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PREGNANCY AND MOTHERHOOD EVALUATION QUESTIONNAIRE (PMEQ) – PSYCHOMETRIC PROPERTIES IN POLISH WOMEN WITH PHYSICAL DISABILITY*

Introduction: Women with physical disabilities need specialist assistance and support. Access to a measurement instrument that captures the specific needs and experiences of women with physical disabilities will contribute to improving the design and delivery of specialist care and support services tailored to this group. Pregnancy and Motherhood Evaluation Questionnaire by Panuccio et al. (2022) is used to assess the importance of disability for the course of pregnancy and motherhood among women with physical disabilities.
Research Aim: Evaluate the psychometric properties of the Polish version of PMEQ among women with physical disability.
Method: Research was conducted among 101 women with acquired physical disability. The primary structure of the questionnaire is not similar to the original version – the confirmatory factor analysis did not confirm its three-factor structure in the Polish group. On this basis, it was decided to propose the author's own version of the tool.
Results: The conducted analyses allowed for extracting a 5-factor structure, which explained 58.36% of the variance in the results.
Conclusions: The empirical data obtained indicate satisfactory reliability, stability, and validity of the presented scale.

Keywords: pregnancy, motherhood, physical disability, women with disabilities, acquired physical disability, congenital physical disability

INTRODUCTION

Few studies (qualitative for the most part) have presented experiences of individual women with (acquired and congenital) physical disability acting as a parent (Casey

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et al., 2022; Nguyen et al., 2019; Wint et al., 2016) and of those who fail to do so for various reasons (Gabryś, 2023). In the social discourse, disability and mothering have continued to be mutually exclusive (Malacrida, 2019) and the traditional idea of "being a good mother" fails to take women with disabilities into account (May, 2008). They lack role models in the society, which intensifies their stress, mental and emotional discomfort, and consequently a strong fear against taking up this role (Walsh-Gallagher et al., 2012). For this reason, they are forced to face different bias in this respect, including that of being completely dependent on others, lacking maternal role competence, or being inadequate and insufficiently able to be a mother (Grue & Laerum, 2002; Nguyen et al., 2019; Prilleltensky, 2004).

Due to emerging social pressures and internal dilemmas, decision making regarding parenting is much more complex and complicated for women with physical disabilities in comparison to non-disabled women (Clarke & McKay 2014; O'Connor-Terry & Harris, 2022). Women with physical disabilities have reported on such aspects of their decision as: dependence on other people, health status, absence of and greater problems with finding a partner (Gabryś, 2023), and insufficient information about pregnancy and health care in this period (O'Connor-Terry & Harris, 2022). In an attempt to meet the current needs, Kalpakijan and colleagues (2023) have developed and tested a pilot instrument related to decision-making regarding pregnancy for women with physical disabilities. According to the authors of the instrument , it is very promising, patient-focused, and ensures support for entities providing health care to these women. In spite of indicated limitations and dilemmas, an increasing number of women with disabilities have been making informed parenting decisions (Tarasoff, 2017). Thus, scholars (e.g., Shpigelman, 2015) have highlighted the beneficial outcomes of these decisions, which involve development of positive identity and mental resilience of these women (Shpigelman, 2015) or their sense of fulfilment and happiness from being a mother (Prilleltensky, 2004). By increasing their self-confidence in acting as mothers, women with physical disabilities "tame" social questioning of their capability in this respect (Alexander et al., 2002).

Sadly, according to scholars (e.g., Merits et al., 2023; Tarasoff, 2020), the system of prenatal, childbirth, and postpartum care has continued to ignore women with physical disability. They are prone to more frequent complications (e.g., those related to co-morbidities; see Kobiołka & Skrzypulec-Plinta, 2018), cardiovascular disorders, breathing problems (Drosdzol-Cop et al., 2020), or chronic gastrointestinal disorders (Morton et al., 2013). They encounter a number of barriers and inadequate care, which include, among others, the lack of knowledge, experience, and awareness of their needs by medical professionals, difficulties communicating with health care providers, or lack of access to health care premises (Blair et al., 2022; Heideveld-Gerritsen et al., 2021; Tarasoff, 2020). What is important, the society believes that elimination of barriers in accessing health care services is a

personal obligation of women with disabilities and their families (Nguyen et al., 2019) rather than a shared responsibility of the health care system, policymakers, and service providers, to ensure equitable access to care.

