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Family situation of primary care patients – evaluation of the psychometric properties of the Polish version of the Family Apgar Questionnaire

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Summary **Background.** The functioning of the family within the concept of family-centered care (FCC) is an important issue in primary care. Understanding of the functioning of the patient's family system is necessary to ensure effective care. The Family Apgar Questionnaire allows one to determine the family situation of those examined.
Objectives. Assessment of the family situation of primary care patients using the Family Apgar Questionnaire and determination of its credibility in primary care in Poland.
Material and methods. The study was conducted on a group of 154 primary care patients. The study used the Family Apgar Questionnaire and own questions about socio-demographic, disease and family factors. The reliability of the Family Apgar Scale was assessed using Cronbach's Alpha coefficient.
Results. Almost 26% of the respondents had disorders in the family system. Serious family dysfunction was detected in 1 patient, whereas in over 73%, there were no significant disturbances in the family system. Family situation was significantly related to the overall result of the Family Apgar Scale. The Family Apgar Questionnaire was shown to have high reliability (Cronbach's Alpha > 0.81).
Conclusions. The subjective assessment of the functioning of the family of primary care patients was at good level. The reliability coefficient of measurements indicates the right choice of questions and high consistency in responses to individual questions. The Family Apgar Questionnaire is a reliable tool for detecting disorders in the family system, which can be used in primary care in Poland.
Key words: family, family physicians, nurses, delivery of health care.

Background

Solving the health problems of individuals and social groups is the main goal of primary care. Health promotion, in which health education is an integral part of the care of the individual and the family, is an important element in improving the health of the society [1]. A modern primary care system expands the scope of its competences and services, focusing on the recipient and his family. The traditional care model focused on the disease is successively replaced by patient-centered models (Patient-Centered Care – PC) and family-centered models (Family-Centered Care – FCC). Care focused on the patient and family encourages the active collaboration of doctors and nurses with patients and their families to design and adapt a comprehensive care plan. In patient-centered care, individual health needs and the desired outcomes determine all decisions regarding health care and quality measurement. Patients are partners in the treatment and prevention of diseases, not only from a clinical perspective, but also from an emotional, psychological, spiritual and social perspective. It is a model of care that assumes comprehensive work with patients and their families in order to restore and maintain health, not the interventional nature of health services in the context of corrective medicine [2, 3]. Diagnosis of health and its disorders, as well as health prophy-

laxis, requires new concepts that provide comprehensive and holistic primary health care. Detailed knowledge about the situation of the patient and his family, his health and psychophysical problems, understanding of specific needs, the impact of the environment and the functioning of the patient's family system becomes the basis for new opportunities to generate family potential as a health topic. Some data indicates that the family provides 75%, primary health care 20% and specialized health care 5% of all activities in the field of family health [4, 5]. Unfortunately, the assessment of the family situation of primary care patients in Poland still lacks attention, focusing more on the individual health problems of individual patients.

In the system (partner) model, the doctor cooperates with the patient and family in diagnosing and planning therapeutic activities, is a family health advisor and identifies problems that may lead to health threats in the family. The ability to identify sources of family dysfunction and advice on forms of support become an important task of the family doctor [6]. At present, the family environment of primary care patients is usually characterized by observational techniques based on observation of the family by an external observer using the appropriate rating scale or coding scheme. These techniques are mainly the registration of the frequency of occurrence of certain events, such as specific behaviors of members of a given family, but they do not

allow one to assess all relationships existing in the family [7]. In the new model of primary care, self-assessment techniques are very valuable in assessing the family situation. They provide information about subjective reality and the individual experiences of family members. These may relate to issues concerning the patient's attitude towards his or her family, his/her satisfaction with family relationships and the perception of himself/herself in relation to the family [7]. Self-report scales do not require a wide range of training in their implementation, which makes it easier for them to be used by nurses and doctors working in the family medicine sector. Of course, they cannot replace a meticulous family history, but they can be used as a complementary diagnostic tool. The Family Situation Assessment Questionnaire – Family Apgar is an example of a self-report scale. This tool is based on information obtained from the respondents on various aspects of family functioning, and its uncomplicated design allows for the quick assessment of the family environment for health care purposes.

