

Selected health parameters and health behaviors of women residing in single mother homes compared to women in a traditional home environment*

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ABSTRACT

Introduction: A woman's health and well-being during the perinatal period significantly influence the course of pregnancy and childbirth, impacting not only the family's health but also the well-being of the next generation. Modern societies prioritize special care for women in challenging life situations during this period. Women residing in Single Mother's Homes (SMH) encounter various issues such as loneliness, homelessness, lack of livelihood, and insufficient support from loved ones. Despite these challenges, there is currently no research on how this particular group of women presents itself in terms of health behaviors, selected health parameters, utilization of perinatal care, as well as self-esteem, and a sense of meaning in life.

Materials and methods: The study spanned from August 1, 2019, to September 30, 2021, involving 67 women living in SMH as the control group and 73 women attending obstetrics-gynecology clinics for follow-up. It constituted a retrospective analysis of medical records, employing diagnostic surveys with standardized research tools, including the positive health behavior scale (PHBS) for women, multifactor leadership questionnaire (MLQ), Rosenberg self-assessment scale, self-report survey questionnaire, and face-to-face interviews.

Results: There were no differences in the analyzed parameters of the health status of the women studied. Among SMH and home environment women, the most common cause of abnormal morphology results was anemia, occurring in 26.9% of SMH women

and 11.0% of home environment women. Self-assessment of one's health was better among women in the control group, although the difference was close to the threshold of statistical significance. Health behaviors examined with the PHBS showed better results for women in the control group in the categories of nutrition, body care, safety behavior, and psychosocial health; only in the category of physical activity did women from both groups have similar results ($p = 0.162$). Women in the SMH were more likely to exhibit negative health behaviors, with 6% admitting to drinking alcohol before pregnancy and 3% of the study group and no women in the control group using drugs. There were no differences between the groups when it came to addictions during pregnancy, but not all women surveyed were willing to answer the question about addictions. Women in the SMH were later to receive perinatal care, averaging 10.84 weeks of pregnancy (hbd. grav.) compared to women in the home environment, averaging 8.25 WG. The study confirmed the lower self-esteem of women in the SMH, with a mean score of 27.73 compared to 31.23 of women in the control group. Sense of life concerning the present (MLQ-P) was lower in women in SMH, while the sense of life concerning the future was close to the threshold of significance. No correlation was confirmed between the subjects' health behaviors and their health status parameters, as well as neonatal weight and Apgar scale scores.

Keywords: single mother; Single Mother Home; maternal health; health behavior; maternal well-being.

INTRODUCTION

For over a dozen years, we have been observing social and moral changes in Poland concerning family and maternity issues. Multi-generational families, living together in 1 household, mutually supporting and caring for each other while passing on cultural, moral, and health values, are now a rarity. Today's family typically comprises parents and children, often not bound by formal ties, with parents living in free relationships, and children raised by the father/mother's partner. "Patchwork" families have become a permanent part of society's landscape. The number of single parents raising offspring is on the rise due to an increase in divorces (about 62,000 in 2018 compared to about 40,000 in 1980), partnership breakups, and migration of 1 parent [1]. Single parents often prefer to be

referred to as independent rather than single, considering the latter term to have more pejorative connotations.

The introduction of family support solutions in Poland, such as: the family supplement benefit, the 500+ benefit, permanent allowance, periodic allowance, special purpose allowance, social insurance contributions, health insurance contributions, and assistance from a family assistant has provided significant help from the state to parents, especially single parents, in raising children. Presently, Poland ranks third in terms of the share of family spending (13%) in social spending, according to the European Statistical Office (2016 data). In Europe, 5% of women raise children alone, while in Poland, there are more than 2 million single mothers [1].

Despite substantial state support, not all women can cope with single motherhood. In the past, single motherhood was

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often associated with a pregnant minor being abandoned by her partner and ejected from the family home, a spinster with a child in a challenging financial situation, or a widow with children. Today, we would add to this image a divorced woman left destitute by her partner. Mothers play a major role in the health socialization of the younger generation. The ingrained “cultural script of motherhood” obliges women to take care of their health so they can pass on a pattern of health-promoting behavior to their offspring, based on proper hygiene habits, a healthy diet, physical activity, rest, and the ability to seek professional help for health issues.

The saying “take care of your health if you want your children to do the same” remains relevant despite socio-behavioral changes in our society. Various family types, including monoparental families, have been extensively described in family science. There has been significant research on the health behaviors of pregnant women, mothers, the impact of these behaviors on children's health, and the educational and psychological aspects of single motherhood. However, there is a scarcity of studies on women staying in Single Mother's Homes (SMH), examining their needs, living situations, problems, and support options. For example, no research has been conducted on the health status and health behavior of women staying in SMH.

Currently, Poland has 26 SMH, operated by Catholic non-governmental charitable organizations. The operation of SMH is based on the Ordinance of the Minister of Social Policy of March 5, 2008, on homes for mothers with minor children and pregnant women (Journal of Laws 2005 No. 43, item 418), the Act of March 12, 2004, on social assistance (Journal of Laws 2015, item 163, as amended), and the Act of June 9, 2011, on family support and the system of foster care (Journal of Laws 2017, item 697, 1292, 2217, 2018, item 107, 416). The regulation specifies the referral and admission to the facility, duration of stay, financing of stay, isolation from perpetrators of violence, support in crisis situations, prevention of social marginalization and social orphanhood, and prevention of the reproduction of negative family and environmental patterns. In the care and support area, the facility allows the use of health services, ensuring subjective treatment, partnership in mutual relations between residents and staff, creating living conditions with a “home-like” atmosphere, fostering personal development, respecting women's privacy, and adopting an individual approach to the implementation of the client's plan for independence [2].

