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Satisfaction with perinatal care in women giving birth during the COVID-19 pandemic

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ABSTRACT

Introduction and aim. The role of a medical team during the perinatal period is significant, since it not only focuses on the patients' physical health, but also impacts mental wellbeing. The aim of this study is to compare the level of satisfaction with the quality of care provided by healthcare professionals during pregnancy and perinatal period before and during the COVID-19 pandemic.

Material and method. The study was conducted among 102 women who had at least two births, one in the pre-pandemic period and the other during the pandemic. An original questionnaire (53 items) was used to assess the quality of medical care.

Results. The assessment of the quality of medical care, and the emotional and informational support received from medical personnel during pregnancy and perinatal care was significantly higher before the COVID-19 pandemic ($p<0.001$). During the pandemic, the respondents experienced significantly more anxiety about their health ($p=0.027$) and their baby's health ($p=0.028$) as well as anxiety caused by the lack of a partner during labor ($p<0.001$).

Conclusion. It is necessary to further evaluate the quality of medical care for pregnant and perinatal women in order to determine the best possible procedures for the functioning of health care in the time of a pandemic.

Keywords. COVID-19 pandemic, pregnancy, quality of perinatal care

Introduction

The perinatal period is a novel situation for the patient accompanied by wide range of emotions including fear and anxiety for the health of her and the baby. It is also associated with fear of the pain and suffering that awaits them during labor. Therefore, appropriate medical care by healthcare staff is of great

importance.[1] The World Health Organization reported that about 830 women die every day from preventable pregnancy and delivery-related causes, with 99% of all maternal deaths occurring in developing countries.[2]

Perinatal care is a multidisciplinary activity aimed at providing medical care together with health promotion and treatment in the preconception period, during pregnancy, childbirth and the postpartum period.[3] The role of the medical team, which includes an obstetrician-gynecologist attending pregnancy, a midwife, a nurse and a physiotherapist, is not limited only to the physical sphere of a woman during pregnancy and puerperium. Its significant influence on the mental sphere has also been demonstrated in the literature. Patients' satisfaction with medical care is perceived as the degree of compliance between their expectations regarding the quality of services and the actual reception of medical care. It depends i.e. on the degree of respect for the patient's rights, providing emotional support, showing interest and care, or responding to the patient's requests. The sense of satisfaction also depends on the provision of appropriate medical and information support regarding the course of labor, the procedures and measures used, as well as information about the baby's health condition and the correct application of professional skills by medical personnel.[1,4] The success of the appropriate perinatal preparation for the birth of a new human being depends on the comprehensive involvement of the medical team and the family.[5] Thanks to the activities in the perinatal care undertaken by i.e. midwives or physiotherapists in childbirth classes, women gain valuable knowledge about the physiological changes during pregnancy, the course of childbirth and the postpartum period, as well as skills in the care of a new-born baby. In addition, they learn the principles of pregnancy hygiene and proper diet, acquire information related to teratogenic factors, and learn how to fight ailments that appear during and immediately after pregnancy.[5,6] Women who obtained comprehensive information on the course of labor from medical personnel had a greater sense of security and showed less stress before childbirth.[1] On the other hand, the prevention of postpartum mood disorders, known as "baby blues", includes counteracting all negative factors by implementing protective factors in the form of good interpersonal relationships with family and medical staff, providing the patient with a sense of security and a support network, reducing social isolation.[1,7]

Viral pandemics threaten the general population, including pregnant women. COVID-19 is caused by the SARS-CoV-2 coronaviruses, which are positive sensitivity single-stranded RNA viruses. Generalizing pregnancy as a state of immunosuppression or an increased risk of infection is a misleading concept. Pregnancy is a unique immune state that is modulated but not suppressed.[8] Research by Chivers et al. found that some women postponed or skipped antenatal visits because of fear of contracting COVID-19, and considered giving birth at home. Women experienced a higher level of isolation by preventing their partner from being present during routine examinations and the delivery.[9] Currently, most maternity units and scientific bodies express the opinions that a supporting person should be allowed to be present during labor,

provided that they have no signs of COVID-19 disease, wear a surgical mask, and follow hand-washing and disinfection procedures.[10,11]