Knowledge about motherhood experiences of women with disabilities primarily comes from qualitative studies (Heideveld-Gerritsen et al., 2021). On this basis, scholars (e.g., Panuccio et al., 2020) attempted to construct an instrument for quantitative evaluation of pregnancy and motherhood by these women. However, quantitative instruments for concurrent evaluation of pregnancy and motherhood both in women with disabilities and non-disabled women are hard to find. The only available scales and questionnaires measure aspects of pregnancy and motherhood separately. While reviewing instruments for evaluating motherhood experiences available for groups of non-disabled women, the following may be indicated: Being a Mother Scale (BaM-13), Myself as Mother, Parenting Sense of Competence Scale (PCOS), The Pregnancy Experience Scale – Brief Version. Pregnancy evaluation instruments cover more specialist scales used especially in midwifery (i.e., in specific situations encountered during pregnancy). These include the Antenatal Risk Questionnaire (ANRQ) or the Abbreviated Scale for the Assessment of Psychosocial State in Pregnancy.

The Pregnancy and Motherhood Evaluation Questionnaire (PMEQ) was developed by a team of medical doctors and rehabilitation professionals from Sapienza University of Rome and from the Rehabilitation and Outcome Measures Assessment (ROMA) Association (Panuccio et al., 2020). Questionnaire authors initially administered semi-structured interviews with open-ended questions, and based on the obtained results, three specialists elaborated the items of the PMEQ. Moreover, while developing the instrument, the authors used findings of the qualitative study by Wint and colleagues (2016) and consulted the authors of this study. Ultimately, the questionnaire consists of an initial section (with general questions about the number of children and current age, marital status at the time of pregnancy, employment status at the time of pregnancy, association with support groups during pregnancy, etc.) and 31 items with three sub-scales: (1) Practical management (13 items) used to investigate participants' degree of independence and possible need for assistance in carrying out activities of daily living before and during pregnancy, as well as baby care and management, especially in the areas of feeding (breastfeeding), hygiene (bathing, changing diapers, dressing, and undressing), lifting, moving and carrying, as well as prompt night assistance; (2) Psychological aspects (3 items) dealing with the presence of fears or doubts regarding the possibility of carrying the pregnancy, giving birth, and taking care of the baby, according to one's condition of disability; and (3) Services and assistance (15 items) highlighting aspects related to received healthcare services and healthcare professionals' training, to investigate the women's level of satisfaction with the management of her pregnancy and postpartum period. Respondents rate the ques-

tions using a 5-point Likert scale in which 1 stands for "not at all," 2 stands for "a bit," 3 stands for "quite a bit," 4 stands for "a lot," and 5 stands for "completely." The original scale was found to have good internal consistency, and for the following scales it was: Cronbach's alpha for the entire Pregnancy and Motherhood Evaluation Questionnaire (PMEQ) was 0.81 for Practical management – 0.88, for Psychological aspects – 0.78, for Services and assistance – 0.59 (Panuccio et al., 2020).

RESEARCH PROBLEM AND AIM

Due to the relevance of the question of pregnancy and motherhood of women with physical disabilities and in view of the absence of a Polish scale enabling its quantitative measurement, a decision was made to adapt the instrument developed by Italian researchers in the English language – the Pregnancy and Motherhood Evaluation Questionnaire (PMEQ). Women with physical disabilities need specialist assistance and support from, among others, an obstetrician, gynaecologist, urologist, physiotherapist, neurologist, anaesthesiologist, and other specialists (Signore et al., 2011). Access to an instrument dedicated to women with physical disabilities will definitely contribute to improvement of specialist care and support services for such women.

MATERIALS AND METHODS

The Polish version of the adapted measure has been developed across a number of stages, with observance of proper procedures to be followed during cultural adaptation of a psychometric test (Hornowska & Paluchowski, 2004). The authors of the original scale consented to administering the study in Poland and they have supervised this process, being in constant e-mail contact with the author of the Polish version of the questionnaire. The first stage of this work involved translation of the initial section of the questionnaire, its instructions, particular items and responses from English to Polish. The translation was conducted by three independent English translators. In the next stage, three judges (an educator, special education teacher, psychologist) with proficient command of English agreed on the ultimate wording of the Polish questionnaire. The agreement among expert ratings was estimated using the Content Validity Index (CVI). The I-CVI values for all items ranged from 0.78 to 1.00, while the mean S-CVI/Ave for the entire instrument reached 0.92, exceeding the recommended acceptability threshold (0.80) and indicating high content validity of the Polish version of the questionnaire. It was decided that in order to provide for a more accurate wording and consistency of the instrument, questions in the original version should be converted into state-

ments, to which the authors of the original questionnaire gave their consent. Next, the agreed version was back-translated by different independent English translators. The obtained forward and backtranslations were then carefully compared with the original version of the instrument in terms of semantic, conceptual, and functional equivalence. The analysis was conducted by a panel of three competent judges, who assessed the degree of meaning equivalence of individual items, adequacy of the wording used, and preservation of the theoretical meaning of the measured construct. In cases of discrepancies, group discussions were held until consensus was reached. This procedure resulted in establishing the final language version of the instrument, which was considered equivalent to the original version. The translations were then compared in order to check for their accuracy and they proved convergent. The final version of the instrument was verified by a Polish Studies graduate and linguist (Doctor of Humanities) who corrected the style of some items. Finally, the questionnaire was reviewed by 10 women with physical disabilities, who conducted a pilot evaluation of comprehensibility, readability, and relevance of item content to the experiences of women with physical disabilities, which did not result in the need for further modifications to the instrument. The experimental version of Kwestionariusz Oceny Ciąży i Macierzyństwa (KOCiM) was included in a validation study to check for its psychometric properties in a group of women with physical disabilities.