The Law on Social Assistance outlines the tasks of social assistance, types of benefits, and their provision, organization of the assistance, and the mode of control. Social assistance supports individuals and families in meeting necessary needs to enable them to live in dignified conditions, in cooperation with their charges. It provides not only benefits and assistance in kind but also social work, specialized counseling, and assistance in obtaining better housing or finding a job [3]. The Law on Family Support and Foster Care specifies the principles and forms of supporting the family in case of care and upbringing difficulties, through work with the family (consultation, mediation, therapy, legal assistance), and assistance in the care and upbringing of the child [4].

MATERIALS AND METHODS

The study comprised a retrospective analysis of medical records and a diagnostic survey conducted using standardized research tools: positive health behavior scale (PHBS) for women, multifactor leadership questionnaire (MLQ), Rosenberg self-assessment scale, and self-report survey questionnaire, along with face-to-face interviews.

Health parameters were assessed based on findings from the medical records of the women studied. The document analysis method employed was the technique of comparing the results to standardized scales of reference values. Results were considered normal if no test result deviated from the reference standard.

The survey took place from August 1, 2019, to September 30, 2021, in the Subcarpathia, Holy Cross, Lesser Poland, and Lubelskie provinces. Initially, women from the following institutions were surveyed: SMH and Crisis Intervention in Rzeszów, Mother and Child Home in Przemyśl, Home for Mothers with Minor Children and Pregnant Women in Kielce, SMH in Lublin, SMH in Tarnów, and Mother and Child Home in Kraków. Due to the SARS-CoV-2 pandemic, causing negligible turnover of women in the facilities, the Bł. B. Jabłonska Mother and Child Home in Kraków closed in April 2020 due to too few female residents. Consequently, the study was expanded to include other centers: Home for Mothers with Minor Children and Pregnant Women in Labunia, Home for Single Mothers in Wadowice, and Home for Single Mothers in Rudnik nad Sanem. Simultaneously, a study was conducted in the control group. Approval No. 32/2019 from the Bioethics Committee at the Faculty of Medicine and Health Sciences of Jan Kochanowski University in Kielce (Poland) was obtained to conduct the study, along with permission from the management of each facility.

Women were informed about the study's purpose and provided written consent to participate in the study.

RESULTS

A total of 140 women were included in the study, comprising 67 women residing in SMH and 73 women from the control group. The subjects ranged in age 16–46 years, with a mean age of 29.12 ± 6.25 years. On average, women in the study group were younger than those in the control group ($p = 0.002$).

Among the women in SMH, the largest group had vocational education (26; 38.8%), and 7.5% (5) had only primary education. Women in the control group were better educated than those in the study group ($p < 0.001$). In the SMH group, the majority were single ladies (53; 71.9%), while married women were the most represented in the control group (44; 60.3%). There were 6 (9%) divorced women in the study group and 5 (6.9%) in the control group. The study group had more single ladies than married women, and the difference was statistically significant ($p < 0.001$).

In terms of employment, 36 (53.7%) women in the study group were not working, while 29 (43.3%) were manual laborers. Women in the control group had mostly (37; 50.7%) white-collar

jobs. The women in the study group were more likely to be non-employed, and the difference was statistically significant ($p < 0.001$).

The study group was dominated by women experiencing their first pregnancy (22; 32.8%), followed by a third pregnancy (21; 31.3%) and a second pregnancy (18; 26.9%). In the control group, women with a second pregnancy dominated (31; 42.5%), followed by those with a first pregnancy (26; 35.6%) and a fourth pregnancy (8; 11.0%). The number of pregnancies differed statistically significantly between the study and control groups ($p = 0.008$).

When analyzing health parameters, we relied on tests recommended for pregnant and postpartum women [5]. The tests compared included peripheral blood count, urinalysis, fasted glucose and OGTT75 test, blood pressure measurement, results of WR, HIV, HCV, GBS, cervical cytology, TSH level, toxoplasmosis and rubella test, blood group determination, and weight gain according to pre-pregnancy body mass index (BMI). Hospitalizations, reported complaints, and self-assessment of health were also compared. These parameters do not directly relate to health status but provide insight into the subjects' subjective perception of their health condition.

There were no differences in health parameters, except for abnormal results, where anemia was more prevalent in the study group (18; 26.9%) compared to the control group (8; 11.0%). This difference was statistically significant ($p = 0.028$) – Table 1.

TABLE 1. Results of morphology in pregnancy

| Morphology in pregnancy | Study group | | Control group | |
|-------------------------|-------------------------------|-------|---------------|-------|
| | n | % | n | % |
| Correct results | 48 | 71.6 | 65 | 89.0 |
| Anemia | 18 | 26.9 | 8 | 11.0 |
| Others | 1 | 1.5 | 0 | 0.0 |
| Total | 67 | 100.0 | 73 | 100.0 |
| p | $\chi^2(2) = 7.15; p = 0.028$ | | | |

n – count; χ^2 – Pearson's chi-square test value; p – probability value (bold p-value indicates statistical significance)

The study and control groups were compared regarding the presence or absence of chronic diseases, complaints during pregnancy and the puerperium, and hospitalizations during pregnancy and the puerperium. No differences were observed between the groups in terms of the presence of chronic diseases, receiving hospitalization during pregnancy and the puerperium, or the presence of other complaints during the puerperium ($p > 0.05$). However, it was revealed that women in the study group were less likely to report experiencing discomfort during pregnancy ($p = 0.048$) compared to women in the control group (32.8% vs. 49.3%, respectively) – Table 2.

The prevalence of individual chronic diseases, complaints, and causes of hospitalization in the study and control groups was then analyzed. The most common chronic disease was hypothyroidism, affecting 6.0% (4) of women in the study group and 2.7% (2) in the control group. No differences were observed between the prevalence of chronic diseases in the 2 groups of women ($p > 0.05$).