The study by Hui et al. demonstrated that measures to reduce the spread of COVID-19 have significantly increased the number of patients with postpartum depression, which was related to the inability to have hospital visits, preventing undertaking childcare activities, or the inability to organize celebrations related to the birth of a baby. Moreover, a low level of satisfaction with medical care was observed due to the lack of access to non-pharmacological pain relief measures, such as childbirth massage.[12] In women suspected or confirmed to have COVID-19 disease, appropriate caution should be exercised in childbirth. Labor management should be carried out in a safe manner, with minimal staffing requirements to reduce exposure, but with the ability to provide urgent obstetric, anesthetic and neonatal care when necessary.[13]

Aim

The aim of this study was to compare the level of satisfaction with the quality of care provided by healthcare professionals during pregnancy, labor and the postpartum period before and during the COVID-19 pandemic.

Material and methods

Ethical approval

The study was approved by the Bioethics Committee of the College of Medical Sciences of the University of Rzeszow No. 2022/004.

Material

The study was conducted from December 2020 to October 2021 and enrolled women who had at least two births. The on-line questionnaire was posted in groups for pregnant women on the social networking site.

The eligibility criteria for the study were: age from 20 to 45 years, minimum two births, including one in the pre-pandemic period and the other in the COVID-19 pandemic period. Exclusion criteria from research and analyses were: COVID-19 occurrence during perinatal hospitalization, leaving the questionnaire items unanswered.

Research tool

The study used the proprietary questionnaire, which includes items regarding the assessment of the quality of perinatal care before and during the COVID-19 pandemic. The questionnaire consisted of 54 items divided into five domains. The first part contained 4 items on socio-demographic data. The second part (13 items) focused on questions about the course of the pregnancy. The next part included 26 items related to hospitalization and the course of labor, the fourth part contained 4 items about the postpartum period. The

subjects provided responses to the questions about the quality of medical care in a 5-point scale, ranging from: 1 – definitely positive, 2 – rather positive, 3 – no opinion, 4 – rather negative to 5 – definitely negative. The last part of the questionnaire focuses on issues related to the physiotherapy of patients during pregnancy and in the postpartum period (6 items).

Statistical analysis

The statistical analysis of the collected data was performed with the Statistica 13.3 statistical program (StatSoft Inc. Tulsa, OK, USA).

The basic statistical description includes mean values ($\bar{x}$ **)** with standard deviation (SD), and median values (Me). The analysis was performed using the non-parametric Wilcoxon pairwise test, which assessed the significance of changes in the answers given by the respondents to the same item in relation to two different periods – the time before the pandemic and during the COVID-19 pandemic. Qualitative data were presented in the form of frequencies numerical (N) and percentage (%). The level of statistical significance was adopted at $p<0.05$.

Results

One hundred and two women with the mean age of 30 years (in the range from 20 to 45 years, Me=29) were qualified for the analysis. Among the respondents, the largest percentage (82.35%) were married women, while 13.73% of women declared themselves unmarried, and 3.92% as divorced. The largest percentage (31.37%) of women lived in rural areas, followed by the group (29.41%) of urban residents of cities up to 50,000 inhabitants, while the smallest percentage (6.86%) lived in large cities with more than 250,000 inhabitants. Among the respondents, the greatest number had secondary education (44.4%), followed by higher education (27.38%), with basic vocational education (26.05%), and the smallest number with lower secondary education (2.17%).

Before the pandemic, 16.7% of the respondents had a problem with finding a suitable doctor in charge of pregnancy, compared to on average twice as many women 35.3% who encountered that issue during the pandemic. This difference was statistically significant ($p=0.001$). Availability of the doctor in charge of pregnancy did not differ significantly in the period before and during the COVID-19 pandemic ($p=0.142$), while the availability of other specialist doctors / tests during pregnancy was significantly better assessed before the pandemic than during the COVID-19 pandemic ($p<0.001$) (Table 1).

