue of positive functioning of individuals is part of the current research trend focusing on the search for determinants of a good, happy life especially of people with illness or disability (Folkman & Greer, 2000). Furthermore, empirical research indicate the health benefits of PWB (Boehm, 2021).

The present research has also practical overtones. First, for researchers who may direct future research towards other psychological dimensions of functioning of women with IR that may be relevant to their PWB, such interventions may prove to be significant in enhancing the quality of life of women characterized by medium levels of PWB. Second, for health care providers who deal with women with IR and who should pay attention to their patients' mental health. In addition, the present study showed that the surveyed women experience medium levels of PWB. Hence, research and rehabilitation efforts should focus on ways to raise this level. Perhaps a dignity therapy could be a direction of support, but this requires further research.

Although the study findings are interesting, the presented research has some limitations. The most important ones include: (1) The studied group of women is not representative and significantly heterogeneous in terms of sociodemographics. A future research group should be more homogeneous. (2) Qualitative research should complement the present findings. Therefore, the presented study should be treated as a preliminary recognition of the phenomenon. The present research may be a starting point for further analyses. (3) The present study is cross-sectional and includes women at different stages of IR treatment. Perhaps longitudinal studies would provide a better understanding of PWB taking into account decisions and the stage of treatment.

## CRediT Author Statement

AGNIESZKA GABRYŚ (60%): methodology, formal analysis, data curation, writing (original draft).

MAŁGORZATA GULIP (40%): conceptualization, investigation, resources.

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