TABLE 2. Results of morphology in pregnancy

| | Study group | | Control group | | Total | | p |
|---------------------------------------|-------------|------|---------------|------|-------|------|-------------------------------|
| | n | % | n | % | n | % | |
| Chronic diseases | 14 | 20.9 | 8 | 11.0 | 22 | 15.7 | $\chi^2(1) = 2.60; p = 0.107$ |
| Ailments in pregnancy | 22 | 32.8 | 36 | 49.3 | 58 | 41.4 | $\chi^2(1) = 3.90; p = 0.048$ |
| Hospitalizations in pregnancy | 23 | 34.3 | 21 | 28.8 | 44 | 31.4 | $\chi^2(1) = 0.50; p = 0.478$ |
| Ailments in postpartum period | 27 | 40.3 | 26 | 35.6 | 53 | 37.9 | $\chi^2(1) = 0.33; p = 0.568$ |
| Hospitalizations in postpartum period | 2 | 3.0 | 2 | 2.7 | 4 | 2.9 | $\chi^2(1) = 0.01; p = 0.930$ |

n – count; χ^2 – Pearson's chi-square test value; p – probability value (bold p-value indicates statistical significance)

Mostly, no differences were shown between the reasons for hospitalization of pregnant subjects ($p > 0.05$). Only gestational diabetes mellitus (GDM) as a reason for hospitalization was more frequent among women in the study group (8; 11.9% of women), while in the control group, it affected 2.7% (2) of women. A statistically significant relationship was found in this case ($p = 0.035$) – Table 3.

TABLE 3. Hospitalizations during pregnancy – causes

| Hospitalizations during pregnancy | Study group | | Control group | | p |
|--|-------------|------|---------------|-----|-------------------------------|
| | n | % | n | % | |
| PIH | 2 | 3.0 | 2 | 2.7 | $\chi^2(1) = 0.01; p = 0.931$ |
| GDM | 8 | 11.9 | 2 | 2.7 | $\chi^2(1) = 4.45; p = 0.035$ |
| Anemia | 1 | 1.5 | 1 | 1.4 | $\chi^2(1) = 0.00; p = 0.951$ |
| Abnormal result of cytological examination | 1 | 1.5 | 1 | 1.4 | $\chi^2(1) = 0.00; p = 0.951$ |
| Abortus imminens | 2 | 3.0 | 5 | 6.9 | $\chi^2(1) = 1.10; p = 0.294$ |
| PPI | 5 | 7.5 | 5 | 6.9 | $\chi^2(1) = 0.02; p = 0.888$ |
| Pressure-cervical insufficiency | 1 | 1.5 | 1 | 1.4 | $\chi^2(1) = 0.00; p = 0.951$ |
| Toxoplasmosis | 1 | 1.5 | 1 | 1.4 | $\chi^2(1) = 0.00; p = 0.951$ |
| Pre-eclampsia | 1 | 1.5 | 0 | 0.0 | $\chi^2(1) = 1.09; p = 0.294$ |
| Urinary tract infection | 1 | 1.5 | 2 | 2.7 | $\chi^2(1) = 0.25; p = 0.610$ |
| Vomiting | 2 | 3.0 | 2 | 2.7 | $\chi^2(1) = 0.01; p = 0.930$ |
| Injury | 0 | 0.0 | 1 | 1.4 | $\chi^2(1) = 0.92; p = 0.336$ |
| Cholestasis | 0 | 0.0 | 1 | 1.4 | $\chi^2(1) = 0.92; p = 0.336$ |

n – count; χ^2 – Pearson's chi-square test value; p – probability value (bold p-value indicates statistical significance); PIH - pregnancy-induced hypertension; GDM - gestational diabetes mellitus; PPI - proton-pump inhibitor

Women from SMH most often rated their health as good (40; 59.7%), similar to women in the control group (39; 53.4%). More women in the study group (10; 14.9%) than in the control group (4; 5.5%) rated their health as average. Only 1 woman from the study group rated her health as bad. Slightly better ratings were given by women in the control group than in the study group, and this difference was close to the threshold of statistical significance ($p = 0.055$) – Table 4.

TABLE 4. Self-assessment of health in the study and control groups

| Self-assessment of health | Study group | | Control group | | p |
|---------------------------|-------------|-------|---------------|-------|-------------------------------|
| | n | % | n | % | |
| Very good | 16 | 23.9 | 30 | 41.1 | $\chi^2(3) = 7.60; p = 0.055$ |
| Good | 40 | 59.7 | 39 | 53.4 | |
| Mediocre | 10 | 14.9 | 4 | 5.5 | |
| Bad | 1 | 1.5 | 0 | 0.0 | |
| Total | 67 | 100.0 | 73 | 100.0 | |

n – count; χ^2 – Pearson’s chi-square test value; p – probability value (bold p-value indicates statistical significance)

The PHBS scale score was significantly higher in the control group ($p < 0.001$). Women in the control group also had significantly higher scores in the categories of nutrition ($p = 0.001$), body care ($p < 0.001$), safety behavior ($p = 0.010$), and psychosocial health ($p = 0.001$). Scores in the physical activity category ($p = 0.162$) did not differ between the 2 groups, and both groups had low scores (Tab. 5).

More than half of the women in the study group (35; 52.2%), and 15.1% (11) of the women in the control group had no addictions before pregnancy. This difference was statistically significant ($p < 0.001$). Only women in the study group consumed alcohol in the time before pregnancy ($p = 0.034$). Women in both groups smoked cigarettes before pregnancy (36; 25.7%),

and there was no difference between the groups ($p = 0.634$). Results do not add up to 100% because not all women wanted to answer this question (Tab. 6).