Table 1. Assessment of availability of the attending physician and other specialists / tests during pregnancy*

Availability of physicians	Specialist physicians/ tests during pregnancy				Physician attending the pregnancy			
	Before COVID-19		During COVID-19		Before COVID-19		During COVID-19	
	n	%	n	%	n	%	n	%
Definitely positive	15	14.7	3	2.9	19	18.6	17	16.7
Rather positive	55	53.9	13	12.7	52	51.0	48	47.1
No opinion	22	21.6	29	28.4	21	20.6	22	21.6
Rather negative	10	9.8	45	44.1	9	8.8	11	10.8
Definitely negative	0	0	12	11.8	1	1	4	3.9
Total	102	100	102	100	102	100	102	100
p	**Z=7.37; p<0.001**				**Z=1.46; p=0.142**			

* n – number; % – percent; Z – value of the Wilcoxon Matched-Pairs test; p – value of the probability of the test

Both the quality of prenatal care by the attending physician and the quality of hospital care during labour by medical staff were assessed at a significantly higher level in the pre-pandemic period compared to care during the COVID-19 pandemic ($p<0.001$) (Table 2).

Table 2. Assessment of the quality of antenatal care by the attending physician and hospital care during childbirth by the medical staff*

Assessment of the quality	Antenatal care by the attending physician				Hospital care during childbirth by the medical staff			
	Before COVID-19		During COVID-19		Before COVID-19		During COVID-19	
	n	%	n	%	n	%	n	%
Definitely positive	33	32.4	16	15.7	25	24.5	12	11.8
Rather positive	50	49	36	35.3	50	49	37	36.3
No opinion	9	8.8	26	25.5	18	17.6	28	27.5
Rather negative	9	8.8	20	19.6	8	7.8	19	18.6
Definitely negative	1	1	4	3.9	1	1.0	6	5.9
Total	102	100	102	100	102	100	102	100
p	**Z=4.70; p<0.001**				**Z=4.27; p<0.001**			

* n – number; % – percent; Z – value of the Wilcoxon Matched-Pairs test; p – value of the probability of the test

The possibility of a partner being present during labor was much more frequent in the period before the pandemic (66.7%) than during the COVID-19 pandemic (2.9%) (p<0.001). The impact of not having a partner during labor on the well-being of women was comparable in the period before and during the COVID-19 pandemic. For 80% of women giving birth before the pandemic and 74.2% of women during the pandemic, the lack of a partner deteriorated their sense of wellbeing during childbirth.

The respondents assessed both the emotional and informational support received immediately before, during and after childbirth from medical staff significantly better before the pandemic than during the COVID-19 pandemic. The difference in emotional support was statistically significant at p=0.002, and the difference in information support was statistically significant at p<0.001 (Table 3).

Table 3. Assessment of emotional and informational support just before, during and after childbirth from medical staff*

Assessment of support	Emotional				Informational			
	Before COVID-19		During COVID–19		Before COVID-19		During COVID-19	
	n	%	n	%	n	%	n	%
Definitely positive	27	26.5	22	21.6	29	28.4	11	10.8
Rather positive	54	52.9	44	43.1	53	52	39	38.2
No opinion	18	17.6	23	22.5	19	18.6	24	23.5
Rather negative	1	1	12	11.8	1	1	24	23.5
Definitely negative	2	2	1	1	0	0	4	3.9
Total	102	100	102	100	102	100.0	102	100
p	**Z=3.03; p=0.002**				**Z=6.04; p<0.001**			

* n – number; % – percent; Z – value of the Wilcoxon Matched-Pairs test; p – value of the probability of the test

The level of stress related to childbirth differed statistically significantly among women in the period before and during the COVID-19 pandemic (p<0.001). Pre-pandemic stress levels amounted to approx. 5.01 (SD=2.28; Me=5) points/10 points, while during the COVID-19 pandemic it was on average 7.18 (SD=2.22; Me=7) points/10 points. The causes of stress in the perinatal period were statistically significantly different in the period before and during the COVID-19 pandemic. During the pandemic, significantly more often than before, the respondents felt anxiety about their own health (p=0.027), anxiety about the child's health (p=0.028) and anxiety caused by the lack of a partner during labor (p<0.001). In addition, they felt the fear of contracting COVID-19 and the fear of the lack of a doctor, e.g. due to being in quarantine (Table 4).