Objectives

The aim of this study is an assessment of the family situation of primary care patients using the Family Apgar Questionnaire and determination of its credibility in primary care in Poland.

Material and methods

Cross-sectional studies were conducted using a diagnostic survey in a group of 154 primary care patients in Poland. The research was conducted among patients of the Polyclinic Independent Clinical Hospital No. 4 in Lublin and among patients of the Non-Public Health Care Center in Laszczow.

The evaluation used the family assessment questionnaire – Family Apgar by Smilkstein and the author's questionnaire, covering socio-demographic data, as well as an assessment of the material and family situation. Non-parametric tests, such as the U Mann–Whitney test, Kruskal–Wallis test and Spearman's rank correlation coefficient, were used in statistical analysis. Reliability of the Family Apgar Scale was assessed using Cronbach's Alpha coefficient. The approval of the Bioethics Committee of the Medical University of Lublin for the conduct of research was obtained. All participating patients gave informed consent. The study was voluntary, and the selection of the sample was non-random and purposeful.

The Family Apgar Questionnaire – description of the research tool

This tool was created by Smilkstein in 1978 [8]. It allows for an easy and quick assessment of the current functioning of the family, determining changes in time and possible improvement of the family situation during therapy. The questionnaire assesses the qualitative functioning of the family in five areas: adaptation (A); partnership (P); development (G); emotions (A); satisfaction with time spent with family – resolve (R) (Figure 1). This scale consists of five statements, which respondents answer by choosing one of three variants of the answer: "almost always" (2 points), "sometimes" (1 point) or "almost never" (0 points). According to the instructions for categorizing results, results from 0 to 3 points suggest a suspicion of serious dysfunction in the family system; from 4 to 7 points suggests an irregularity in the family system; while from 8 to 10 points indicates a lack of disruptions in the functioning of the family [8, 9]. The values of the reliability of Cronbach's Alpha coefficient bach in source studies using this questionnaire range from 0.80 to 0.85 [10, 11].

Adaptation – using internal and external family resources to solve problems when the crisis disturbs the family balance

Partnership – common decision-making and division of responsibilities between family members

Growth – physical and emotional maturation and self-fulfillment that family members achieve through mutual support and guidance

Affection – relationships of caring or love existing among family members

Resolve – a commitment to spend time with other family members for their physical and emotional upbringing, the decision to share wealth and space with other family members

Figure 1. Family Apgar Scale components [8]

Results

The average age of the subjects was 40 years (SD = 16.3). Age ranged from 16 to 87 years. The study group consisted of 103 women and 51 men. Over half of the respondents (55%) lived in rural areas (n = 84), while the remaining 45% (n = 70) were urban residents. The majority of respondents (43%) declared an average level of education (n = 66), 28% (n = 43) had a university degree, 18% (n = 27) vocational education and 12% (n = 11) primary education. The vast majority of respondents (58%, n = 89) declared that they were married, 26% (n = 40) were single, 7% (n = 11) were in partnerships, 6% (n = 9) were widows or widowers, and 3% (n = 5) were divorced.

The general results of the Family Apgar show that almost 26% (n = 40) of respondents have dysfunctions in the family system. Serious family dysfunction was detected in 1 patient, while over 73% (n = 113) of respondents did not show significant disturbances in the family system (Table 1).

Table 1. General results of the Family Situation Assessment Questionnaire – Family Apgar		
Family Apgar results	*n*	**%**
No significant disturbances in the family system (8–10 points)	113	73.38
Existence of irregularities in the family system (4–7 points)	40	25.97
Serious dysfunction in the family system (0–3 points)	1	0.65

There were no statistically significant differences in the range of selected variables such as gender, place of residence, education or marital status or material situation with the Family Apgar Scale results. There were definitely lower and worse results according to the Family Apgar Scale in people with primary education (7.78) and those divorced (6.40). On the other hand, people with higher education and people in a regular marital or partner relationship assessed their family situation as very well (≥ 8.80).