TABLE 6. Addictions before pregnancy

| Addictions before pregnancy | Study group | | Control group | | p |
|-----------------------------|-------------|------|---------------|------|--------------------------------|
| | n | % | n | % | |
| None | 35 | 52.2 | 11 | 15.1 | $\chi^2(1) = 21.87; p < 0.001$ |
| Cigarettes | 16 | 23.9 | 20 | 27.4 | $\chi^2(1) = 0.23; p = 0.634$ |
| Alcohol | 4 | 6.0 | 0 | 0.0 | $\chi^2(1) = 4.48; p = 0.034$ |
| Drugs | 2 | 3.0 | 0 | 0.0 | $\chi^2(1) = 2.21; p = 0.137$ |

n – count; χ^2 – Pearson’s chi-square test value; p – probability value (bold p-value indicates statistical significance)

During pregnancy, the largest number of women changed their behavior by attending doctor’s appointments, with 85.1% (57) in the study group and 82.2% (60) in the control group. Additionally, in the study group, 37.3% (25) of the women ate healthily, 17–25.4% quit, and 11.9% (8) did not change their previous behavior. In the control group, 42.5% (31) began to eat healthily, 34.3% (25) broke their habit, and 8.2% (6) did not change their behavior. There were no differences between the groups ($p > 0.05$). Results do not add up to 100% because women had the opportunity to mark more than 1 answer (Tab. 7).

Dental care during pregnancy was used by 58.2% (39) of women in the study group and 79.5% (58) of women in the control group. In the study group, 16.4% (11) of women did not receive a recommendation for a dental check-up, while in the control group, it was 9.6% (7) of women. Despite an order to visit the dentist, 25.4% (17) of the study group did not have such a visit; in the control group, it was 11.0% (8) of women. The described difference was statistically significant ($p = 0.022$) – Table 8.

TABLE 5. Self-assessment of health in the study and control groups

| PHBS | Study group n = 67 | | | | | Control group n = 73 | | | | | Z | p |
|-------------------------|-----------------------|-------|-------|-------|-------|-------------------------|-------|-------|-------|------|-------|--------|
| | M | Me | min. | max. | SD | M | Me | min. | max. | SD | | |
| General PHBS | 48.04 | 48.00 | 19.00 | 74.00 | 12.00 | 56.52 | 56.00 | 33.00 | 85.00 | 9.08 | -4.43 | <0.001 |
| I. Nutrition | 11.48 | 12.00 | 1.00 | 21.00 | 4.20 | 13.73 | 14.00 | 6.00 | 21.00 | 2.85 | -3.42 | 0.001 |
| II. Body care | 11.15 | 11.00 | 5.00 | 18.00 | 2.81 | 12.99 | 13.00 | 6.00 | 18.00 | 2.78 | -3.86 | <0.001 |
| III. Maintaining safety | 10.61 | 11.00 | 1.00 | 15.00 | 2.71 | 11.67 | 12.00 | 7.00 | 15.00 | 1.41 | -2.56 | 0.010 |
| IV. Psychosocial health | 10.33 | 10.00 | 2.00 | 19.00 | 4.33 | 12.97 | 12.00 | 6.00 | 21.00 | 3.56 | -3.34 | 0.001 |
| V. Physical activity | 4.48 | 5.00 | 0.00 | 12.00 | 2.59 | 5.16 | 5.00 | 0.00 | 12.00 | 2.24 | -1.52 | 0.128 |

PHBS – positive health behavior scale; n – count; M – mean; Me – median; SD – standard deviation; Z – Mann-Whitney’s U-test value; p – probability value (bold p-value indicates statistical significance)

TABLE 7. Change in behavior during pregnancy

| Change in behavior during pregnancy | Study group | | Control group | | p |
|-------------------------------------|-------------|------|---------------|------|----------------------------------|
| | n | % | n | % | |
| Healthy eating | 25 | 37.3 | 31 | 42.5 | $\chi^2(1) = 0.39$; $p = 0.534$ |
| Doctor's appointments | 57 | 85.1 | 60 | 82.2 | $\chi^2(1) = 0.21$; $p = 0.645$ |
| Addiction cessation | 17 | 25.4 | 25 | 34.3 | $\chi^2(1) = 1.31$; $p = 0.252$ |
| Did not change behaviors | 8 | 11.9 | 6 | 8.2 | $\chi^2(1) = 0.53$; $p = 0.463$ |

n – count; χ^2 – Pearson's chi-square test value; p – probability value (bold p-value indicates statistical significance)

TABLE 8. Dental consultation

| Dental consultation | Study group | | Control group | |
|-------------------------|----------------------------------|-------|---------------|-------|
| | n | % | n | % |
| Yes | 39 | 58.2 | 58 | 79.5 |
| No | 11 | 16.4 | 7 | 9.6 |
| Ordered, but did not go | 17 | 25.4 | 8 | 11.0 |
| Total | 67 | 100.0 | 73 | 100.0 |
| p | $\chi^2(2) = 7.61$; $p = 0.022$ | | | |

n – count; χ^2 – Pearson's chi-square test value; p – probability value (bold p-value indicates statistical significance)

Antenatal care was provided to women in the study group from an average of 10.84 ± 4.62 *hebdomas graviditatis* (*hbd. grav.*), while women in the control group received care from an average of 8.25 ± 3.15 *hbd. grav.* The difference was statistically significant ($p < 0.001$); the women in the control group had received professional obstetric care earlier (Tab. 9).

TABLE 9. Perinatal care coverage – descriptive statistics

| Groups under care (<i>hbd. grav.</i>) | Basic descriptive statistics | | | | | | | |
|---|------------------------------|-------|-------|------|-------|------|-------|------|
| | n | M | Me | min. | max. | QI | QIII | SD |
| Study group | 67 | 10.84 | 10.00 | 5.00 | 30.00 | 8.00 | 12.00 | 4.62 |
| Control group | 73 | 8.25 | 8.00 | 4.00 | 28.00 | 7.00 | 9.00 | 3.15 |
| Total | 140 | 9.49 | 9.00 | 4.00 | 30.00 | 7.00 | 10.00 | 4.12 |
| p | $Z = 4.36$; $p < 0.001$ | | | | | | | |

hbd. grav. – hebdomas graviditatis (week of pregnancy); n – count; M – mean; Me – median; SD – standard deviation; Z – Mann-Whitney's U-test value; p – probability value (bold p-value indicates statistical significance)

Women in the study group had an average of 8.58 ± 1.78 pregnancy visits, while women in the control group had an average of 9.71 ± 1.76 pregnancy visits. The relationship is statistically significant ($p = 0.001$) – Table 10.