Table 4. Causes of stress in the perinatal period*

Causes of stress in the perinatal period	Before COVID - 19		During COVID - 19			
	n	%	n	%	Z	P
Fear of childbirth / pain	65	63.7	54	52.9	1.72	0.085
Concern for one's health	34	33.3	49	48.0	2.21	0.027
Concern for the baby's health	91	89.2	100	98.0	2.2	0.028
Anxiety caused by having to stay in the hospital for several days	26	25.5	19	18.6	1.03	0.302
The anxiety of not having a partner in childbirth	8	7.8	42	41.2	4.94	<0.001
Fear of contracting COVID-19	0	0	53	52.0	-	-
Fear of doctor's absence due to, for example, being in quarantine	0	0	26	25.5	-	-
Other	1	1	1	1	0	1

* n – number; % – percent; Z – value of the Wilcoxon Matched-Pairs test; p – value of the probability of the test

In the postpartum period, visits by the midwife in the patients' home after childbirth took place during the COVID-19 pandemic on average twice less frequently than before the pandemic. This difference was statistically significant ($p<0.001$). A similar number of respondents during the pre-pandemic and the COVID-19 pandemic indicated the need for a physiotherapist's assistance during or after pregnancy. Both before and during the pandemic, the same number of women had the opportunity and benefited from the physiotherapist's assistance, and the intended effects of physiotherapy were achieved, respectively in 66.7% and 83.3% of the respondents.

Discussion

Research conducted on human coronaviruses, before the outbreak of the COVID-19 pandemic, indicates that a pregnant woman and her fetus can be considered a high-risk group due to a number of physiological changes. This is due to the burdens generated by the developing pregnancy on the female body, from the circulatory and respiratory system to the immune system.[13,14]

The COVID-19 pandemic has led to a significant reduction in the number of antenatal and postnatal care services. A study by Kotlari et al. in the USA showed that one third of pregnant women had an increased level of stress due to changes in prenatal appointments. The number of antenatal visits has dropped to an

average of six. Women also resigned from visits due to lack of transport, family pressure to remain in isolation and personal fear of the virus.[1,15] In the Netherlands, the initial visit to the doctor was made at 10-12 weeks of pregnancy for blood tests and ultrasound. Subsequent visits were made via phone or online. A similar situation occurred in France and Great Britain, where consultations were held by telephone.[2,16] In Poland, women indicated limited access to health services, such as the possibility of undergoing recommended tests or seeing a doctor.[11] This is also confirmed by our study, the results of which indicate that the availability of specialist doctors and tests performed for the needs of patients was significantly better assessed before the pandemic than during the COVID-19 pandemic ($p<0.001$).

Maternity facilities in European Union countries often severely limited the number of hospital visits. Some hospitals in Great Britain stopped allowing the presence of partners during childbirth, which influenced the emotional changes of pregnant women. In the Netherlands, on the other hand, one person could be present during childbirth, even if she had symptoms of COVID-19, however, they had to carry personal protective equipment and keep a distance. In France, a partner could be present during childbirth, as long as he was wearing a protective mask.[2] In Poland, however, the presence of an accompanying person was initially impossible, and later they had to perform a PCR test for COVID-19 up to 72 hours before delivery.[11] Our study showed that more than 40% of women experienced anxiety caused by the lack of a partner during childbirth.

Pregnant women undergo many physical and mental changes during pregnancy, and their susceptibility to various life stresses increases during this period. Pregnancy is considered to be one of the most stressful periods in a woman's life. During a pandemic, pregnant women experience increased levels of stress. It consists of many factors, from concerns about health and well-being to the lack of presence and support from loved ones. A woman who has had history of postpartum and perinatal complications, or has high risk pregnancy, is at an even higher level of stress. In such a case, a pregnant woman requires greater attention of the staff, often consultations with specialists in various fields, and therapeutic assistance.[17] Studies by Zhao et al. and Grigoriadis et al. have shown that the intensity of stress during Covid-19 in the last trimester is greater than in the first 6 months of pregnancy. Therefore, in this period the chances of developing anxiety and depressive disorders increase.[9,10,18,19] In our study, the level of stress related to childbirth differed statistically significantly in the period before the pandemic ($\bar{x}$=5.01 points/10 points) and during the COVID-19 pandemic ($\bar{x}$=7.18 points/10 points), ($p<0.001$). The respondents declared that during the pandemic they felt fear for their health (48%), their baby (98%), the fear of not having a partner during childbirth (41.4%) or even of the lack of a doctor in charge of the pregnancy who, for health reasons caused by the coronavirus, could be on leave or in quarantine (25.5%). The above observations are also in line with the studies by Mariño-Narvaez et al. and Lebel et al., which showed that during a pandemic, a high level of anxiety and depression symptoms occurs in the majority of pregnant women. They experienced great