Regarding the occupational and material situation, the relatively low Family Apgar results were obtained by the unemployed (7.67) and respondents who assessed their financial

Table 2. Selected socio-demographic variables, assessment of the material and family situation and results of the Family Apgar Scale				
Variable		**n**	**Result of Family Apgar**	**p**
Gender	female	103	8.78	0.133
	male	51	8.35	
Place of residence	village	84	8.43	0.06
	city	70	8.89	
Education	basic education	18	7.78	0.18
	secondary education	66	8.68	
	vocational education	27	8.70	
	higher education	43	8.88	
Marital status	single	40	8.50	0.376
	in a partner relationship	11	9.18	
	married	89	8.80	
	divorced	5	6.40	
	widower/widow	9	8.22	
Occupational situation	working	108	8.87	0.075
	unemployed	12	7.67	
	student	16	8.31	
	retired	18	8.17	
Financial situation	bad	5	7.80	0.184
	average	53	8.34	
	good	84	8.87	
	very good	12	8.67	
Family situation	my family is full (I have a husband/wife and children)	66	9.15	**0.008**
	we are a childless marriage	8	8.13	
	I'm single, I live alone	27	8.78	
	I'm single, I live with a family	23	8.04	
	my children are adults and live independently in their flat/house	16	8.06	
	my children are adults and independent, we live together in one flat/house	12	7.50	

situation as bad (7.80). On the other hand, highly functioning families were assessed by working people with a good financial standing (8.87).

The theoretical validity of the Family Apgar Scale was also estimated by analyzing the correlation with the assessment of the family situation of the respondents. The functioning of the family was rated the highest by respondents with full families (husband/wife and children) (9.15), while people with adult independent children living with them in one household were considered the lowest (7.50) ($p < 0.05$)). Detailed results are presented in Table 2.

Evaluation of the reliability of the Polish version of the Family Apgar Questionnaire

In the conducted research, the reliability of the Family Apgar measuring tool was evaluated. At the beginning, a correlation matrix containing correlation coefficients between all the answers to the questions was created. All correlations between positions were positive and statistically significant. Respon-

dents, choosing answers with high grades in one of the questions, often chose answers with a high grade in other questions. Average and standard deviations for all questions were also calculated. It can be noticed that the respondents obtained the most points for question 1 and the least for the last question (Table 3).

Reliability of the Family Apgar Scale results was assessed using Cronbach's Alpha coefficient. The reliability of internal compliance for the entire questionnaire was estimated at Cronbach's Alpha level > 0.81. About 81% of the variation in the total score is the variation of the true score. Evaluation of the reliability of the tool was also carried out after the removal of individual questions. The obtained values of Cronbach's Alpha coefficient suggested that there was no need to remove any of the questions, as the reliability of the whole questionnaire would be lower (Table 3). The calculated reliability coefficient of measurements indicates the correct selection of Family Apgar Scale questions and high internal consistency in the answers to individual questions.

Table 3. Psychometric characteristics of the Family Apgar Scale			
Family Apgar	**Medium**	**Standard deviation**	**Cronbach's alpha value when removing a particular question from the questionnaire**
1. I am glad that I can ask my family for help if I have any troubles or worries	1.88	0.35	0.8
2. I am happy with the way my family talks to us about our common problems and share problems with me	1.73	0.46	0.75
3. I am glad that my family accepts and supports me in undertaking new activities	1.73	0.5	0.79
4. I am happy with the way my family expresses emotions and reacts to my feelings, such as anger, sadness and love	1.67	0.52	0.76
5. I am happy with the way my family and I spend our time together	1.63	0.55	0.77
Cronbach's Alpha for the entire questionnaire	**0.81**		

Discussion

The practice of family medicine is based on an in-depth understanding of patients' biopsychosocial aspects. In this context, the family is considered the most important aspect of the social environment of patients [12]. According to the definition of the International Classification of Nursing Practices (ICN): *A family is a group of people perceived as a social unit or a group of members important to each other, connected by blood, emotional or legal bonds. The social unit created by the family as a whole is perceived as something more than a set of people important for themselves, connected by blood, kinship, emotional or legal ties* [13, 14]. Unfortunately, the practice of family medicine in Poland still treats the family environment of patients too superficially, thus preventing an "internal" view of family relationships. The reason for this is the lack of time devoted to the diagnosis of the family environment by doctors and family nurses, and sometimes also a lack of staff skills in making a correct diagnosis or lack of appropriate tools. The International Family Nursing Association recommends many research tools useful in the care of the family, including: Family Apgar; Family Management Measure (FaMM); FACES I–IV; Family Assessment Device (FAD); Family Environment Scale (FES); Family Hardiness Index (FHI); PedsQL Family Impact Scale; Feetham Family Functioning Scale (FFFS). The use of these tools in the practice of family care requires the involvement of Polish nurses and doctors in the process of their validation [15]. The aim of this study was to assess the family situation of primary care patients using the Family Apgar Questionnaire and to determine its credibility in working with primary care patients in Poland.