Women in the control group had a higher sense of meaning in life compared to women in the study group. It was statistically significantly higher with respect to the present

(MLQ-P) – $p = 0.001$, while close to the threshold of significance was the difference in the evaluation of the sense of meaning in life in the context of the future (MLQ-S) – $p = 0.066$ (Tab. 11).

TABLE 10. Number of visits during pregnancy

| Number of pregnancy visits | Basic descriptive statistics | | | | | | | |
|----------------------------|------------------------------|------|-------|------|-------|------|-------|------|
| | n | M | Me | min. | max. | QI | QIII | SD |
| Study group | 67 | 8.58 | 9.00 | 4.00 | 11.00 | 8.00 | 10.00 | 1.78 |
| Control group | 73 | 9.71 | 10.00 | 5.00 | 15.00 | 9.00 | 11.00 | 1.76 |
| Total | 140 | 9.17 | 9.00 | 4.00 | 15.00 | 8.00 | 10.00 | 1.85 |
| p | $Z = -3.35$; $p = 0.001$ | | | | | | | |

n – count; M – mean; Me – median; SD – standard deviation; Z – Mann-Whitney's U-test value; p – probability value (bold p-value indicates statistical significance)

Higher self-esteem was found among women in the control group (31.23 ± 3.87 points) than in the study group (27.73 ± 4.69 points). The difference was statistically significant ($p < 0.001$) – Table 12.

Women in the study group were more likely than those in the control group to have low self-esteem (43.3% vs. 9.6%), while women in the control group were more likely than those in the study group to have high self-esteem (32.9% vs. 16.4%). The difference was statistically significant ($p < 0.001$) – Table 13.

DISCUSSION

Health behaviors, as well as a person's mental condition (life satisfaction and self-esteem), affect health in every way. Particularly important for global health is the concern for the health of women during their reproductive years, which translates into the health of the new generation and the condition of society as a whole. Women's health behavior affects attitudes toward the health of the whole family, especially children. Importantly, every woman in Poland, whether a citizen or permanent resident, has the right to free health services related to pregnancy, childbirth, and the postpartum period, as stipulated by the Constitution of the Republic of Poland, Article 68, and the Act on Publicly Funded Health Care Services [6]. Thus, access to health services is therefore guaranteed to women regardless of their economic situation.

The main objective of our study was to compare selected parameters of health status and health behavior of women residing in SMH and selected parameters of health status and health behavior of women residing in the home environment. The study was designed and conducted using several research methods, such as retrospective analysis of medical records and a diagnostic survey, in the course of which 3 standardized research tools were used: PHBS for women, MLQ, and Morris Rosenberg self-esteem scale (SES), as well as a self-report survey questionnaire and a face-to-face interview. The study involved 140 women between the ages of 16–46, including 67 women residing in a SMH and 73 women from the control group who remained in a home

TABLE 11. Results of the meaning of life questionnaire

| Meaning of life sense | Study group n = 67 | | | | | Control group n = 73 | | | | | Z | p |
|-----------------------|-----------------------|------|------|------|------|-------------------------|------|------|------|------|-------|-------|
| | M | Me | min. | max. | SD | M | Me | min. | max. | SD | | |
| MLQ-P | 4.86 | 4.80 | 2.00 | 7.00 | 1.05 | 5.44 | 5.40 | 1.80 | 7.00 | 0.99 | -3.25 | 0.001 |
| MLQ-S | 4.81 | 4.80 | 1.20 | 7.00 | 1.16 | 5.14 | 5.20 | 1.60 | 7.00 | 1.05 | -1.84 | 0.066 |

M – mean; Me – median; SD – standard deviation; Z – Mann-Whitney's U-test value; p – probability value (bold p-value indicates statistical significance); MLQ-P – meaning of life present; MLQ-S – meaning of life future

TABLE 12. Results of the self-esteem scale

| Self-esteem scale | Study group n = 67 | | | | | Control group n = 73 | | | | | Z | p |
|-------------------|-----------------------|-------|-------|-------|------|-------------------------|-------|-------|-------|------|-------|--------|
| | M | Me | min. | max. | SD | M | Me | min. | max. | SD | | |
| Self-esteem | 27.73 | 28.00 | 17.00 | 40.00 | 4.69 | 31.23 | 30.00 | 21.00 | 40.00 | 3.87 | -4.79 | <0.001 |

M – mean; Me – median; SD – standard deviation; Z – Mann-Whitney's U-test value; p – probability value (bold p-value indicates statistical significance)

TABLE 13. Self-esteem of the subjects according to self-esteem scale ranges

| Self-esteem | Study group | | Control group | |
|-------------|--------------------------------|-------|---------------|-------|
| | n | % | n | % |
| Low | 29 | 43.3 | 7 | 9.6 |
| Medium | 27 | 40.3 | 42 | 57.5 |
| High | 11 | 16.4 | 24 | 32.9 |
| Total | 67 | 100.0 | 73 | 100.0 |
| p | $\chi^2(2) = 21.32; p < 0.001$ | | | |

n – count; χ^2 – Pearson's chi-square test value; p – probability value (bold p-value indicates statistical significance)

environment. During the course of the study, 4 of the 8 hypotheses were confirmed.