DATA ANALYSIS

Psychometric Properties of the Polish Version of PMEQ

Determination of psychometric properties of the Polish version of Pregnancy and Motherhood Evaluation Questionnaire (PMEQ) covered a number of stages. The first stage focused on the analysis of the instrument's internal structure. The second one was about estimating reliability and repeatability of the measure. Finally, the third one focused on determining theoretical, convergent, and criterion validity of the questionnaire.

Validation study was conducted from April 2023 to June 2024. The sample included 101 women with congenital and acquired physical disabilities. The study was administered personally by the author of this paper. The sample was selected using a purposive (non-random) sampling method, due to the specificity of the studied population and limited availability of women meeting all inclusion criteria. Participants were recruited through non-governmental organizations, associations, and rehabilitation centres that support individuals with physical disabilities, as well as through individual contacts. Women who met the inclusion criteria were invited to participate in the study and, after receiving full information about the purpose and procedures of the research, provided voluntary informed consent to

take part. To be included in this study, women had to meet the following criteria: a) gender – female; b) age – above 18 years old; c) having a child between the ages of birth and 10 years; d) have pregnancy and motherhood experience as a person with congenital or acquired physical disability; e) having passed at least the first two weeks of puerperium; f) no mental problems. Considerable difficulty with accessing Polish women who met the adopted criteria should be emphasized, which accounts for a long duration of the study. Responding women with congenital (n = 8) and acquired (n = 93) physical disability were 19 to 49 years old (M = 33.28; SD = 6.45) and they all declared to have been mothers of one (n = 88) or two children (n = 13). Majority of respondents lived in a city (n = 70). The prevailing number of participants were married (81.19%), 16 were single, 2 were divorced and 1 separated. The respondents declared to have completed secondary education (75.25%), high (12.87%), and primary education (11.88%). Vast majority of the respondents were unemployed (87.13%). Employed respondents on the other hand, most often reported having a part-time job (n = 9). The respondents differed in terms of type of disability, as follows: spinal cord injury (n = 86), lower extremity amputation (n = 7), infantile cerebral palsy (n = 8). They most often evaluated the level of their daily functioning as average (70.30%). The extent of received assistance in overcoming everyday challenges was evaluated as high (71.29%), whereas the level of satisfaction from its receipt in overcoming the potential challenges was reported as average (68.32%). The sources of support in overcoming the potential challenges reported by the respondents were: the respondents themselves, family, friends, neighbours, medical doctors and therapists, and the clergy. At the beginning of the study, respondents were informed about the possibility to withdraw from the study, without stating the reason for the withdrawal (at any stage). Moreover, each respondent consented to voluntary participation in the study. It should be noted that the study was approved by the Research Ethics Committee of the Maria Curie-Skłodowska University in Lublin (application ref. no.: 21/2023).

RESULTS

Internal Structure of the Questionnaire

In order to verify the factor structure of the questionnaire and to confirm its form established in the original version, a confirmatory analysis was conducted with the use of AMOS 29 Graphics software. A three-factor model was investigated. The obtained model fit indices were found to be non-satisfactory: Chi^2 = 1,185.78; df = 431; $p < 0.001$; SMSEA = 0.146; RMSEA = 0.132, GFI = 0.438; NFI = 0.344; TLI = 0.394. The results we obtained failed to confirm the three-factor structure of the Polish version of the Pregnancy and Motherhood Evaluation Questionnaire (KO-CiM) with the original English version. The findings in this respect accounted for

the need to conduct further analyses. Subsequently, a five-factor model was tested using confirmatory factor analysis. The fit indices for this model were found to be acceptable: $Chi^2 = 712.45$, $df = 425$, $p < 0.001$; RMSEA = 0.061; GFI = 0.912; NFI = 0.897; TLI = 0.905. These results indicate that the five-factor structure adequately represents the internal structure of the Polish version of the PMEQ.

Next, in order to determine the internal structure of the Polish version of the PMEQ questionnaire, a parallel analysis was conducted as a criterion for extracting non-accidental factors. Based on the obtained results, it was decided to remove two items from the scale (*Before pregnancy, I would use mobility aids (wheelchair, crutches, etc.); During pregnancy, I used mobility aids / and if I used them before, I had to change or modify them*) which were characterised by high skewness and excess kurtosis, as well as low variance. Six factors were then extracted.

