CELINA ŁEPECKA-KLUSEK[1] , ANNA B. PILEWSKA-KOZAK[1],
GRZEGORZ JAKIEL[2], GRZEGORZ BAKALCZUK[3]

# Postawy kobiet wobec ciąży i porodu po technikach rozrodu wspomaganego

# Attitudes of women towards pregnancy and delivery following assisted reproductive techniques

**Streszczenie**

**Wstęp.** Ciąża i poród to bardzo ważne wydarzenia w życiu każdej kobiety, nie tylko z fizjologicznego punktu widzenia, lecz także w wymiarze społecznym. Problemy związane z ciążą i porodem wśród kobiet leczonych z powodu niepłodności często są wygórowane, ponieważ wydarzenia te poprzedza wiele lat marzeń, pragnień i wysiłków.

**Cel.** Celem pracy było sprawdzenie, jakie są postawy kobiet wobec ciąży i porodu po procedurach rozrodu wspomaganego oraz czym są one uwarunkowane.

**Materiał i metody**. W badaniach wykorzystano kwestionariusz, który zawierał 16 stwierdzeń, ocenianych pięciostopniowej skali Likerta. Objęto nimi 125 pierworódek, u których ciąża zaistniała po sztucznym zaplemnieniu nasieniem męża (*AIH - artificial insenination by husband*), dawcy (*AID – artificial insemination by donor*) lub po zapłodnieniu pozaustrojowym (*IVF-ET*, *in vitro fertilization with embrio transfer*).

**Wyniki**. Postawy wobec ciąży były istotnie częściej pozytywne niż negatywne ($p<0.01$), a wobec porodu odwrotnie. Przyjęte w tym opracowaniu zmienne, z wyjątkiem konieczności rezygnacji z aktywności zawodowej podczas ciąży, różnicowały w sposób istotny liczbowy rozkład badanych cech.

**Wnioski**. Kobiety po procedurach rozrodu wspomaganego przejawiają wobec ciąży i porodu postawy pozytywne, negatywne lub wobec jednego pozytywne, a drugiego negatywne. Czynniki warunkujące te postawy to: wiek, standard życia, czas leczenia bezdzietności, przebieg ciąży i/lub sposób jej zakończenia.

**Słowa kluczowe:** postawa, kobieta, rozród wspomagany, ciąża, poród.

**Abstract**

**Introduction.** Pregnancy and delivery are very important events in every woman's life, not only from a physiological, but also from a social point of view. The problems related to pregnancy and delivery among women treated for infertility often grow out of proportion, as these events are preceded by many years of dreams, desires and effort.

**Aim.** The aim of the study was to analyse the attitudes of women towards pregnancy and delivery following assisted reproductive techniques and to investigate how these attitudes were determined.

**Material and methods.** A questionnaire was designed containing 16 questions, the answers to which could be ranked by the 5-point Likert scale. We surveyed 125 primiparous women whose pregnancies had resulted either from artificial insemination by husband (*AIH*), artificial insemination by donor (*AID*) or from *in vitro* fertilisation with embryo transfer (*IVF-ET*).

**Results.** Positive attitudes towards pregnancy were encountered significantly more frequently than negative ones ($p<0.01$). The opposite was true regarding the delivery. The parameters used in this study (with the exception of the question of whether the women had continued their professional work or interrupted it) discriminated between the subjects according to their attitudes towards pregnancy and/or delivery.

**Conclusions.** The attitudes towards pregnancy and/or delivery of women who had undergone assisted reproduction procedures were both positive and negative, but also positive towards pregnancy and negative towards delivery or *vice versa.* The variables that determined these attitudes were age, standard of living, duration of treatment for infertility and the course of pregnancy and/or its resolution.

**Key words:** attitudes, woman, assisted reproductive techniques, pregnancy, delivery.

[1] Chair and Department of Gyneacology and Gynaecological Endocrinology, Medical University of Lublin
[2] Department of Obstetrics and Gynaecology, Postgraduate Medical Center in Warsaw
[3] Department of Obstetrics, Gynaecology and Obstetric-Gynaecological Nursing, Faculty of Nursing and Health Sciences, Medical University of Lublin

## INTRODUCTION

Pregnancy and delivery are very important events in every woman's life, not only from a physiological, but also from a social point of view. The problems related to pregnancy and delivery among women treated for infertility often grow out of proportion, as these events are preceded by many years of dreams, desires and effort [1].

