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FREQUENCY OF UTERINE FIBROIDS AND ITS RISK FACTORS IN REPRODUCTIVE AGE DETECTED THROUGH ULTRASOUND

Alishba Zeeshan
Muhammad Teaching Hospital
alishbahzeeshan01@gmail.com
Maneeza Ahmed
Abasyn University Peshawar
maneeza.ahmed@abasyn.edu.pk
Naila Salam
Frontier Institute of Modern Sciences
zainsalam1814@gmail.com
Misbah Naeem
Peshawar city Institute of Modern Sciences
biya_naeem@icloud.com
Walija Rashid
walijarashid7@gmail.com
Kind Edward's Medical University/Mayo Hospital Lahore
Mahnoor Munir
Abasyn University Peshawar
manobangash011@ gmail.com

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Corresponding E-mails & Authors*:

Maneeza Ahmed
maneeza.ahmed@abasyn.edu.pk,
Naila Salam
zainsalam1814@gmail.com

Abstract

Background: Fibroids are common benign tumors affecting 20–40% of women during reproductive years, usually classified by location as sub-serosal, intramural, sub-mucosal, or cervical. Heavy menstrual bleeding is the most frequent symptom, often leading to anemia and discomfort, though many cases are diagnosed incidentally on ultrasound. This study aims to assess the frequency of uterine fibroids and their risk factors among women of reproductive age at Maqsood Medical Complex, Peshawar. Documented risk factors include younger age at menarche, premenopausal status, and irregular menstrual cycles, consistent with the hormonal hypothesis. Objectives is to determine the frequency and risk factors leading to fibroid in women of reproductive age outpatient department of Maqsood medical complex Peshawar.

methodology:

study setting: Cross sectional study.

Setting: Department of Obstetrics and Gynaecology, Maqsood medical complex Peshawar.

Duration of study: Six months from March, 2025 to august, 2025.

Results: A cross-sectional study of 173 women at Maqsood Medical Complex, Peshawar, found fibroids most prevalent among women aged 37–48 years and married women. Irregular cycles, physical inactivity, family history, and hypertension were identified as risk factors. Ultrasound showed uterine enlargement (52.6%) and heterogeneous echotexture (41.6%), with infertility observed in 19.7% of patients.

Conclusion: Leiomyomas, another name for uterine fibroids, are among the most prevalent benign tumors that women experience during their reproductive years. In clinical groups, the disease prevalence ranges from 20 to 77 percent. The symptoms are severe monthly blood loss, pelvic pain, anemia, infertility, and pregnancy-related problems. Ultrasonography has proven useful for tracking and early fibroids detection.

INTRODUCTION

Uterus is a part of reproductive system. It is located in between the rectum posteriorly and the urinary bladder anteriorly, the uterus is found in the female pelvis(Uterus Diagram of Human Uterus and Surrounding Structures, n.d.). The uterus has been honored and venerated throughout history. As an organ of regeneration, it has been held in high regard. The uterus (Metra) is also known as hystera and delphys, according to the Roman physician Soranus of Ephesus (AD 98–138).

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Some people refer to it as metra because it is the mother of all the embryos that are born of it, or because it makes mothers of those who possess it. Others say that it has a metre of time when it comes to menstruation and childbirth, and it is called delphys because it can produce brothers and sisters(Taylor & Gomel, 2008).

