

# Motherhood and attitudes towards motherhood in women with Mayer-Rokitansky-Küster-Hauser syndrome

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## ABSTRACT

**Objectives:** The aim of the study was to find out what proportion of women with MRKHS have decided to become mothers and have children or would like to have children and consider various options for motherhood. Additionally, the survey aimed at identifying factors that might influence the women's decisions and opinions regarding adoption, gestational surrogacy (GS) and uterus transplantation (UTx).

**Material and methods:** The study group consisted of 100 adult women with MRKHS who filled out questionnaires consisting of 56 questions. The survey was self-administered and anonymous.

**Results:** Most of the study participants were under 30, lived in large cities (> 150 000 inhabitants) and declared to be heterosexuals in a steady relationship ( $p < 0.05$ ). While 11 participants had children, 66 out of 89 childless women (74%) expressed a desire for motherhood, but as many as 80 surveyed women have felt pressured to have children. The number of participants for whom a biological relationship with offspring was significant and insignificant respectively equaled ( $p = 1.000$ ). The majority of the study participants supported the process of legalizing GS in Poland (95 vs 4) yet would opt for commercial rather than altruistic GS (64 vs 31) ( $p < 0.05$ ). Most respondents stated that UTx is consistent with their faith and conscience (91 vs 4) and found UTx ethical (88 vs 4) ( $p < 0.0001$ ).

**Conclusions:** The majority of Polish women with MRKHS express the need to become a mother, but only one in ten has a child. The women's interest in biological motherhood is significant.

**Keywords:** Mayer-Rokitansky-Küster-Hauser syndrome; MRKH syndrome; MRKHS; motherhood; adoption; gestational surrogacy; uterus transplantation

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## INTRODUCTION

Motherhood is a significant aspect of personal fulfilment for women who desire to have offspring and satisfy their nurturing instincts. However, not all women have the psychological or physical capacity to achieve the fulfilment that motherhood brings. One of the medical barriers is Mayer-Rokitansky-Küster-Hauser syndrome (MRKHS), which affects the reproductive possibilities of women and may influence their attitude towards motherhood.

Mayer-Rokitansky-Küster-Hauser syndrome is a rare congenital complex anomaly of the female reproductive system, occurring with a frequency of 1:4500–1:5000 female live births [1, 2]. It is characterized by aplasia or hypoplasia of the uterus and vagina, with a normal female karyotype (46, XX), resulting in primary amenorrhea, inability or difficulty to engage in penile-vaginal intercourse without treatment, and absolute uterine factor infertility (AUI). Women with MRKHS are unable to carry a pregnancy and bear children.

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Therefore, if they wish to have children, they need to consider adoption or alternative reproductive options such as gestational surrogacy (GS) or uterus transplantation (UTx). Neither of the latter two is available to Polish women, who were the focus of our research. Both commercial and altruistic GS are illegal in Poland. Uterus transplantation is still considered an experimental procedure worldwide and is not performed in Poland. Consequently, Polish women with MRKHS have no possibility of conceiving a biological child within the country.

### Objectives

The aim of the study was to establish what proportion of women with MRKHS have decided to become mothers and have children. Besides, the study aimed to assess what proportion of women with MRKHS would like to have children and consider various options for motherhood. Furthermore, we tried to identify the factors that might influence the women's decisions and opinions regarding adoption, GS and UTx.

### MATERIAL AND METHODS

The study group comprised adult women (age  $\geq 18$  years) with MRKHS followed in the Division of Gynecology of Poznan University of Medical Sciences (PUMS) or being members of a self-help group for MRKHS women "Bezpestkowie" (Seedless). The study was approved by the ethics committee of PUMS (951/22). Self-administered questionnaires consisting of 56 questions (closed and open) were used in two forms — online and printed. The survey was anonymous. Questions concerning GS and UTx were preceded by an explanation of the procedures. The data was collected between 12/2022 and 06/2023. Statistical calculations were performed using the STATISTICA 10 PL statistical package. Correlations between qualitative variables (women and their responses to the questions) were tested using Pearson's chi-square independence test. For small, expected counts in the contingency table with a size greater than  $2 \times 2$ , the maximum likelihood chi-square independence test was utilized. Z-test for one proportion was used to compare percentages of women with 50%. The result was considered statistically significant when  $p < 0.05$ .