Modern techniques of assisted reproduction significantly increase the chances of offspring of their own being born to infertile couples. Most of these procedures, however, interfere with the intimate relations between partners. Assisted reproduction, so different from natural conception, may thus lead to serious problems in adaptation to pregnancy [2–4].

## AIM

The aim of the study was to analyse the attitudes of women towards pregnancy and delivery following assisted reproductive techniques and to investigate how these attitudes were determined.

## MATERIAL AND METHODS

We conducted the survey among 125 patients of the Reproduction and Andrology Department and/or the Andrology Counselling Centre of the Medical University of Lublin. The subjects gave birth to their first child during 2002 or 2003. Of these 45 (36%) had been conceived by artificial insemination by husband (*AIH*), 40 (32%) had been artificially inseminated with donor sperm (*AID*) and the rest (40; 32%) had undergone *in vitro* fertilisation with embryo transfer (*IVF-ET*).

The survey was based upon a questionnaire containing test questions designed to evaluate the subject's attitude towards pregnancy and delivery and a number of questions to determine the age, standard of living, duration of treatment for infertility, the course of the pregnancy and its outcome and to verify whether or not the subject had had to discontinue her professional activity during pregnancy.

The design of the questionnaire was assisted by a preliminary test of 36 randomly selected women who had given birth to a child following assisted reproductive techniques. These subjects responded anonymously by filling in a questionnaire containing 12 open-ended questions which were devised to determine their feelings towards pregnancy and its effect on their partnership and their personal and family life. This allowed us to define two areas of evaluation (positive and negative) and construct final test positions. The questionnaire contained 16 questions, each with 5 optional answers. Each answer could be ranked according to the 5-point Likert scale: *I agree completely, I agree, I have no opinion, I disagree* and *I disagree completely.* Of the questions asked, 8 related to pregnancy and the remaining 8 to delivery (Table 1). Questions 1, 3, 5, 7, 9, 11, 13, and 15 (inquiring about positive aspects of pregnancy and delivery) were ranked 5, 4, 3, 2, and 1, whereas questions 2, 4, 6, 8, 10, 12, 14, and 16 (on the negative aspects) were ranked 1, 2, 3, 4, and 5. The maximum number of points for each part (inquiring about pregnancy and delivery) was 40 in each case. In the first part we obtained totals ranging from 12 to 39 point (average 21.7±9.1; Me=32; $Q_1$=16; $Q_3$=34). In the second half of the questionnaire, the totals ranged from 11 to 36 points (average 21.7±8.5; Me=17; $Q_1$=15, $Q_3$=32). The significance of the observed differences was checked by the Wilcoxon test ($z=4.729$; $p<0.01$) [Rosner, 1995]. Cronbach's alpha co-efficients were 0.80 and 0.81 respectively. The average correlations between statements were 0.87 and 0.77, respectively. A total number of points of 16 (median value) or less reflected a negative attitude. Points totalling more than 16 indicated a positive attitude.

Our survey was retrospective, voluntary and anonymous. The questionnaires were mailed to the respondents after obtaining their consent by telephone. Consents were obtained from 146 respondents, of whom 125 (85.6%) returned the completed questionnaire. The remaining 21 (14.4 %) did not return the questionnaire or did not complete it. A total of 29

**TABLE 1. Questionnaire for testing attitudes towards pregnancy and delivery.**

| Event | Statements |
|---|---|
| Pregnancy | 1. Pregnancy is a period of joyful expectation for the arrival of the baby<br>2. Pregnancy is a period full of anxieties and fears<br>3. Pregnancy is a period of good relations between partners and family members<br>4. Pregnancy is a period of disorganisation in a women's personal life<br>5. During pregnancy a woman has many interesting experiences related to her maternity<br>6. Pregnancy demands a great deal of sacrifice<br>7. Pregnancy raises a woman's self-esteem<br>8. Pregnancy is a difficult period, because the woman has to forgo many pleasures |
| Delivery | 9. Experiences during delivery raise a woman's self-esteem<br>10. Delivery is a difficult trial which a woman wants to forget as soon as possible<br>11. During delivery the woman has many intense maternity-related experiences<br>12. Experiences during the delivery are dominated by pain<br>13. Delivery marks a special day in woman's partnership and family life<br>14. Delivery is a veritable nightmare<br>15. Delivery is deeply moving and joyful<br>16. Delivery is devoid of any maternal feelings |