Normal adult uterus measures roughly 7.2–9.0 cm long, 4.5–6.0 cm wide, and 2.05–3.5 deep. Non pregnant uterine size varies with age, number of pregnancies(Parmar et al., n.d.-a). The volume of a non-pregnant uterus depends on the age of the patient, pregnancy number and endocrinological status of the organism. The length of an adult uterus is 7.219.0, width is 4.56.0 and depth is 2.053.5 cm (Parmar et al., n.d.-b). It has three parts which is composed of the fundus (The upper rounded section of the uterus located above the fallopian tubes. It expands during pregnancy and is utilized for measuring fetal growth), body (The main central region of the uterus is the site for implantation and fetal development), and cervix (The lower section of the uterus that links to the vagina facilitates the flow of menstrual blood, serves as a passage for sperm, and expands during childbirth) and has a pear-like form(Anatomy of Uterus-Parts and Definitions, n.d.). There are two superolateral angles, which are referred to as the cornu where the fallopian uterine tubes open into the uterus, and the fundus is found above. Fallopian tube One of two long slender tubes that lead to the ovaries and uterus. Eggs are transported to the uterus by the fallopian tubes. The female reproductive system has one ovary and one fallopian tube per side of the uterus. at puberty the length of the extra-uterine part of the tube is about 11cm and the intra-mural part is 1.5 -2 cm long. (AlAsiri et al., 2012).

Three perpendicular planes were used to measure the fibroids, and each fibroid's location was noted(Ghosh et al., 2018). The greatest diameter was used to measure leiomyoma size, and previous research characterized fibroids as large if their ultrasound diameter was greater than o equal to 5 cm. Regardless of their size, fibroids were considered as numerous when there were two or more of them(Ciavattini et al., 2015a). It has been believed that the size of the fibroid and its position matters. There are fibroids that are tiny as a minuscule and others have been seen as large as a watermelon. Fibroids are tumors not limited in size which are either single or less commonly, aggregate.(Sefah et al., 2023). The waist (octet system) of the uterus as the uterine cavity transitions into the cervix, the thin space between the body and the cervix becomes malleable and soft during labor. The vagina forms the supra-vaginal and vaginal portions of the cervix because it encircles the upper portion of the cervix(74 ANAESTHESIA AND INTENSIVE CARE MEDICINE 6:3, 2005). Fibroids or leiomyoma are other names for uterine myoma, which is the most prevalent benign tumor of the female reproductive system(Alieva Sholpan et al., 2023a). Fibroid can be divided by their position into the sub-serousal (They grow externally on the uterus, under the serosa), intramural (their abnormal growth is inside the wall of the uterus muscle), the sub-mucousal (grow under the inner lining of the uterus, projecting into the uterine cavity), the cervical (they are situated in the neck of the uterus) and the intra-ligamentary ones (positioned on the connection tissue on the side of the uterus).(Luoto et al., 2000)

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Fibroids are usually solid, are irregularly elongated or distorted, and well-organized. Similar to the myometrium, they are usually echogenic, but infrequently can be hypoechoic. They can give the maneuverable impression that the uterus is increased, or they can lead to an abnormal uterine formation. There may be a little posterior acoustic shadowing in fibroids, which are not cemented.(Latif et al., 2022).

The initial term uterine fibroid lesions were uterine stone. They were referred to as scleromas in the 2nd century AD. The 1860s have introduced the word fibroid. Uterine fibroid is the most common pelvic tumour among reproductive years affective more than 70 percent of women throughout the world and mostly women of color(Alieva Sholpan et al., 2023b).

In 1793, Matthew Baille was the first to describe these monoclonal tumors that came from the uterine myometrium. According to longitudinal research, the lifetime risk of fibroid disease for women over 45 is more than 60%. However, as most fibroids are still asymptomatic and misdiagnosed, the precise prevalence of fibroids is not well understood(Brüggmann et al., 2018). These are uterine smooth muscle cell monoclonal tumors that are composed of a lot of extracellular matrixes (A vast network of proteins and other molecules that encase, support, and provide structure to cells and tissues in the body(Extracellular Matrix, n.d.), which includes collagen, fibronectin, and proteoglycan(Khan et al., 2014a).