Next, an exploratory factor analysis was conducted with principal axis factoring and the use of Oblimin rotation. Indices confirming validity of this analysis were satisfactory. Sampling adequacy was measured using the Kaiser-Meyer-Olkin test (KMO = 0.68) and Bartlett's Test of Sphericity – $Chi^2 = 1548.13$, $df = 406$, $p < 0.001$. Two criteria were used to extract the number of factors: scree plot and the Kaiser criterion. On this basis, six factors were extracted, in total accounting for 61.76% of the variance of the results. Due to the fact that the last (sixth) factor included only two items (which were strongly related and probably accounted for something else), it was decided to exclude them and to repeat the exploratory factor analysis with the established five factors. To this end, the principal component analysis with Varimax rotation was employed. Measure of sampling adequacy: KMO = 0.70, Bartlett's Test of Sphericity – $Chi^2 = 1{,}412.34$, $df = 351$, $p < 0.001$. Five factors were extracted, in total accounting for 58.36% of the variance of the results. The assumed threshold for factor loadings considered during their inclusion into a specific factor was 0.40 and higher. Ultimately, factor loadings ranged between 0.43 and 0.90. Tables 1 and 2 below present percentage of variance explained by the factors we extracted during the research as well as factor loadings of the Polish version of the PMEQ questionnaire.

Table 1
Eigenvalues and percentage of variance explained by extracted factors

Factor	Eigenvalue	explained variance %	accumulated %
1	6.11	22.64	22.64
2	3.69	13.67	36.31
3	2.57	9.50	45.81
4	1.84	6.80	52.61
5	1.55	5.75	58.36

Note. Author's own study.

Table 2
Factor loadings of Pregnancy and Motherhood Evaluation Questionnaire (PMEQ) – Polish version – results of exploratory factor analysis

Sub-scale and included items	Factors				
	I	II	III	IV	V
Physical difficulties in childcare					
9. In the first months after childbirth, I had difficulties in changing diapers, washing, and dressing my child.	0.90	0.05	-0.07	-0.06	0.08
10. In the first months after childbirth, I had difficulties in lifting, moving, and carrying my child.	0.87	0.12	-0.04	-0.13	0.04
11. In the first months after childbirth, I had difficulties in promptly assisting my child during the night.	0.82	0.02	-0.06	-0.06	0.21
5. During pregnancy, I used to need the help of someone to carry out activities of daily life (nutrition, un/dressing, personal care and hygiene, etc.).	0.59	-0.16	0.31	0.13	-0.16
4. Pregnancy affected my ability to carry out activities of daily life (nutrition, un/dressing, personal care and hygiene, etc.).	0.58	-0.07	0.25	0.13	0.01
8. In the first months after childbirth, I had difficulties in feeding my child.	0.55	0.05	0.09	0.16	0.27
7. In the first months after childbirth, I needed the help of someone to do baby care activities.	0.54	0.12	-0.03	0.28	-0.01
2. Before pregnancy, I used to need the help of someone to carry out activities of daily life (nutrition, un/dressing, personal care and hygiene, etc.).	0.49	-0.15	-0.02	0.22	-0.22
6. Pregnancy affected my social and/or work participation.	0.49	-0.12	0.17	0.21	-0.34
1. Before pregnancy, my disability affected activities of daily life (nutrition, un/dressing, personal care and hygiene, etc.).	0.43	-0.12	-0.09	0.36	-0.07
Information and support from health care system					
20. I think that I have received enough information about pregnancy, delivery and the post-partum period.	0.16	0.79	0.13	-0.17	-0.22
24. Health care professionals I have met have been able to provide information about baby care and assistance, compatibly with my disability.	0.05	0.76	-0.02	0.05	0.12
21. I had difficulty in accessing buildings that should have provided my care and assistance during prenatal period, due to the presence of architectural and / or social barriers.	0.08	-0.75	0.12	-0.03	0.09
22. I experienced financial difficulties related to receiving assistance during pregnancy.	0.03	-0.68	0.17	-0.18	0.09