Answers: I agree entirely; I agree; I cannot define my reaction; I disagree; I disagree completely

women refused to participate in the study. The study group comprised women**,** who were bearing children after ART, recruited consecutively from the onset until the end of the study. All women after IVF-ET were included and the same number of successive women after intrauterine insemination (IUI) with the donor's semen (AID) as well as 45 women with their husbands' semen. This was a retrospective study with the following inclusion criteria:

- A single pregnancy following infertility treatment,
- First childbirth,
- Delivering a healthy child,
- Completion of the questionnaire within 30 days of delivery.

We did not include women who had experienced a psychological trauma during their pregnancy unrelated to the pregnancy itself (such as a death in the family, other changes in their family or changes in their financial status). These issues were discussed during the initial telephone interview.

The standard of living we defined as the level of attainability to defined goods. We took as measure having own flat or home and floor area per person compared to average, and income per person compared to average. We used standards given by Central Statistic Office (CSO) [5], which is the official agenda of the Polish Government.

The collected data were statistically analysed. The values of the analysed parameters being measured in nominal scale were characterised with numbers and percentages. However the parameters measured in ordinal scale - with median, lower and upper quartile and with giving the range of change. The chi-square test was used for evaluation of significant interdependences between the analysed features. The accepted level of statistical error was 5%. For the evaluation of relationships and interactions of qualitative parameters, a log-linear analysis was used which is the equivalent to MLRA – Multiple Logistic Regression Analysis.

For the evaluation of internal compatibility of the statements assessed by Likert's scale, the Cronbach alpha coefficient and correlation coefficient were used.

## RESULTS

The age of the subjects ranged from 20 to 40 years; 71 (56.8%) of the subjects were below 30 years of age and the remaining 54 (43.2%) were older than 30.

A total of 79 (63.2%) of the respondents and their families were classified as having an above-average standard of living, whereas 46 (36.8%) had a living standard below the Polish average.

The duration of treatment for infertility ranged from 3 to 9 years; 86 (68.8%) of the respondents were treated for up to 5 years, while the remaining 39 (31.2%) were treated for periods longer than 5 years. In the majority of subjects (90; 72%), the pregnancy progressed normally; in the remaining 56 (22.4%) some medical complications were noted, including abdominal or hypogastric pain, spotting, high blood pressure, imminent premature delivery and cervical insufficiency.

According to 59 (47.2%) of respondents, their pregnancy did not interfere with their previous lifestyle. The remaining 66 (52.8%) had to change their lifestyle to some extent, for example by discontinuing their professional activity, desisting from some of their household chores, giving up smoking, driving, practising sport or drinking coffee and ceasing sexual activity and/or social contacts.

In 56 (44.8%) of the subjects pregnancy concluded with a natural delivery, while in 56 (44.8%) a Caesarean section was performed.

The questionnaire allowed us to determine whether the attitudes of the subjects under study towards pregnancy and delivery were positive or negative. These data are summarised in Table 2. The prevalent attitudes towards pregnancy were positive; the attitudes towards delivery were more often negative. The differences between these trends were statistically significant ($p<0.01$). Correlations between the attitudes expressed towards pregnancy and age, standard of living, the need to discontinue professional activity, the duration of the treatment for infertility and the method of impregnation are summarised in Table 3. Only the need to discontinue professional activity failed to correlate significantly with the attitudes analysed. The remaining parameters showed significant correlations with attitudes towards pregnancy: age ($p<0.01$), standard of living ($p<0.01$), duration of treatment for infertility ($p<0.01$) and occurrence of medical complications during pregnancy ($p<0.01$). There was also some correlation with the method of impregnation ($p=0.01$). The above data are summarised in Table 4 and the correlations between the attitude towards pregnancy and the method of impregnation and the attitude towards the pregnancy and its conclusion (natural *versus* Caesarean section) are set out in Table 5.

The attitudes towards delivery of respondents who had a lower standard of living or who had been through a relatively long treatment for infertility were predominantly positive ($p<0.01$; $p<0.01$, respectively). No correlation with age was observed ($p>0.05$). The attitude towards delivery did not correlate with the method of impregnation ($p>0.05$); Respondents who gave birth naturally were more likely to have a positive attitude towards delivery than subjects whose had undergone a Caesarean section. ($p<0.01$).