The extracellular matrix (ECM) provides stability and includes proteoglycans, collagen and fibronectin which have a significant influence on cellular activity. The tensile strength is provided by the fibrils and fibers to which collagen takes the form of. Fibronectin connects the cells and to other chemical compounds, and to other representatives of extracellular matrix like collagen. The proteoglycans and glycosaminoglycans (GAGs) are used to provide the structure with its hydration, compressive resistance and the structure of the extracellular matrix (ECM)(Scott, 1988).

Although many fibroids are asymptomatic, depending on their size and location, 30–40% of instances exhibit a range of symptoms(Donnez & Dolmans, 2016). They could induce a variety of severe and persistent symptoms. Heavy menstrual bleeding is the most typical initial symptom, and it can cause anemia, exhaustion, and uncomfortable periods(Subramaniyam et al., 2020a).

Before puberty, fibroids are uncommon; during the reproductive years, they become more common; and after menopause, they shrink in size(Syl De La Cruz & Buchanan, 2017a). Intramural fibroids in the muscular wall of the uterus lead to common medical conditions of menstrual abnormalities and feelings of pelvic pressure. Sub-serosal fibroids located in the outer part of the uterus may create both discomfort and change in the structure of the nearby organs. They are often non-symptomatic. In as much as submucosal fibroid occurs in the lowest percentage (1%), it leads to excess blood during menstruation, reproductive complications like infertility and miscarriages as it ascends above the uterine skin. Pedunculated fibroids could be of two types where it is attached to the uterus by a stalk, a sub-serosal and sub-mucosal, depending on their original site of location.(Habiba et al., 2025).

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The indicators of leiomyoma depend on its size and the place of location. Anemia can be caused by the irregular heavy bleedings caused by the submucosal myomas leading to the bleeding into the uterine cavity. Submucosal or intramural leiomyomas may have a fertility effect due to position which may interfere with the sperm on its way down the tube, fail proper implant or may cause repeat miscarriages(Rashid et al., 2016a).

Reduced menstrual regularity (36 percent), excessive menstrual bleeding (60 percent), excessive menstrual bleeding duration (37 percent), and post menstrual bleeding (33 percent) were the most common uterine fibroids symptoms according to a research report that involved over 21,000 women aged between 15 years and 49 years. Other complaints included dyspareunia, urgency and number of urinations and pain in the pelvis and the low back. The studies indicate that uterine fibroid has deleterious influence on HRQL or health-related quality of life. Women with uterine fibroid experience a high level of psychological burden, where concern, fear, anxiety, helplessness and depression are some of the psychological burdens involved. Also, fibroids may lead to bad image of a person which in turn may be disastrous in relationship. This is of particular concern to women less than 40(Soliman et al., 2017).

It is quite difficult to inform asymptomatic women with fibroids about their chances of developing clinical manifestations later because of ignorance about the natural course of this disease. Nevertheless, it is widely believed that the fibroids respond to the circulating estrogens that make them to grow or maintain their size. It is not well understood whether other variables besides ovarian steroid hormones have any impact on the growth of fibroids. The volume of each fibroid and its location were obtained and recorded on a computerized based database. The volume of each fibroid was calculated by use of the formula of a sphere(Mavrelos et al., 2010). Although they are not reported in girls at an early stage, fibroids are sometimes apparent in teenagers. Most of the women with fibroids are aged between 30s and 40s. Approximately 25 percent of all women of fertility age are carrying myomas, which become clinically detectable, and about 80 percent of all uteri, which are removed, show myomas during the pathological diagnosis process(Ibrar et al., 2010).

A study by Wegienka et al. (2004) found that women with myomas were much more likely than others to report gushing type bleeding and the use of pads/tampons in large amounts. Also, womb fibroids could be associated with more non-cyclic dyspareunia and pelvic pain. Little systematic research has been done on the symptoms of uterine fibroids although there is a write up in the literature that bleedings and pelvic discomfort are the main symptoms linked to the conditions(Zimmermann et al., 2012a). In 25% of women of reproductive age they become clinically evident and approximately 25% of women with leiomyoma develop severe symptoms that require treatment(Zehra et al., 2022).