### RESULTS

The survey involved 100 adult women with MRKHS. Most study participants were under 30 ( $p = 0.0009$ ); women aged 18–25 prevailed in the group (Fig. 1).

More study participants lived in large cities ( $> 150,000$  inhabitants) than in rural areas ( $52$  vs  $25$ ,  $p = 0.0021$ ). The difference between the number of participants with and without a higher education was insignificant ( $58$  vs  $42$ ,  $p = 0.109$ ). The majority of respondents ( $79$ ) were working women,

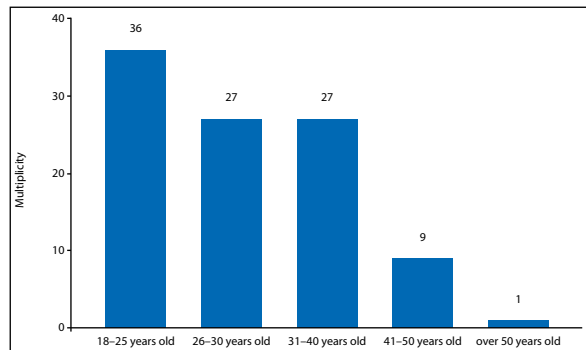


Figure 1. Age distribution of study participants ( $p < 0.0001$ )

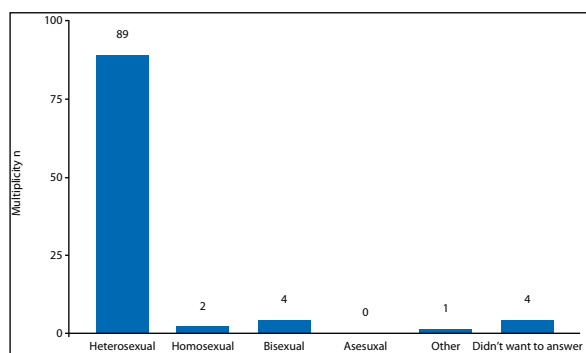


Figure 2. Sexual orientation of respondents

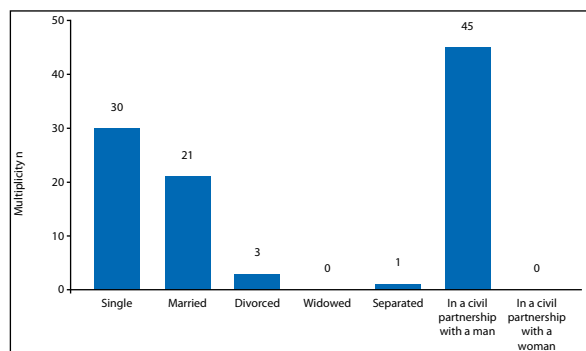
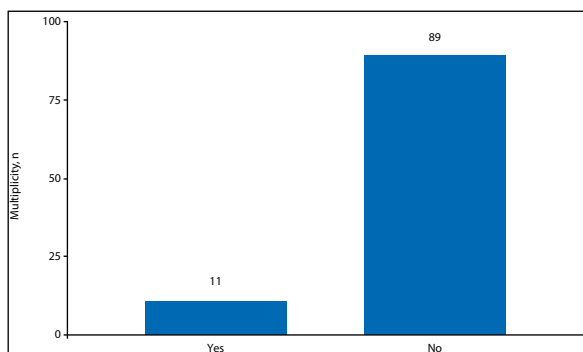


Figure 3. Marital status of respondents

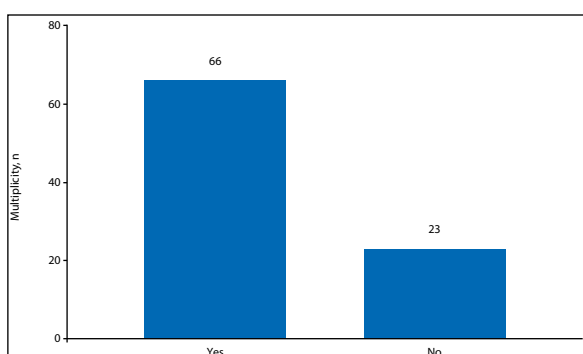
one was a pensioner, and the remaining 20 comprised students ( $p < 0.001$ ). The predominance of any income group (5 ranges of net wages from below 2700 to over 5000 PLN) was not found ( $p > 0.05$ ).