According to the research by Takenaka and Ban, the Family Apgar Questionnaire has enormous potential to become a basic tool for assessing the functioning of the family, even for underprivileged doctors and family nurses [12]. The Family Apgar Questionnaire allows one to assess the functioning of the family regardless of the stage of life in which the patient and individual family members are. A literature analysis shows that the Family Apgar was often used to work with children and adolescents [9, 10], adults [16] or the elderly [11, 17, 18]. The scale also found application in the assessment of the functioning of families of chronically ill people, e.g. with type 2 diabetes [19] or with mental illness [20, 21].

The vast majority of primary care patients are geriatric people, which is why in literature on the subject there is a lot of evidence for the usefulness of Family Apgar in assessing the family situation of older people. According to Wang et al., the use of the Family Apgar Scale provides a basis for early identification of the family problems of older people in order to improve their health through increased support for the family [18]. Lim et al. found that higher scores on the Family Apgar Scale were correlated with a better assessment of the quality of life of older people [17]. In research by Rocha-Vieria et al. [22], it was shown that the occurrence of family dysfunction had the greatest impact on the feeling of loneliness among the elderly. In this study, one of the groups that achieved the lowest results on the Family Apgar Scale was the elderly whose children are adults and independent (Apgar Family = 7.50).

Another group of patients receiving primary care services are children and adolescents. In the literature analysis, the questionnaire was also applied to this age group. An example of this is the research carried out by Chih-Hung et al., in which the family situation of children and youth addicted to the Internet was assessed. In these studies, it was shown that the deterioration of the family situation measured with Family Apgar especially concerned female teenagers addicted to the Internet [10]. However, in this study, the statistical analysis did not show any significant differences in the result of the scale among women and men.

The Family Apgar Questionnaire is a widely used tool to detect dysfunctions in the family system around the world. In Brazil, it is used in clinical practice in the field of public health, especially in Family Health strategy programs. It is treated as an easy tool for observation and analysis of family systems. This is the main subject of intervention and identification in the local primary care model [11]. Many initiatives in the field of person- and family-centered care have also been undertaken in Canada, Australia, the United Kingdom and the United States [2, 23]. In Poland, the primary health care system is at the stage of development and adaptation to EU standards, especially in the field of family medicine. This transformation requires significant changes in the practice of the primary care doctor and primary care nurse, and these are difficult to achieve and require efforts from the entire health care system, as well as the state health policy. The proposal to use the Family Apgar Scale for the Polish practice of the family doctor is of particular importance for the development of a new concept of care for the patient and his family in primary care.

There were several restrictions in this study. First of all, only patients from two institutions of primary health care from the province of Lublin participated in the study. Extended cross-sectional studies covering a larger and representative sample for the population are recommended. Secondly, the vast majority of respondents were women. This is an important limitation of research. However, this gender imbalance is consistent with the observation that women are more likely to take advice from a GP. This thesis was also confirmed by the 2018 CBOS survey statement that women (93%) are more likely to use health services in primary care than men (83%) [24]. The presented research results are preliminary reports requiring further full validation studies in a less diverse group in terms of gender.

Conclusions

The Family Apgar Questionnaire is a reliable tool to assess family functionality among primary care patients in Poland. It has a high reliability ratio, and its uncomplicated design and transparency of criteria makes it a simple screening tool enabling the identification of disorders in the family system for health care purposes. In the study group, more than 73% of patients in primary care had no significant disturbances in the family system according to the Family Apgar Scale, while in the remaining patients, irregularities or dysfunctions in the family system were found. In the external evaluation, the overall result of the Apgar Family Scale is significantly related to the assessment of the family situation of the surveyed persons.

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