

RELATIONSHIP BETWEEN UTERINE FIBROIDS AND DIFFICULTY IN GETTING PREGNANT AMONG MARRIED WOMEN

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Abstract

Background: Uterine fibroids are one of the most common benign gynecological tumors affecting women of reproductive age.

Objective: To investigate the relationship between uterine fibroids and difficulty in achieving pregnancy among married women, with an emphasis on fibroid type, awareness levels, and infertility duration.

Methods: This cross-sectional observational study was conducted at Niazi Medical Complex Sargodha from 10th Feb 2024 to 20th August 2024. A total of 110 married women aged between 20 and 45 years were enrolled in the study. Ultrasound evaluation either transabdominal or transvaginal depending on clinical appropriateness was performed by a certified radiologist to detect and characterize uterine fibroids.

Results: Uterine fibroids were identified in 43 women (39.1%). Intramural fibroids were the most common type (44.2%), followed by subserosal (32.6%) and submucosal (23.3%). A significant association was found between submucosal/intramural fibroids and prolonged infertility (>3 years) ($p = 0.012$). Women with submucosal fibroids were 3.6 times more likely to experience infertility (OR = 3.61; 95% CI: 1.40–9.32). Only 28% of fibroid-positive women were aware of their diagnosis, and just 14% had sought treatment. Hormonal profiles were largely comparable between women with and without fibroids.

Conclusion: It is concluded that uterine fibroids, particularly submucosal and intramural types, are significantly associated with difficulty in conceiving among married women. The findings highlight the importance of early screening, improved patient awareness, and targeted management strategies to optimize fertility outcomes.

INTRODUCTION

Infertility is a pervasive and emotionally distressing condition that affects an estimated 10–15% of couples globally, with female-related factors contributing to nearly 50% of these cases [1]. Research shows that uterine fibroids represent a significant factor among these pathologies because

they are benign smooth muscle tumors that depend on estrogen for their growth [2]. Fibroids become a medical diagnosis for multiple women who fall within their reproductive age range [3]. Medical research indicates these tumors affect 20–40% of the women aged 20 to 50. Uterine fibroids affect 80% of

African and African-American women by their 50th birthday. The complicated ways in which uterine fibroids affect reproduction create an essential research area for understanding the childbearing challenges of women who are married and trying to conceive [4].

The clinical signs and reproductive effects of fibroids depend on the variation of sizes and numbers combined with the position of these tumors in the uterus. Fibroid placement within the uterus affects how they influence fertility rates [5]. The presence of fibroids that infiltrate the uterine cavity known as submucosal fibroids leads to decreased implantation possibilities and elevates pregnancy loss potential. Intramural fibroids that exist embedded inside the uterine wall show the potential to damage fertility by both affecting the muscular action of the uterus and reducing the bloodstream to the endometrium [6]. The outer location of subserosal fibroids ensures a minimal impact on fertility but their existence leads to pregnancy complications. Scientists have advanced various explanations to describe how fibroids cause fertility problems [7]. The fibroids create four distinct fertility issues: altered endometrial shape, blocked sperm and ovum pathways and failure of embryo attachment, and continuous uterine tissue inflammation. Fibroids have also been associated with hormonal imbalances, such as altered progesterone receptor expression, which may further compromise fertility [8]. Moreover, surgical removal of fibroids (myomectomy) can carry risks, such as uterine scarring or adhesions, which in turn may affect future fertility [9]. As such, the decision to treat fibroids in women desiring pregnancy must be highly individualized. From a sociocultural perspective, infertility carries a considerable stigma in many societies, especially among married women, where the expectation to conceive soon after marriage remains deeply embedded [10]. In such contexts, infertility can result in psychological distress, marital conflict, social exclusion, and reduced quality of life. Consequently, conditions like uterine fibroids if left undiagnosed or untreated can have far-reaching consequences beyond the clinical domain, impacting a woman's emotional and relational well-being [11]. This is particularly true for women in low- and middle-income countries where access to reproductive health services, including

imaging and minimally invasive surgery, may be limited. Understanding the link between uterine fibroids and difficulty in achieving pregnancy among married women is critical for several reasons [12].

Objective

To investigate the relationship between uterine fibroids and difficulty in achieving pregnancy among married women, with an emphasis on fibroid type, awareness levels, and infertility duration.

Methodology

This cross-sectional observational study was conducted at Niazi Medical Complex Sargodha from 10th Feb 2024 to 20th August 2024. A total of 110 married women aged between 20 and 45 years were enrolled in the study.

Inclusion Criteria

- Married women aged 20–45 years.
- Actively trying to conceive for at least 12 months.
- Willingness to participate and provide informed consent.
- Underwent transvaginal or pelvic ultrasound for fibroid assessment.