Our research did not allow to confirm the hypothesis that women residing in a SMH have worse health parameters compared to women residing in a home environment. The results of our research showed the existence of differences only in the case of several parameters of health status. Women living in SMH and those staying in the home environment did not differ in the regularity of the results of the following: urinalysis, reasons for abnormal results of the urinalysis, fasting glucose level, results of the glucose load test, results of blood pressure measurements, incidence of hypertension and pre-eclampsia, results of the venereal disease research laboratory (VDRL) test, results of tests for rubella, incidence of toxoplasmosis, streptococcal carriage, results of cytological tests, or results of prenatal tests. There were no differences in weight gain during pregnancy between women living in SMH and those remaining in the home environment. The women also did not differ in the prevalence of chronic diseases, including hypothyroidism, or in the incidence and severity of pregnancy-related complaints.

Adamczyk surveyed women in labor regarding the performance of diagnostic tests. In the study group, 96.8% of the women performed a morphology, and 95.7% performed

a general urine test. Unfortunately, the author does not distinguish between normal and abnormal results [7].

In national studies, anemia occurs in 38–41.4% of pregnant women, and thrombocytopenia in 6–7% to 10–12% according to various sources [8, 9]. The diagnosis of anemia in the perinatal period should take into account physiological changes in pregnancy and is most often caused by iron deficiency, blood loss, and folic acid deficiency. In Europe, it is estimated that anemia in the second and third trimesters of pregnancy affects 14–52% of pregnant women without supplementation, while it drops to 0–25% in those using supplementation [9]. With simple testing and implementation of supplementation, we can prevent serious complications, i.e., miscarriage, pregnancy death, preterm labor, fetal hypotrophy, premature separation of the placenta, bleeding and hemorrhage, abnormal uterine involution, and puerperal infections [8, 9, 10]. There are no studies on the performance of tests in a group of women in severe socioeconomic circumstances. Women living in a SMH significantly more often suffered from iron deficiency compared to pregnant women remaining in the home environment. This fact can be explained by the etiology of anemia – the period of pregnancy is characterized by a significantly increased need for iron in the diet, caused by the formation and development of the fetus [11]. Women living in SMH often find themselves in a difficult financial situation, which can contribute to significant dietary depletion and thus an increased likelihood of disease [12].

Moshi and Tungaraza conducted a large study, a group of more than 6000 pregnant women in terms of performing blood pressure checks [13]. Blood pressure measurements were taken by 72.17% of pregnant women. The study showed an association of age, education, and place of residence with the implementation of check-ups, with the most frequent lack of check-ups occurring in women living in rural areas [13].

A Japanese study illustrated the association between a woman's low weight before pregnancy and insufficient weight gain during pregnancy with neonatal parameters. There were no significant differences in the average birth weight of newborns

or the percentage of low-birth-weight babies in the groups of women with normal and abnormal pre-pregnancy weight. Nutritional education was shown to be associated with normal weight gain in pregnant women [14].

Worse results of screening and control in pregnancy, in a group of pregnant teenagers (up to 17 years of age) compared to full-term pregnant women were shown in a study by Korenčan et al. [15]. Farbu et al., who studied single pregnant women, found lower intake of fruits and vegetables and a higher intake of sugar-derived energy than fiber in this group [16].

There are few studies that would test the health parameters of women living in SMH, so it would be advisable to focus on this area of research in the future.

Our research confirmed the hypothesis that women residing in a SMH exhibit more negative health behaviors compared to women residing in a home environment. It was observed that pregnant women staying in home environments were characterized by better eating habits, took more care of their bodies, and were more thorough and conscientious about safety and psychosocial health, compared to women living in a SMH. However, the women did not differ in the frequency of physical activity.

The latter result is in line with the 2014 Kaiser et al.'s study on a group of pregnant women, which found that only 17% of the women surveyed reported regular physical activity [17]. Respondents living in SMH were significantly more likely to admit to addictions that continued even during pregnancy, which may be due to their low education – according to a Salmon's study, smoking among pregnant women was increased among women with primary education, compared to women with higher levels of education [18].

The 2013–2017 survey of pregnant women in Poland, compared to previous surveys, found a decrease in harmful behaviors, i.e. drinking alcohol and smoking during pregnancy, an increase in the percentage of women who changed their diet during pregnancy, the surveyed women ate a healthy diet, 95.88% ate breakfast daily and at least 3 meals a day. Women limited their physical activity during pregnancy, but 32.94% of women reported being active 3 times a week, the most common being walking. Women presenting unfavorable health behaviors during pregnancy – drinking alcohol and smoking cigarettes, most often had middle and elementary school education. Most pregnant women did not perform breast self-examination and did not engage in physical activity during pregnancy [19].

Harasim-Piszczatowska and Krajewska-Kułak studied the health behaviors of non-pregnant, pregnant women, and 1-year postpartum women using the PHBS. In that study, pregnant women scored higher on the PHBS than non-pregnant and postpartum women, which would indicate that pregnancy is a time in a woman's life when she is particularly concerned about her health and engages in health-promoting behaviors [20]. Using the same PHBS survey instrument, 200 women aged 18–35 were surveyed in Lublin by Bień et al. Pregnant women scored higher on the subscales of nutrition, body care, and safety behaviors. It was also found that women with higher education and better socioeconomic conditions scored higher on the subscales of nutrition, caring for the body, safety, and psycho-social health [21].

Gacek's survey of midwives on health behavior was conducted. More than half of the respondents, 54.9%, reported consuming milk and dairy products 1–2 times a day. Consumption of vegetables several times a day and fruit 2–3 times a day was reported by about 50% of the respondents. Daily physical activity was declared by only 9% of women and several times a week by 15% of women, mostly walking [22].

The Health Behavior Inventory was used to assess the health behavior of 200 pregnant women from the Subcarpathian region conducted by Pieniżek et al. Married women and pregnant women over 30 years of age, with higher education, showed correct eating habits. This group also had the highest score in terms of health practices and mental attitude [23]. The study by Godala et al. on the health behaviors of pregnant residents of Łódź showed that, similar to our study, the most common activity of pregnant women was walking (86.49%), while 44% of respondents admitted to consuming alcohol during pregnancy, and 1 in 5 respondents smoked cigarettes, only 17.12% of pregnant women were not exposed to passive smoking [24].