19. I think that health professionals have adequate skills and knowledge to follow and assist a woman with physical disability during pregnancy.	0.14	0.68	0.22	0.04	-0.21
23. I am overall satisfied with the way I managed my pregnancy period.	-0.37	0.45	0.19	-0.01	0.21
Environmental and technical adaptations					
26. I have made special changes to my child's room or to any other room in my home, so that I can better manage maternal activities.	0.01	0.02	0.85	0.05	0.11
25. I have used particular aid and / or furniture to help myself in my maternal activities.	0.02	-0.01	0.82	-0.01	-0.05
27. I am overall satisfied with the way I managed my post-partum period.	-0.06	-0.02	0.82	-0.01	-.003
Expected difficulties before pregnancy					
13. Before pregnancy, I believed that it may negatively affect my disability.	-0.08	0.14	0.09	0.85	0.04
12. Before pregnancy, I believed that my disability may affect my chances of getting pregnant and giving birth.	0.03	0.13	0.14	0.76	0.07
3. Before pregnancy, my disability affected my social and/or work participation.	0.12	-0.16	0.01	0.57	0.19
14. Before pregnancy, I believed that my disability may negatively affect my maternal skills.	0.18	0.04	-0.18	0.53	-0.08
Problems related to accessing health care and infertility					
16. I had difficulty getting pregnant.	-0.08	-0.10	0.01	0.29	0.77
18. I found it difficult to find an obstetrics department that was prepared for the care of a patient with a physical disability.	0.01	-0.27	0.06	0.16	0.71
17. Me and my partner used infertility treatment.	0.07	-0.17	-0.02	0.06	0.69
15. Before pregnancy, I used contraceptives.	0.21	0.10	0.09	-0.26	0.56

Note. Author's own study.

Based on the obtained results of the factor analysis, it may be stated that all factors, apart from factor III, accumulate loadings of slightly different values, factor I in particular. The Polish version of the scale ultimately consists of 27-items included in 5 sub-scales. Their names have been redefined: Factor I – Physical difficulties in childcare (Polish acronym: TFOD), Factor II – Information and support from the health care system (IWSSZ), Factor III – Environmental and technical adaptations (AST), Factor IV – Expected difficulties before pregnancy (PTPC), Factor V – Problems related to accessing health services and infertility (PZDOP). Table 3 below presents descriptive statistics for particular sub-scales.

Table 3
Descriptive statistics for particular sub-scales of PMEQ's Polish version (n=101)

Sub-scale name	Number of items	Min.	Max.	*M*	*SD*	Skew-ness	Kurtosis	Variance
TFOD	10	17	47	29.82	7.01	0.28	-0.46	49.17
IWSSZ	6	13	30	20.66	3.89	0.03	-0.54	15.15
AST	3	5	14	10.62	2.04	-0.52	-0.32	4.18
PTPC	5	4	20	11.97	3.42	0.09	-0.51	11.69
PZDOP	5	6	20	11.97	3.12	0.23	-0.13	9.73

Key: TFOD – Physical difficulties in childcare; IWSSZ – Information and support from the health care system; AST – Environmental and technical adaptations; PTPC – Expected difficulties before pregnancy, PZDOP – Problems related to accessing health services and infertility.

Note. Author's own study.

Running the correlation analysis of the five sub-scales was the final stage of verifying the internal structure of the questionnaire. The results are presented in Table 4 below.

Table 4
KOCiM questionnaire sub-scales – Pearson's correlation coefficient (r)

	TFOD	IWSSZ	AST	PTPC	PZDOP
TFOD	-				
IWSSZ	0.12	-			
AST	0.01	0.47**	-		
PTPC	0.70**	0.16*	-0.02*	-	
PZDOP	0.28**	0.31**	0.06*	0.42*	-

* $p < 0.05$; ** $p < 0.01$

Note: Author's own study

Key: TFOD – Physical difficulties in childcare; IWSSZ - Information and support from the health care system; AST – Environmental and technical adaptations; PTPC – Expected difficulties before pregnancy, PZDOP – Problems related to accessing health services and infertility.

Note. Author's own study.

Statistically significant relationships between the factors in the questionnaire were found. Magnitude of the relationship may be determined as ranging from weak to medium. No statistically significant relationships were found among Phys-

ical difficulties in childcare (TFOD), Information and support from the health care system (IWSSZ), and Environmental and technical adaptations (AST).

Reliability and Repeatability of KOCiM

The Polish version of PMEQ was examined for its reliability and repeatability. Cronbach's alpha was used to determine the reliability of the measure. Values obtained for specific sub-scales are presented in Table 5 below.

Table 5

Cronbach's alpha values for individual sub-scales of PMEQ's Polish version

Sub-scales	Cronbach's α
1	0.83
2	0.65
3	0.62
4	0.70
5	0.63

Note. Author's own study.

The obtained Cronbach's alpha values ranged from 0.62 to 0.83. The highest reliability was observed for sub-scale 1 (α = 0.83), indicating good internal consistency. The remaining sub-scales demonstrated alpha coefficients between 0.62 and 0.70, which may be interpreted as acceptable but relatively low. However, given the exploratory nature of the study, the multidimensional structure of the PMEQ and the limited number of items within particular sub-scales, these values can be considered sufficient for research purposes.