Exclusion Criteria

- Women with known causes of infertility unrelated to fibroids (e.g., tubal blockage, male factor infertility, PCOS).
- Women previously treated for fibroids via surgery or medication.
- Women currently undergoing assisted reproductive techniques (ART).
- Patients with known uterine anomalies unrelated to fibroids.

Data Collection

Each participant underwent a structured clinical interview to obtain comprehensive information about demographic characteristics, reproductive history, menstrual cycle patterns, and previous gynecological diagnoses or treatments. Ultrasound evaluation either transabdominal or transvaginal depending on clinical appropriateness was performed by a certified radiologist to detect and characterize uterine fibroids. Fibroids were classified

based on their anatomical location as submucosal, intramural, or subserosal; their number as single or multiple; and their size, measured in centimeters. To rule out other contributing factors to infertility, a basic fertility workup was also carried out, including hormonal profiles such as FSH, LH, TSH, and prolactin. Cases where the male partner had confirmed infertility were excluded from analysis.

Data Analysis

Data were analyzed using SPSS v25. Descriptive statistics were used to summarize participant characteristics and fibroid patterns. The relationship between the presence, type, and size of fibroids and infertility was examined using inferential statistics,

including Chi-square tests for categorical variables. Statistical significance was set at a p-value of less than 0.05.

Results

A total of 110 patients were added in the study. The study population had a mean age of 32.8 ± 4.9 years and an average duration of infertility of 2.7 ± 1.6 years. The mean body mass index was 24.6 ± 3.2 kg/m². Most participants, 61.8%, were diagnosed with primary infertility, while 38.2% had secondary infertility. In terms of socio-demographic characteristics, 67.3% of the women were employed and 73.6% lived in urban areas.

Table 1. Demographic and Baseline Characteristics of Study Participants

Characteristic	Value
Mean Age (years)	32.8 ± 4.9
Mean Duration of Infertility (years)	2.7 ± 1.6
Body Mass Index (BMI) - Mean (kg/m ²)	24.6 ± 3.2
Primary Infertility (%)	68 (61.8%)
Secondary Infertility (%)	42 (38.2%)
Employed Women (%)	74 (67.3%)
Urban Residence (%)	81 (73.6%)

Most participants in the study were between 30 and 39 years of age (63.6%), followed by those aged 20–29 years (21.8%) and 40–45 years (14.6%). The majority had been experiencing infertility for 1 to 3 years (52.7%), while 30.9% had infertility for more

than 3 years and 16.4% for less than one year. Regarding the type of fibroids, intramural fibroids were the most common, found in 44.2% of participants, followed by subserosal fibroids in 32.6% and submucosal fibroids in 23.3%.

Table 2. Age Distribution and duration of infertility of Participants

Age Group (years)	Number of Participants	Percentage (%)
20–29	24	21.8
30–39	70	63.6
40–45	16	14.6
Duration of infertility (years)		
<1	18	16.4
1–3	58	52.7
>3	34	30.9
Type of Fibroid		
Intramural	19	44.2
Subserosal	14	32.6
Submucosal	10	23.3

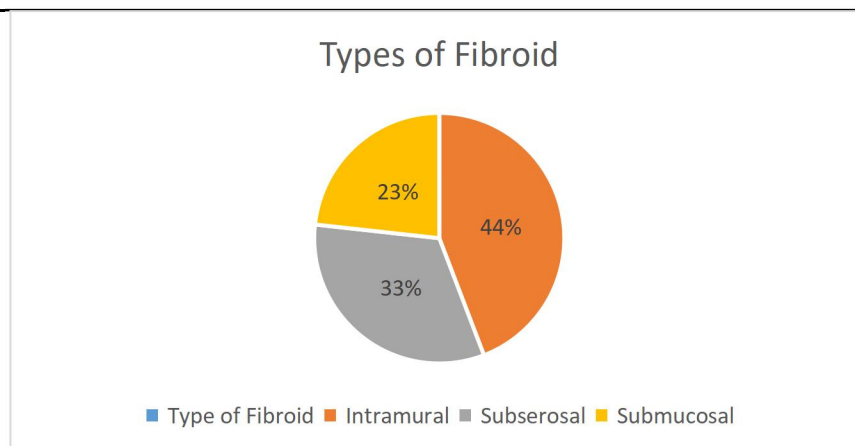


Figure 1: Types of Fibroid among study population

Among women with infertility lasting less than one year, 2 had submucosal or intramural fibroids and 1 had a subserosal fibroid. In the 1–3-year duration group, 11 had submucosal or intramural fibroids, while 3 had subserosal types. For those with infertility exceeding three years, 26 had submucosal

or intramural fibroids, and only 2 had subserosal fibroids, indicating a higher prevalence of deeper fibroid types with prolonged infertility. Regarding fibroid size, the majority measured between 2 and 4 cm (51.2%), followed by those larger than 4 cm (30.2%) and smaller than 2 cm (18.6%).