A large study of 1088 pregnant women over 20 *hbd. grav.* was conducted in China by Ma et al. The women studied mostly had a poorly varied diet 68.1%, did not take folic acid 17.1%, and their pregnancy weight gain was too low 59.7%. The women were at high risk of passive smoking (40.3%) but alcohol consumption was declared by only 5.1% of the women [25]. In Finland, a large cohort study of 39,306 women giving birth at Helsinki University Hospital was conducted. It showed a high risk of asthma in the child if both parents smoked; the risk only slightly decreased if the mother did not smoke, as she was still exposed to passive smoking [26]. According to a New South Wales study of 63,195 mothers, quitting smoking by a woman in her second pregnancy reduced the risk of preterm birth by 26% compared to women who did not quit smoking [27]. In 2012, a health behavior survey was conducted among patients in maternity wards in Poland. The study included 2833 patients aged 15–46 years. It was found that 39.8% of women smoked cigarettes before pregnancy, sometimes during pregnancy, and continued smoking after delivery, 32.85% of them quit smoking before pregnancy or during pregnancy (17.1%), while 7% of women smoked and continued smoking. According to that study, 22.5% of women were exposed to secondhand smoke at home and 11.95% at work [28]. In a study conducted in Denmark by Backhausen et al. on 258 women, 20% of women with a planned pregnancy consumed alcohol in early pregnancy. Among women not planning a pregnancy, up to 31% consumed alcohol in early pregnancy [29]. In Australia, in the study by Pettigrew et al. study, in which pregnant and non-pregnant women were asked about their intentions to consume alcohol, as many as 33% of pregnant women reported a desire to continue drinking alcohol, despite the fact that the respondents said they should cut back on drinking [30].

Women in SMH are also deprived of the opportunity to receive social support from loved ones – according to the study by Fathnezhad-Kazemi et al. Social support can lead to improvements in a pregnant woman's health by helping her to implement appropriate health behaviors [31]. There are few studies examining negative and positive health behaviors,

especially among women living in SMH, so it would be advisable to focus on this area of research in the future.

Our research confirmed the third hypothesis, according to which women residing in a SMH report later to the doctor and are less likely to receive perinatal care compared to women residing in a home environment. The results obtained are in line with reports by other researchers. According to the results of analyses of Skowrońska-Pućka, young women residing in a SMH most often have only basic education, influencing a tendency to reproduce negative behavioral patterns acquired in the past and low awareness of the need to undertake regular medical check-ups during pregnancy [32]. In addition, these women are often economically disadvantaged, which may be associated with the limited access to specialists and a lack of willingness to seek medical care – the results of a 2012 study by Aftab et al. on 500 pregnant women showed that only 25% of women of low socioeconomic status received regular prenatal care [33].

Piekarska et al. analyzed the medical records of 1539 postpartum women. The largest group, 39.94% of women, had 8–10 visits during pregnancy; 17.1% received no care during pregnancy. Fifty-one percent of respondents reported to the doctor before 12 *hbd. grav.*, including 34% between 7–10 *hbd. grav.* The remaining women made their first appointment between 13–15 *hbd. grav.* or later. The researchers divided the care into 4 grades: very good (more than 10 visits), good (8–10 visits), adequate (4–7 visits), inadequate (1–3 visits), and no care (the woman received care only at the time of delivery). The highest number of women received care described as good (40%) and the lowest number received care described as inadequate (7%). Pregnant adolescents and pregnant women living in rural areas were least likely to receive very good care (3.13% and 9.36%, respectively) and most likely to participate in the no care group (18.75% and 20.97%, respectively). Women in the group with good care gave birth on time (38–42 *hbd. grav.*) were 40.41% of those surveyed, while women in the inadequate care group were the least likely to give birth at term (7.21%) [34].

Rogala et al. analyzed the amount of preventive, diagnostic, and treatment services and the number of visits made by pregnant women to private and public health care gynecological offices. The number of self-pay visits is higher than insurance-covered visits in public healthcare facilities, with an average of 10.53 self-pay visits and 8.28 insurance-covered visits, respectively. The average number of services provided during self-pay visits was also higher than during insurance-covered visits. Self-pay visits were most often chosen by women from large cities, with good financial status, and who were pregnant for the first time [35].

In 2010, Vogel et al. analyzed data from a study conducted by ACT WHO. They found an increased risk of fetal death at 32–36 *hbd. grav.* in women who had fewer antenatal visits. However, the researchers note that caution should be exercised when comparing results across conditions, countries, and patient groups [36].

In 2011, prenatal care for ethnic minority women in the United States was analyzed. Although 63% of black women and 67.4% of Hispanic women were cared for as early as the first trimester of pregnancy, these women still had high rates of

preterm birth, operative delivery, and low birth weight babies. Some researchers, such as Gennaro et al. suggest that poor birth outcomes are related to environmental hazards (crowded urban areas, poor air quality) and stress (related to a minority status) [37]. The link between prenatal care and minority ethnicity is also supported by Slougher-Acey et al. [38].

An interesting study on prenatal care was conducted by Till et al. They analyzed prenatal care among women who received incentives to participate in screening with women who did not receive a financial incentive for screening. These incentives included cash, a gift card, a baby carrier, a baby blanket, or a voucher for a cab. The study was conducted among women living in rural areas of Central America. Women who received incentives were more likely to attend follow-up appointments and have more tests during pregnancy, and were also more likely to return for postpartum care. There was no relationship between increased prenatal visits and complications, including pre-eclampsia, maternal and neonatal mortality, low birth weight babies, or satisfaction with maternity care [39].