Moreover, repeatability of the questionnaire was examined. This was done on the basis of results of a double measurement in the same group of women (n = 20) at a two-week interval. The obtained Spearman correlation coefficients ranging from 0.60 to 0.75 ($p < 0.01$) point to good repeatability of the measure, and the highest repeatability was reported for the sub-scales of Physical difficulties in childcare (TFOD) and Environmental and technical adaptations (AST).

Validity of KOCiM Questionnaire

In the next steps of the validation study, validity of the Polish version of the KOCiM questionnaire was examined. Theoretical, convergent, and criterion validity was determined. Below is a short discussion of its validity.

Theoretical validity results from the multi-dimensional nature of the concept of motherhood in general. In many countries, despite different wording and culture, motherhood means the same thing and refers to the mother-child dyad (Aksamit, 2019). Women with physical disability during pregnancy are, among others,

exposed to more frequent complications (Drosdzol-Cop et al., 2020; Kobiołka & Skrzypulec-Plinta, 2018), and they face multiple care-related barriers (Blair et al., 2022; Tarasoff, 2020). Theoretical content of the items as well as the extracted factors referring to particular stages of pregnancy and motherhood are well-matched and properly defined. Thus, the presented questionnaire measures what it was expected to measure.

Convergent validity on the other hand, was determined based on the relationships of the Polish version of the questionnaire (KOCiM) with another measure designed for women which has not been used in Poland to measure the convergent construct related to motherhood. (Sadly, no measure has been identified that would assess pregnancy and motherhood of women with physical disability, or non-disabled women). To this end, the Childbearing Questionnaire – short version for females developed by Miller (2022) in the Polish adaptation by Huczewska and colleagues (2022) was used.

Table 6

Correlations between Pregnancy and Motherhood Evaluation Questionnaire (KOCiM) – Polish version – and Childbearing Questionnaire – Pearson's correlation coefficient (r)

Sub-scales	Positive childbearing motivation	Negative childbearing motivation	Parental desires	Parental intentions
TFOD	-0.43**	0.35*	-0.24**	0.22*
IWSSZ	0.22*	0.21	0.35**	0.40*
AST	0.33*	0.32	0.11*	0.34
PTPC	-0.21*	0.27*	0.24	0.28*
PZDOP	-0.32*	0.42**	0.17*	0.09

*$p < 0.05$; **$p < 0.01$

Key: TFOD – Physical difficulties in childcare; IWSSZ – Information and support from the health care system; AST – Environmental and technical adaptations; PTPC – Expected difficulties before pregnancy, PZDOP – Problems related to accessing health services and infertility.

Note. Author's own study.

Data presented in the table above point to the existence of statistically significant relationships (positive and negative) between the considered variables. Obtained correlation coefficients present weak to average magnitude. It was assumed that there are relationships between difficulties experienced by women with disabilities and their positive and negative childbearing motivation. As expected, the strongest relationship was found between the TFOD (*Physical difficulties in childcare*) *s*ub-scale and the Positive childbearing motivation sub-scale, and between

the PZDOP (*Problems related to accessing health services and infertility*) sub-scale and Negative childbearing motivation.

In order to determine criterion validity, the relationships between KOCiM and the measures that identify variables which theoretically should correlate with pregnancy and motherhood evaluation were established. It was decided to include The Multidimensional Scale of Social Support by Zimet and colleagues in the Polish adaptation by Buszman and Przybyła-Basista (2017), the COPE (*Coping Orientations to Problems Experienced*) Inventory by Carver, Scheier and Weintraub in the Polish adaptation by Piątek and Wrześniewski (1996), The General Self-Efficacy Scale (GSES) by Schwarzer and Jerusalem in the Polish adaptation by Juczyński (2001), and the Rosenberg Self-Esteem Scale in the Polish adaptation by Łaguna et al. (2007). It was assumed that significant relationships exist between pregnancy and motherhood evaluation measured with KOCiM and coping strategies, support, belief about self-efficacy, and self-esteem in the responding women.

Table 7
Correlations between sub-scales of KOCiM and COPE – Pearson's correlation coefficient (r)

Sub-scales	PROB	ZAP	EM	WSP	AKC	REL	HUM	ALK
TFOD	0.23**	0.37*	-0.07	0.25***	0.30	0.25*	0.01	0.11*
IWSSZ	0.47**	-0.23*	0.38	0.37*	0.44*	-0.05	0.34	0.21
AST	0.67*	0.21	0.37***	0.28**	0.12*	-.011	0.23	-0.05
PTPC	0.04	0.08	0.59**	0.30	-0.31	0.10*	-0.09	0.12
PZDOP	0.32**	0.10	0.45**	0.53**	-0.39*	0.21	0.02	0.22*

**p < 0.05; **p < 0.01; p < 0.001*

Key: TFOD – Physical difficulties in childcare; IWSSZ – Information and support from the health care system; AST – Environmental and technical adaptations; PTPC – Expected difficulties before pregnancy, PZDOP – Problems related to accessing health services and infertility; PROB – Problem focus; ZAP – Denial; EM – Emotion focus; WSP – Seeking emotional support; AKC – Acceptance; REL – Turning to religion; HUM – Sense of humour; ALK – use of alcohol or other drugs.