Table 3. Association Between Fibroid Type and Duration of Infertility

Infertility Duration	Submucosal/Intramural Fibroids	Subserosal Fibroids
<1 year	2	1
1–3 years	11	3
>3 years	26	2
Fibroid Size (cm)		
<2 cm	8	18.6
2–4 cm	22	51.2
>4 cm	13	30.2

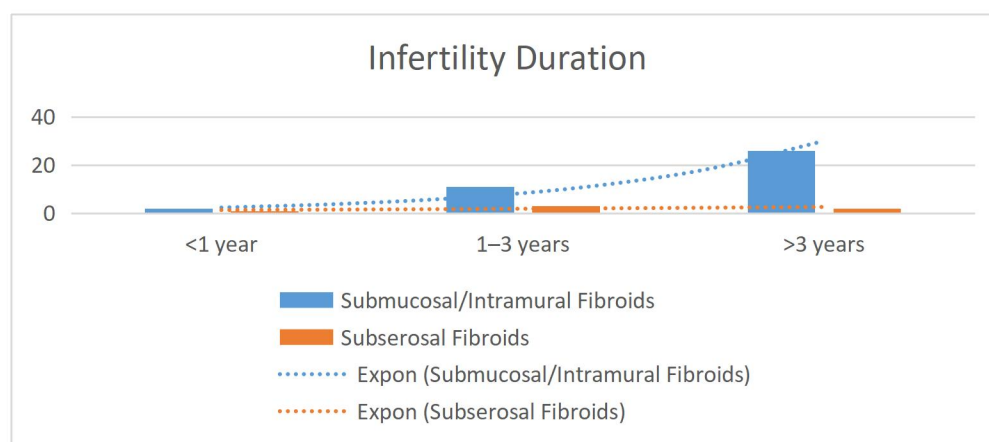


Figure 2: Infertility duration

Discussion

This study aimed to investigate the relationship between uterine fibroids and infertility among married women of reproductive age. The findings

underscore a significant association between the presence, type, and size of uterine fibroids and difficulties in conceiving, with submucosal and intramural fibroids demonstrating the most

substantial impact. The prevalence of uterine fibroids in our cohort was 39.1%, consistent with prior literature which places the incidence between 20% and 40% among reproductive-aged women. Notably, a higher percentage of women with submucosal and intramural fibroids reported prolonged infertility, particularly those who had been trying to conceive for over three years [12]. This supports the hypothesis that fibroids can interfere with endometrial receptivity, distort the uterine cavity, and impair implantation. In contrast, subserosal fibroids, which grow outward from the uterus, showed minimal correlation with fertility outcomes, aligning with earlier studies that suggest these fibroids have limited or no impact on conception [13].

The mean size of fibroids among affected women was 3.2 cm, and more than 30% had fibroids larger than 4 cm. Although larger fibroids have been associated with more severe clinical symptoms, our findings suggest that even smaller fibroids, depending on their location, can adversely affect fertility [14]. Furthermore, women with multiple fibroids were more likely to experience infertility than those with a single lesion, suggesting a cumulative impact on uterine architecture and function. One of the study's most concerning findings is the low level of awareness among women diagnosed with fibroids. Only 28% were aware of their condition before the study, and just 14% had sought treatment [15].

Additionally, the baseline characteristics of our participants, such as mean age (32.8 years), urban residence (73.6%), and employment status (67.3%), suggest that even among relatively health-literate and resource-accessible groups, uterine fibroids remain a hidden barrier to fertility [16]. The majority of cases were classified as primary infertility (61.8%), further emphasizing the role of uterine pathology as a primary contributor. From a clinical perspective, our results underscore the importance of routine uterine imaging for women presenting with infertility, particularly if they are over 30 or have been attempting to conceive for over one year [17]. Transvaginal ultrasound remains an effective, non-invasive first-line diagnostic tool. Management of fibroids, especially submucosal and large intramural types, should be prioritized in fertility treatment

protocols, considering surgical myomectomy or non-invasive alternatives where appropriate [18]. However, this study has some limitations. Being cross-sectional, it captures associations but not causality. Additionally, the exclusion of women with other infertility causes could limit the generalizability of the findings to broader populations with mixed etiologies. Hormonal imbalances were mildly present in both groups but did not significantly differ, suggesting that fibroids were likely a more dominant infertility factor in the study cohort.

Conclusion

It is concluded that uterine fibroids, particularly submucosal and intramural types, are significantly associated with difficulty in achieving pregnancy among married women of reproductive age. The presence of these fibroids appears to interfere with normal uterine function, possibly through mechanisms such as cavity distortion, impaired implantation, or altered endometrial receptivity. Overall, uterine fibroids represent a common yet often underrecognized cause of infertility, and early detection followed by appropriate medical or surgical intervention should be emphasized in fertility assessment protocols. Public health education and better access to diagnostic tools remain essential to bridge the gap between clinical knowledge and patient action.

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