Most of the study participants declared to be heterosexuals ( $p < 0.001$ ) (Fig. 2).

The number of women in a steady relationship (married or in a civil partnership with a man) was significantly higher than the number of single women ( $p = 0.0014$ ) (Fig. 3).



**Figure 4.** Number of women having vs not having children ( $p < 0.0001$ )



**Figure 5.** Number of childless women who would like vs do not want to have children ( $p < 0.0001$ )

Most of the women (80 vs 19) have felt pressured to have children ( $p < 0.0001$ ). Sixty-nine women responded that having children is significant to them. The number was significantly higher than the respective number of women who declared that having children is irrelevant (18) or indifferent (13) to them ( $p < 0.0001$ ). Eleven study participants have children (10 women have one child, and one participant has two) (Fig. 4), with all but one of woman over 30. Most of them (72.7%) declared themselves to be adoptive mothers. Of the 89 childless women, the vast majority would like to have children (66 vs 23,  $p < 0.0001$ ) (Fig. 5).

The relationships between the importance of having offspring and the considerations of adoption ( $\chi^2 = 21.49$ ,  $p = 0.0003$ ), GS ( $\chi^2 = 26.65$ ,  $p < 0.001$ ) or Utx ( $\chi^2 = 34.47$ ,  $p < 0.0001$ ) are statistically significant. Among the respondents for whom having children was strongly important, 42.1% and 41.5% considered respectively adoption and GS and 56.9% would choose Utx if possible.

No statistically significant difference was found between the number of study participants to whom a biological relationship with an offspring is important and unimportant (43 vs 43 respectively,  $p = 1.000$ , 14 respondents were

indecisive). Thirty-six versus 60 respondents were afraid of the offspring inheriting the MRKHS ( $p = 0.014$ ).

Most of the respondents supported the process of legalizing GS in Poland (95 vs 4), stated that Utx is consistent with their faith and conscience (91 vs 4) and found Utx ethical (88 vs 4) ( $p < 0.0001$ ). The respondents would choose commercial rather than altruistic GS (64 vs 31,  $p = 0.0007$ ).

Consideration of adoption correlated significantly with place of residence ( $\chi^2 = 4.65$ ,  $p = 0.0311$ ). The percentage of countryside residents considering adoption (76%) was higher than city residents (51.4%). No correlation was found between consideration of adoption and age, level of education or economic status of respondents ( $p > 0.05$ ). Similarly, no correlation exists between the consideration of Utx and the age, education level or financial status of the respondents ( $p > 0.05$ ). The relationship between consideration of Utx and place of residence is statistically significant ( $\chi^2 = 6.49$ ,  $p = 0.00389$ ). Among respondents who would opt for Utx, the highest was the percentage of women living in small towns (73.9%), and the lowest was the percentage of women living in large cities (42.3%).

Consideration of GS correlated significantly with the place of residence ( $\chi^2 = 8.98$ ,  $p = 0.0112$ ) and financial status ( $\chi^2 = 5.98$ ,  $p = 0.0145$ ) of the respondent but not with their age or level of education ( $p > 0.05$ ); 58.7% of women living in cities (vs 36% of women living in the countryside) and 67.4% of women with a monthly income higher than 4000 PLN (vs 32.6% of women with a monthly income lower than 4000 PLN) considered GS.

## DISCUSSION

In many cultures, including Poland, there is widespread societal pressure on women to become mothers. It often stems from deeply ingrained cultural norms and expectations that define a woman's worth and fulfilment through motherhood [3]. This phenomenon has a notable impact on patients diagnosed with MRKHS, as they are given a diagnosis of AUF1 [4].

In our study, the dominant age group among the participants was 18 to 25. There were significantly more women living in a relationship (marriage and partnership), with heterosexual women predominating. Relationship status, the family situation and the support provided by the partners play a significant role in the patient's pursuit of motherhood [5]. In response to the survey's question about the support received from their surroundings, only 50% of women answered that they received it to the extent they would expect. This fact is substantially significant, as research shows that women who went through assisted reproductive technology, perceive their partners as less capable of helping them cope with stress, when compared to women with spontaneous pregnancies [6].