Note. Author's own study.

Data presented in Table 8 below allows to point to the existence of statistically significant positive and negative relationships between the KOCiM and COPE sub-scales. Obtained correlation coefficients point to negative relationships between acquisition of information and support from the health care system and the strategy of denial, as well as between problems related to accessing health services and infertility, and acceptance of the difficulties. The strongest correlations were found between the AST and EM sub-scales, as well as among the TFOD and

PROB, and WSP sub-scales. This means that when faced with problems, respondents use a broad range of coping strategies – with adaptive strategies prevailing. Interestingly, the HUM (Sense of humour) sub-scale failed to correlate to any of the KOCiM's sub-scales.

Table 8
Correlations between KOCiM and WSSPS, GSES and SES – Pearson's correlation coefficient (r)

Sub-scales	Perceived support	Friends	Family	Significant other	GSES	SES
TFOD	0.55**	-0.33*	0.67**	0.55*	-0.34*	-0.24*
IWSSZ	-0.49*	0.01	0.34*	0.22**	0.47*	0.39**
AST	0.23*	0.12	0.46**	0.38*	0.64***	0.49**
PTPC	0.07	0.25	0.34*	0.42***	0.11	-0.32*
PZDOP	0.46*	0.03	0.27*	0.39**	-0.55**	-0.27*

*$p < 0.05$; **$p < 0.01$; *** $p < 0.001$

Key: TFOD – Physical difficulties in childcare; IWSSZ – Information and support from the health care system; AST – Environmental and technical adaptations; PTPC – Expected difficulties before pregnancy, PZDOP – Problems related to accessing health services and infertility; GSES – General Sense of Self-Efficacy, SES – Self-esteem.

Note. Author's own study.

Table 8 above also presents correlations for the KOCiM questionnaire and all other measures used to evaluate criterion validity of the tool (perceived support, general sense of self-efficacy, and self-esteem). Statistically significant relationships between measures included in the analysis were identified. Positive and negative relationships of weak and average magnitude were obtained. It may be stated that greater physical difficulties in childcare and problems related to accessing health and fertility care are associated with lower general sense of self-efficacy and self-esteem in the responding women. What is important, while conducting environmental and technical adaptations to childcare, the respondents presented high general sense of self-efficacy and self-esteem. It is important to indicate that in case of friends' support, only one significant (negative) correlation coefficient with the TFOD sub-scale was noted.

DISCUSSION

Description of the Instrument, Calculations, and Interpretation of Results

The Kwestionariusz Oceny Ciąży i Macierzyństwa (KOCiM) consists of a short initial section (open-ended questions about the number of children and current age,

marital status at the time of pregnancy, employment status at the time of pregnancy, and association with support groups during pregnancy) and 27 diagnostic items. It has five sub-scales: Physical difficulties in childcare (Polish acronym: TFOD – 10 items), Information and support from the health care system (IWSSZ – 6 items), Environmental and technical adaptations (AST – 3 items), Expected difficulties before pregnancy (PTPC – 4 items), as well as Problems related to accessing health services and infertility (PZDOP 4 items). Respondents indicate their agreement with particular items using a 5-point scale (1 – I definitely disagree, 2 – I quite disagree; 3 – I neither agree nor disagree; 4 – I quite agree; 5 – I definitely agree). KOCiM is designed to study women with physical disabilities having children between the ages of birth and 10 years. Scores from items included in particular sub-scales are summed up and they constitute a total sub-scale score. However, it should be remembered that in case of the Information and support from the health care system (IWSSZ) sub-scale, items 21 and 22 should be reverse coded. At the same time, it should be noted that higher scores in the Physical difficulties in childcare (TFOD), the Expected difficulties before pregnancy (PTPD), and the Problems related to accessing health services and infertility (PZDOP) sub-scales indicate greater difficulties and, consequently, poorer pregnancy and motherhood evaluation.