Using of the donor or partner's sperm did not discriminate significantly the women's attitudes towards pregnancy (Chi-square=2.35; $p>0.05$) and delivery (Chi-square=0.17; $p>0.05$).

## DISCUSSION

The subject of passing from infertility to pregnancy and maternity has been considered by few researchers [6–10]. The presented in available literature studies may differ from

**TABLE 2. Frequency of positive and negative attitudes towards pregnancy and delivery.**

| Event | Attitude | | | | Chi-square p | Strenght of dependence |
|---|---|---|---|---|---|---|
| | positive | | negative | | | |
| | n | % | n | % | | Ø |
| pregnancy | 88 | 70.4 | 37 | 29.6 | 28.37 <0.01 | 0.45 |
| delivery | 46 | 36.8 | 79 | 63.2 | | |

**TABLE 3. Attitudes towards pregnancy grouped in relation to various criteria.**

| Group | | Attitude towards the pregnancy | | | | Chi-square p | Strenght of dependence Ø or V |
|---|---|---|---|---|---|---|---|
| | | positive | | negative | | | |
| | | n | % | n | % | | |
| Age (years) | ≤30 | 62 | 87.3 | 9 | 12.7 | 22.59 p<0.01 | 0.55 |
| | >30 | 26 | 48.1 | 28 | 51.9 | | |
| Standard of living | higher | 69 | 87.3 | 10 | 12.7 | 29.57 p<0.01 | 0.62 |
| | lower | 19 | 41.3 | 27 | 58.7 | | |
| Necessity of discontinuing professional work | yes | 49 | 74.2 | 17 | 25.8 | 0.99 p>0.05 | -- |
| | no | 39 | 66.1 | 20 | 33.9 | | |
| Assisted reproduction treatment (years) | ≤5 | 71 | 82.6 | 15 | 17.4 | 19.55 p<0.01 | 0.52 |
| | >5 | 17 | 43.6 | 22 | 56.4 | | |
| Medical complications during pregnancy | yes | 8 | 22.9 | 27 | 77.1 | 52.73 p<0.01 | 0.77 |
| | no | 80 | 88.9 | 10 | 11.1 | | |
| Method of conception used | AIH | 32 | 71.1 | 13 | 28.9 | 8.65 p=0.01 | 0.29 |
| | AID | 34 | 85.0 | 6 | 15.0 | | |
| | IVF-ET | 22 | 55.0 | 18 | 45.0 | | |

**TABLE 4. Attitudes towards the delivery in relation to age, standard of living, and duration of treatment.**

| Group | | Attitude towards the delivery | | | | Chi-square p | Strenght of dependence Ø |
|---|---|---|---|---|---|---|---|
| | | positive | | negative | | | |
| | | n | % | n | % | | |
| Age (years) | ≤30 | 26 | 36.6 | 45 | 63.4 | 0.002 p>0.05 | -- |
| | >30 | 20 | 37.0 | 34 | 63.0 | | |
| Standard of living | higher | 18 | 22.8 | 61 | 77.2 | 18.13 p<0.01 | 0.50 |
| | lower | 28 | 60.9 | 18 | 39.1 | | |
| Duration of treatment (years) | ≤5 | 23 | 26.7 | 63 | 73.3 | 11.98 p<0.01 | 0.42 |
| | >5 | 23 | 59.0 | 16 | 41.0 | | |

**TABLE 5. Attitudes towards the delivery in relation to method of conception and the conclusion of pregnancy.**

| Group | | Attitude towards the delivery | | | | Chi-square p | Strenght of dependence Ø |
|---|---|---|---|---|---|---|---|
| | | positive | | negative | | | |
| | | n | % | n | % | | |
| Method of conception used | AIH | 20 | 44.4 | 25 | 55.6 | 3.7 p>0.05 | -- |
| | AID | 16 | 40.0 | 24 | 60.0 | | |
| | IVF-ET | 10 | 25.0 | 30 | 75.0 | | |
| Delivery | natural | 36 | 64.3 | 20 | 35.7 | 32.95 p<0.01 | 0.65 |
| | Caesarean section | 10 | 14.5 | 59 | 85.5 | | |

ours. This results from their prospective model in which women's feelings are not modulated by birth experiences and the contact with a newborn. Being aware of some limitations resulting from the character of the study we decided to have a retrospective model. It aimed at including in the study the whole period of pregnancy that at its terminal phase can be characterized by specific problems related to the approaching delivery. Consideration of this period in our study seemed to us important.