The study showed that the majority of the group (80%) felt pressured by society to have children. A similar trend was found in the study conducted among healthy women who remain childless by choice, where all participants stated that at some point in their lives, they felt societal pressure regarding motherhood [7]. The impact that the cultural pressure concerning women's role in society has on their mental well-being is still not adequately emphasized. Studies have shown that women facing infertility have significantly higher levels of depressive symptoms relative to fertile women [8]. However, recent findings indicate that it is the societal pressure regarding motherhood, rather than infertility itself, that serves as a substantial predictor of depression [3].

Women struggling with infertility due to MRKHS confirmed that they compare themselves to women who have children, as a result of which they have experienced feelings of inadequacy and a sense of inferiority. They also pointed out questioning their own femininity in comparison to a stereotypical "real woman" who fulfils herself as a mother. The psychological consequences of infertility described by women with MRKHS align with other studies on the topic of involuntary childlessness, regardless of its underlying cause. For many women who had expected to have children of their own in the future, infertility may challenge their fundamental sense of femininity [9].

The survey revealed that the majority of the group expressed a desire to have a child. However, the study showed no significant difference between the number of women for whom biological connection to offspring is important and unimportant, which may indicate that for most women with MRKHS, the importance of motherhood and having children is substantial yet does not necessarily entail a desire to have biological offspring. Interestingly, most patients (60 out of 96 who answered this question) are not concerned that their child will inherit the congenital malformation. This fact reflects a high level of patients' knowledge about their condition, as in recent years, studies have shown a low risk of passing on this defect to a child by the mother [10]. The great majority of the daughters born to women with MRKHS who chose the path of IVF have typical reproductive anatomy [11]. Nonetheless, women with MRKHS often ask questions about the heritability of the condition and are concerned about passing the malformation to their daughters [10]. Meanwhile, most of our study's participants demonstrated a profound understanding of the biology behind their diagnosis.

Eleven out of 100 participants in our study stated that they have a child or children, with a further 69 childless women considering having offspring to be either highly or somewhat important. The most frequently chosen reasons deterring women from motherhood were as follows: limited

access to available methods of parenthood, Polish legal regulations, the desire to be a biological mother, health issues, financial issues, and a partner's negative attitude towards parenthood.

Patients with MRKHS face many questions without simple answers, one of them being "How to become a mother?". Currently, there are three options: adoption, GS and UTx [12]. Nowadays, under Polish law, only adoption remains entirely legal. According to the act on the infertility treatment of 2015, GS is not allowed in Poland, and contracts for the birth of a child are illegal [13]. Poland is also not among the countries where UTx has been performed.

The need for motherhood seems to be an underestimated aspect of MRKHS in scientific research [10]. Most surveyed women expressed the desire to have children. This vital internal need for self-fulfillment as a mother is naturally reflected in the urge to learn about possible reproductive options. Most of the respondents extended their knowledge about all alternatives. Most of them expressed direct desires to use these methods to become mothers.

Adoption is the first and theoretically the easiest path that a Polish woman with MRKHS can choose to expand her family. A substantial proportion of the surveyed women considered adoption. However, adoption still entails significant implications.

According to data from the Polish Ministry of Family and Social Policy, in 2022, 2,800 adoptions in the country and 12 abroad were carried out [14]. The adoption in Poland has undergone significant restructuring, which impacts society's attitude towards the entire process, including the women who participated in the survey. These changes are related to the newly observed phenomenon of psychiatrization of adoption [15]. Bureaucratization and strengthening of the diagnostic culture led to prolonged procedures, more frequent rejection of potential parents, the emotional distance between the child and the future mother, or other traumas [16]. Currently, the average time of an adoption process in Poland is approximately 2 years, which might be extended up to 4 years if it includes qualification for pre-adoption training [14].

In our study, adoption was the most common choice among participants living in rural areas and earning less than 4,000 PLN a month. This data confirms the significant impact of cultural and economic aspects on the choice of motherhood, which makes adoption currently the only option for expanding the family without additional costs or any socio-moral doubts.

Gestational surrogacy, unlike adoption, does not cause the stress associated with a long-term process [17]. According to the research, GS's psychological impact on future parents is comparable to a standard pregnancy [18]. It also gives a chance to have genetically related offspring for those

women with MRKHS who especially care about the biological bond between a child and a mother. Nevertheless, GS also raises concerns - mainly the fear of misunderstandings with the surrogate, legal doubts, high costs and, less often, ethical issues.