Our research confirmed the hypothesis that the perceived sense of life and self-esteem of women staying in a SMH is lower than in women from the home environment. These results are consistent with reports in the literature. Single mothers residing in SMH often find themselves in difficult life situations, related to, including the crisis of homelessness, coming from a family affected by alcoholism or from violent environments. Other main reasons for referring a woman to a SMH include a disability, financial exclusion, and conflicts with the family. Józwiak-Majchrzak's research has shown that these reasons may contribute to a lower sense of quality and meaning of life [40].

Satisfaction with life using SES was studied by Kidacki; the study group consisted of 785 women, the age of the subjects was 18–45 years, the average age was 30.5 years, the women studied had given birth within the last 12 months, they were deliveries with epidural anesthesia deliveries completed by cesarean section or elective cesarean section. In the study by Kidacki, the control group consisted of 120 women who gave birth naturally without local anesthesia. Women who gave birth naturally without anesthesia had lower self-esteem than the group of women who gave birth with local anesthesia [41].

Kucharska studied the emotional bond between mother and child, in healthy pregnancies, pregnancies at risk, and pregnancies complicated by a congenital defect in the child. Among other things, the SES was used to analyze the problem. The study showed no differences in self-esteem between groups of women with healthy, at-risk, and complicated pregnancies with a congenital defect in the child. The average for each group was: 32.82 points for healthy pregnancies, 32.95 points for at-risk pregnancies, and 31.82 points for pregnancies with a congenital defect [42].

A study by Lewicka assessed mothers' self-esteem and life satisfaction based on Rosenberg's SES. The women surveyed were 26–41 years old, and 27.6% of the women identified themselves as single mothers. The mean score for the SES was 24.68 points. A very low level of self-esteem was reported by 31.2% of the respondents, a low level by 49.6%, a moderate level by 18.8%,

and a high level by only 0.4% of the women. Satisfaction with life measured by the satisfaction with life scale (SWLS) showed a low level of satisfaction in the study group [43].

The SES scale was used to assess the self-esteem of 132 single mothers in Kenya. The results showed a low level of self-esteem among the subjects. The study also found a small negative correlation between women's levels of stigma and self-esteem [44].

Hatcher and Hall surveyed single mothers, African American women, using the SES. Most of the women, 78%, had never been married, and 25% had not completed high school. The average total SES score was 17.2. More than 70% of the respondents scored above 20 points, indicating positive self-esteem [45].

The study by Elfhag and Rasmussen, examined the eating behavior and self-esteem of single and married mothers and their daughters. The study used the Dutch eating behavior questionnaire and the Harter self-esteem scale. Single mothers had lower fruit and vegetable intake and lower self-esteem than married and cohabiting women. The daughters of single women also showed lower self-esteem compared to daughters of married and cohabiting women [46].

Research on a similar topic and on a similar group of women was undertaken by Klimek and Barabas. The researchers presented the results of a study on perceived meaning of life, conducted in a group of single mothers benefiting from the assistance of the SOS Lublin Land Foundation in Lublin (their own research was conducted, among others, in the SMH conducted by this foundation) and the Center for Women's Rights in Warsaw. The women were between 19–54 years old and had at least 1 child. Most of the respondents had vocational education, but the women were economically inactive and living on welfare benefits. The study used the Crumbaugh and Maholick's sense of life (PIL) scale. The women obtained an average total score of 90.43 points, where the accepted standard for the Polish population is 100. The majority of the surveyed women (66.7%) obtained less than 94 points, i.e. they had a low level of sense of life. The average level (95–110 points) was obtained by 23.3% of women. A high level (111–140 points) was reached by only 10% of the women surveyed. The authors analyzed the responses in each category of the PIL scale, with the highest number of points obtained in the category of life goals and the lowest in the category of evaluation of one's own life [47].

The study of the meaning of life using the PIL scale in a group of single mothers was also conducted by Więclawska. Two groups were studied: underage single mothers in the SMH – group I, and underage mothers living with their parents – group II. The women living with their parents had a more positive attitude towards their own lives than the group living in the SMH. The study groups did not differ in the respondents' life goals [48].

According to a 2013 article by Okrutna, a woman living in a SMH is characterized by a tendency to lower her sense of responsibility for her future life, which can lead to the abandonment of attempts to improve her existence, and thus – a lower sense of meaning in life [49]. In addition, single motherhood and the lack of close people willing to provide support and relieve the burden of continuing to care for offspring, as well as difficult access to the labor market, contribute to a significant decline in

self-esteem [50]. A study by Kim and Kim indicates that single mothers are also characterized by a lower sense of quality of life, higher levels of stress, and increased depressive symptoms [51].

CONCLUSIONS

The following conclusions were drawn from the study:

1. Women in SMH were examined during pregnancy in accordance with the recommendations of the standard of perinatal care. Anemia was more frequently diagnosed as the cause of abnormal morphology results. However, there were no significant differences in most of the examined parameters assessing women's health status, perceived discomfort during pregnancy and postpartum, and self-assessment of health status.
2. Women in SMH had lower health behavior scores than women in home environment. This difference was particularly pronounced in areas such as nutrition, body care, safety behaviors, and psychosocial health. In addition, they were less likely to seek dental care and more likely to engage in negative health behaviors, including alcohol and drug use, both during and before pregnancy.
3. Similar to the control group, women in the study altered their health behaviors during pregnancy, focusing primarily on adopting healthier eating habits and increasing the frequency of medical visits.
4. Women in the SMH sought perinatal care later than women in the home environment. However, the number of medical visits during pregnancy was similar between the 2 groups.
5. Women in SMH exhibited had a lower sense of purpose in life, especially regarding the present, and lower self-esteem. A lower sense of meaning in life regarding the future was also observed, although at the statistical threshold.
6. The identified low sense of meaning in life and low self-esteem among women in SMH underscore the importance of support and assistance. This support can be effectively provided by the team of specialists employed by the SMH.
7. The poorer rates of health behavior rates underscore the need for education in this area. It would be beneficial to integrate educational initiatives into the standard set of basic services offered by homes for mothers with minor children and pregnant women.

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