Pregnancies resulting from assisted reproductive techniques are considered high risk for obstetrical complications and thus required additional attention [4,11–15]. From a psychological point of view assisted reproduction may evoke negative emotions, potentially disturbing the natural course of pregnancy [1,16–18]. Extended periods of waiting for the longed-for child gives rise to doubts about the effectiveness of the assisted reproductive procedures. After successful impregnation, partners experience great joy but also some insecurity and anxiety for the safe course of the pregnancy [2]. This was probably the reason why every third subject under study (29.6%) had a negative attitude towards her pregnancy. It must be mentioned that this was mostly true for older women (over 35 years of age), for respondents of a relatively low living standard, and for those who had been treated for infertility for a long time. It was also among these women that obstetric complications during pregnancy occurred most frequently.

Every pregnancy, even one that is completely normal, forces a woman to change her way of life to some degree. According to Rimi and Dunkel-Schetter [19] and Yali and Lobel [20] a high risk pregnancy is accompanied by a depressed mood and a feeling of impending danger. Almost one-half of our respondents had to limit some activities, mainly their professional work. These limitations, however, did not have any effect on their attitude towards their pregnancies.

Improvements in techniques of assisted reproduction have resulted in an increased frequency of Caesarean sections [11]. A Caesarean section, particularly after an *in vitro* procedure, is often regarded as the method of choice [12]. Among our subjects, 85.5% of women who had undergone a Caesarean section had a negative attitude towards delivery. One can thus assume that this intervention was perceived more as a surgical operation and less as the delivery of a baby.

The numerical data on women's attitudes towards delivery allowed for differentiation of some of the parameters accepted for the study. It turned out that more women who had waited a long time for their pregnancy, who had had a natural delivery and whose standard of living was relatively low had a positive attitude towards the delivery. One could argue that a natural delivery was perceived as the crowning event of a long treatment and the fruition of a long-awaited maternity. The explanation for the correlation with a lower standard of living is not obvious. Perhaps women who have a lower standard of living are more determined fighters, more used to adversity in life and have lower expectancies. These qualities may cause them to better appreciate some positive developments [21]. This problem, however, requires further study.

One might imagine that after the procedures of assisted reproduction are over, when the dreams of the childless woman are almost within her reach, the successful pregnancy and delivery must be a blissful period of waiting for the baby to arrive. These suppositions were not confirmed by our studies. Successful fertilisation did not abolish anxieties and fears, only transferred them. Women who have benefited from assisted reproduction techniques require special psychological care and support, not only during the entire period of pregnancy, but even during the puerperium.

## CONCLUSIONS

The attitudes towards pregnancy and/or delivery of women who had undergone assisted reproduction procedures were both positive and negative, but also positive towards pregnancy and negative towards delivery or *vice versa.* The variables that determined these attitudes were age, standard of living, duration of treatment for infertility and the course of pregnancy and/or its resolution

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**Informacje o Autorach**

Dr hab. n. med. Celina Łepecka–Klusek – adiunkt; dr n. med. Anna B. Pilewska-Kozak – adiunkt, Katedra i Klinika Ginekologii i Endokrynologii Ginekologicznej, Wydział Pielęgniarstwa i Nauk o Zdrowiu, Uniwersytet Medyczny w Lublinie; prof. dr hab. n. med. Grzegorz Jakiel – kierownik, Klinika Położnictwa i Ginekologii, Centrum Medycznego Kształcenia Podyplomowego w Warszawie; dr n. med. Grzegorz Bakalczuk – asystent, Zakład Położnictwa, Ginekologii i Pielęgniarstwa Położniczo-Ginekologicznego, Wydział Pielęgniarstwa i Nauk o Zdrowiu, Uniwersytet Medyczny w Lublinie.

**Adres do korespondencji**

Celina Łepecka-Klusek
ul. Sekutowicza 27/20, 20-152 Lublin
e-mail: jozefk@ikarus.icn.pl
tel. + 48 081 740 02 15