Poland, like many other European Union (EU) countries (e.g. Germany, Italy and France), has not legalized GS [19]. It is a topic of conversation that divides people due to moral hesitation and GS's incompatibility with religion and faith. Nevertheless, according to the latest report on societies' attitudes towards GS, Poles are ready to discuss this subject and show support for the parents-to-be [20]. Some countries (e.g. the UK, the Netherlands, Denmark) legalized only an altruistic (unpaid) surrogacy [19, 21, 22], while others, e.g., Ukraine, Russia and USA, legalized all forms of GS, including commercial (paid) surrogacy [19]. In Eastern European countries, the average price of the procedure is around 50,000 EUR, while in California, it costs twice as much [10]. Interestingly, surveyed women more often chose commercial GS than altruistic GS as their preferred option. Additionally, most patients who considered GS were in the group with a monthly revenue of over 4,000 PLN. Such results may be significantly influenced by the fact that Poland borders Ukraine - one of the few countries in Europe with legal commercial GS [23].

For many women with MRKHS, legal GS means freedom of choice: 95% of the respondents supported the legalization of surrogacy in Poland. It can be summarized by quoting the statement of one patient, which expresses the view of the entire group: "Everyone should have the chance to try for offspring." The issue of ensuring at least one legal way of having a genetically related child seems considerable. Increasing safety encompassing the elimination of "reproductive tourism" also supports the legalization of GS [23]. Currently, in the face of the ongoing war in Ukraine, "reproductive tourism" poses a greater threat to women, so an alternative GS program in Poland is even more needed. In 2007, the Societies of Obstetrics and Gynecology published recommendations on GS, suggesting that it should not be commercial yet organized by non-profit agencies to limit possible abuses [10].

Uterus transplantation is the newest available way for patients with MRKHS to have a child [17]. Since 2014, 70 procedures have been successfully performed, of which 24 live births have been reported so far [10]. Some mothers have given birth to more than one baby [2]. This opportunity is most frequently used by women with MRKHS, who expressed a strong desire to have children and came from countries where GS is prohibited [24]. Uterus transplantation is attracting interest from all over the world, as evidenced by surveys conducted in Japan, France and the UK [25]. Polish women also joined the group of interest - the results indi-

cate that over half of the respondents considered UTx, and 93.9% of them acknowledged UTx as the future for many women with MRKHS.

Most surveyed Polish women with MRKHS have no ethical doubts regarding UTx and declare its compliance with their religion and faith. Nevertheless, it is still the option that raises the most concerns, mostly related to the procedural risks, complications and the high costs of the procedure, which currently amount to 100,000 EUR [17]. Additionally, the transplantation and further pregnancy require a total of 3–4 surgeries, partly preceded by immunosuppression [17]. The confidence in UTx will be consolidated by following successful surgeries and happily born children, which give women with MRKHS hope not only to fulfil their role as mothers but also to experience pregnancy and childbirth. Moreover, the UTx would solve legal problems and enable, in some cases, more than one pregnancy.

Only 11 out of 100 participants in our study have children, with just one participant having two. Most of them have chosen adoption. However, patients clearly indicate that if the availability of all reproductive options were equal, they would more frequently choose GS or UTx. In many other studies, patients were more likely to support these options [25–27]. Extending the knowledge about motherhood with MRKHS may directly influence not only the women's choices but also the development of reproductive policy.

## CONCLUSIONS

Our study of Polish women with MRKHS confirms that motherhood is not only a woman's personal desire to have children but also a social role linked to external pressure and expectations. We found that a tenth of Polish women with MRKHS has children, and three-quarters of those childless wish to become a mother. Until recently, the diagnosis of AUFI precluded this group of women from having their biological children, thus substantially affecting the fulfilment of their maternal needs. Today, when new reproductive options appear, there is a growing interest in biological motherhood among Polish women with MRKHS, though GS and UTx are unavailable in Poland.

### Article information and declarations

#### *Data availability statement*

The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

#### *Ethics statement*

The study was approved by the ethics committee of Poznan University of Medical Sciences (PUMS) (951/22).

### Author contributions

W. M., U.C., K.P., K.P.-Z., K.S., J.S.: survey preparation, data acquisition and analysis, writing — original draft preparation; K.K.: conceptualization, data acquisition and analysis, writing — supervising article's preparation and final revision. The authors have read and agreed to the published version of the manuscript.

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### Conflicts of interest

The authors declare no potential conflicts of interest in connection with this article.

### Supplementary material

None.

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