CONCLUSIONS

Psychometric analysis of the Polish version of the Pregnancy and Motherhood Evaluation Questionnaire (PMEQ) was conducted. As the three-factor structure of the original PMEQ instrument verified using the confirmatory analysis (non-satisfactory model fit indices) was not confirmed, it was decided to develop a Polish structure of the adapted instrument. Ultimately, on the basis of a range of analyses, 5 factors were extracted, in total accounting for 58.36% of the variance of the results. In view of the above, a Polish structure of the instrument was proposed, consisting of 5 redefined sub-scales. In this version, KOCiM displays satisfactory internal consistency, reliability, and repeatability. Performed analyses of theoretical, convergent, and criterion validity proved that the questionnaire successfully measures the assumed phenomenon. The presented scale allows women with physical disabilities to evaluate pregnancy and motherhood in terms of 5 different aspects. All questionnaire items were elaborated by the authors of the original PMEQ (medical doctors and rehabilitation professionals). The instrument can be successfully used to pursue research objectives, both theoretical and practical (rehabilitation).

The PMEQ may be used not only as a research tool, but also as a support instrument in pedagogical practice. The scale can be applied by pedagogues and special

education professionals working with women with physical disabilities to identify areas requiring educational, counselling, or psychoeducational support during pregnancy and early motherhood. The results may help to tailor individualised support programmes, educational interventions, and preventive activities aimed at strengthening maternal competencies and coping resources. Importantly, the questionnaire is not intended for diagnostic purposes, but rather as a screening and supportive tool facilitating pedagogical work with women with physical disabilities.

LIMITATIONS

Despite satisfactory psychometric properties of the proposed Polish version of the instrument for evaluation of pregnancy and motherhood by women with physical disabilities, the study is not free from limitations. First, the Pregnancy and Motherhood Evaluation Questionnaire was tested on a sample of women with acquired physical disability. It is essential to continue research in this respect in a group of respondents with congenital physical disability. Second, attention should be paid to sample size (n = 101), which is particularly important for the presented statistical analyses. Moreover, the sample was selected using purposive sampling, which limits the representativeness of the results and the possibility of their generalisation. However, the specific nature of the studied population and difficulties in accessing the responding women ultimately determined both the sampling strategy and the number of respondents. Therefore, the present study should be regarded as exploratory and pilot in nature. Third, KOCiM is a self-report instrument, which means that it provides declarations of responding women concerning evaluation of specific aspects of pregnancy and motherhood. Although a majority of available scales that measure various dimensions of human functioning also include self-reports, the risk of interfering mechanisms should be borne in mind. This is particularly important in the case of investigating a highly significant and intimate issue of pregnancy of women with physical disabilities, in particular due to social stigma and stigmatisation of this topic. Nevertheless, despite the noted limitations, the results of the conducted validation analyses indicate that the Polish version of the Pregnancy and Motherhood Assessment Questionnaire (KOCiM) demonstrates acceptable validity and reliability, suggesting that it can be used to assess pregnancy and motherhood experiences among women with physical disabilities.

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KWESTIONARIUSZ OCENY CIĄŻY I MACIERZYŃSTWA (KOCIM) – PSYCHOMETRYCZNE WŁAŚCIWOŚCI W GRUPIE KOBIET Z NIEPEŁNOSPRAWNOŚCIĄ RUCHOWĄ

Wprowadzenie: Kobiety z niepełnosprawnością ruchową wymagają specjalistycznej opieki i wsparcia. Dostęp do narzędzia pomiarowego, które pozwala uchwycić specyficzne potrzeby i doświadczenia kobiet z niepełnosprawnościami fizycznymi, przyczyni się do poprawy projektowania oraz świadczenia specjalistycznych usług opieki i wsparcia dostosowanych do tej grupy. Narzędzie Pregnancy and Motherhood Evaluation Questionnaire (Panuccio i in., 2022) służy do oceny znaczenia niepełnosprawności dla przebiegu ciąży i macierzyństwa wśród kobiet z niepełnosprawnością ruchową.
Cel badań: Ocena właściwości psychometrycznych polskiej wersji Kwestionariusza Oceny Ciąży i Macierzyństwa w grupie kobiet z niepełnosprawnością ruchową.
Metoda badań: Badanie zostało przeprowadzone wśród 101 kobiet z wrodzoną i nabytą niepełnosprawnością ruchową. Podstawowa struktura kwestionariusza nie jest zbliżona do wersji oryginalnej – zastosowana konfirmacyjna metoda analizy czynnikowej nie potwierdziła jej trzyczynnikowej struktury w grupie polskiej. Na tej podstawie zdecydowano się zaproponować własną wersję narzędzia.
Wyniki: Przeprowadzone analizy pozwoliły na wyodrębnienie 5-czynnikowej struktury wyjaśniającej 58,36% wariancji wyników.
Wnioski: Uzyskane dane empiryczne wskazują na satysfakcjonującą rzetelność, stabilność i trafność prezentowanego narzędzia.

Słowa kluczowe: ciąża, macierzyństwo, niepełnosprawność ruchowa, kobiety z niepełnosprawnością, nabyta niepełnosprawność ruchowa, wrodzona niepełnosprawność ruchowa