anxiety for their own and their child's lives. These concerns were intensified by insufficient medical care, relationship tension, as well as social isolation caused by the COVID-19 pandemic.[20,21]

One of the important factors indicated in studies influencing the satisfaction of women with childbirth is the support provided during its duration.[22] In our study, the respondents assessed the emotional and informational support as well as the overall quality of care received from medical personnel just before, during and after childbirth significantly better ($p=0.002$, $p<0.001$ and $p<0.001$, respectively) before the pandemic than during the COVID-19 pandemic. Positive assessment of emotional and informational support was given by 14.7% and 31.4% less women, respectively during the pandemic than before the pandemic, and the overall hospital care was perceived positively by 25.3% less respondents. This may indicate the limitation of contacts between the staff and the patient due to the minimization of COVID-19 infections in health care facilities, which, however, has negative consequences in terms of the sense of quality of medical care. In the study by Kraśnianin et al., pre-pandemic nursing care was assessed positively by 91% of Polish patients. The respondents proposed the following forms of improving perinatal care: more accurate information about the child's condition, faster response to requests and comments, avoiding routine at work, better information between the therapeutic team, more medical staff, and better equipment in the delivery room.[23] Iwanowicz-Palus et al., analyzing the factors determining satisfaction of women after labor with the perinatal care provided, showed that those with higher education, having one child, giving birth naturally - positively assessing the course of pregnancy, childbirth, and experiences related to the delivery itself, assessed the provided perinatal care higher and better.[4]

The COVID-19 pandemic is a difficult moment in the perinatal period. There are many negative aspects with numerous consequences. Some of the participants managed to find some positives. Many partners due to social distancing requirements were transferred to work remotely at home. This provided support and companionship during this difficult period. In a study by Kolker et al., one of the respondents explained: "His presence provided companionship and support ... it was almost like a blessing in misfortune".[24]

Conclusion

The subjective assessment of the quality of medical care received during pregnancy and childbirth and the emotional and informational support provided by medical personnel was significantly higher before the COVID-19 pandemic than during it.

The level of stress related to childbirth significantly increased in women during the COVID-19 pandemic, and was mainly related to anxiety about the child's health and their own health, as well as the possibility of obtaining support from a partner during childbirth.

It is necessary to further evaluate the quality of medical care for pregnant and perinatal women and to verify the factors influencing it in order to determine the best possible procedures for the functioning of health

care in the time of the COVID-19 pandemic in order to meet the expectations of women and improve the medical care provided.

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Declarations

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Author contributions

Conceptualization, A.B. and N.W.; Methodology, A.B., W.B., M.M., M.N., K.P., M.R., A.S. and N.W.; Software, W.B., M.M., M.N., K.P., M.R. and A.S.; Formal Analysis, A.B.; Investigation, A.B., W.B., M.M., M.N., K.P., M.R., A.S. and N.W.; Resources, W.B. and M.M.; Data Curation, M.N. and K.P.; Writing – Original Draft Preparation, W.B., M.M., M.N., K.P., M.R. and A.S, Writing – Review & Editing, A.B. and N.W.; Supervision, A.B. and N.W.; Project Administration, M.R. and A.S.

Conflicts of interest

The authors have no conflict of interest. Additionally, there is no relationship of interest with any company in the study we are responsible for. No support was received from any project or company for the research.

Data availability

The datasets analyzed during the current study are available from the corresponding author on reasonable request.

Ethics approval

The study was approved by the Bioethics Committee of the College of Medical Sciences of the University of Rzeszow No. 2022/004.

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