According to many studies, the prevalence of fibroids rises really fast in the post-thirty age. This may be as a result of the hormonal changes which age plays; or an aggravation of the symptoms due to preexisting fibroids. In addition, the rates of gynaecologic surgery in postmenopausal age women who have already completed the period of giving birth may be particularly higher because of the

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presence of fibroids at the perimenopausal stage of age (Sarkodie et al., 2016). The risk factors that were enumerated of the uterine fibroids are older age, premenopausal world, non-parity, family history of uterine fibroids, hypertension, food additives as well as an extensive intake of soybean milk. Conversely, risk factors that offer uterine fibroid protection are combined oral contraception or injectable medroxyprogesterone acetate in depot form, smoking in low mass women and parity. Other key risk factors are obesity, low vitamin D levels, too much vitamin E in the body (Yang et al., 2022). Numerous biological, demographic, reproductive, and lifestyle factors, such as age, obesity, overweight, caffeine intake, early menarche age, vitamin D deficiency, black race, family history, hypertension, diabetes, soy bean milk use, polycystic ovarian syndrome, and red meat consumption, have been linked to the development of uterine fibroids(Subramaniyam et al., 2020b).

The risk increases as age advances where it becomes extremely low among females younger than 30 years to one to 98 among those aged between 75 and 79 years. Due to the rareness of incidence, no one knows the rate of occurrence of uterine sarcomas among suspected fibroids. Usually, fibroids that are growing fast are alarming and there should be a referral to a specialist, and this may occur after menopause or despite the use of gonadotrophin-releasing hormone agonist treatment in which the fibroids are not supposed to be left growing in size(Lumsden et al., 2015).

There is retrospective, cross sectional and case control studies with anecdotal reports that indicate that the risk of uterine leiomyoma is associated with hypertension. When high blood pressure occurs, there is an increase in the risk of occurrence or growth of uterine fibroids due to the fact that it damages the smooth muscles and/or releases cytokines in a similar manner to atherosclerosis. Other studies have focused on hypertension, as opposed to the degree of blood pressure. No correlation to fibroids has yet been identified as being associated with blood pressure.(Boynton-Jarrett et al., 2005).

Uterine fibroids are more prevalent in women of reproductive age and women of African descent are twice more vulnerable to developing the condition compared to other people groups. There were many studies that have been conducted around the risk factors of the occurrence of uterine fibroids, and the major focus of the studies was on the role of body mass index (BMI). The majority of them converted that the occurrence of fibroid disease was more elevated in some way in relation to the escalation of BMI(Haan et al., 2018).

The transabdominal and transvaginal routes of ultrasonography have been used the most because they are accessible and reasonably priced (Khan et al., 2014b). A curve linear probe is used to do a Transabdominal ultrasonography. Transabdominal probes/transducers work with frequencies that are 2-6 MHz During transvaginal sonography, obtained through the insertion of a specialized ultrasound probe into the vagina, high-quality images of the female reproductive system are displayed. The frequency range of 5-10 MHz is used (Niazi et al., 2015). The ultrasound scanning is a technique that enables the creation and observation of both active and stationary. The ultrasound uses nonionizing radiation, competent soft tissue and pelvic organ spatial resolution with the uterus and non-observable adverse bioeffects(Ukaonu et al., 2022).

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Clinical ultrasonography has been the gold standard for uterine imaging since the late 1970s. With the introduction of TVS in the 1980s, which offered a more precise and personal ultrasound (US) image of the uterus, this was strengthened(Rashid et al., 2016b). Uterine fibroids are the cause of 29 percent, on average, of hospitalizations of women between 15 and 54 due to gynaecological illnesses. Moreover, uterine fibroid is the indication of 40-60 percent of all the hysterectomies and 18-44 percent in young women hysterectomies(Li et al., 2023). Women with fibroids are also prone to postpartum hemorrhage at this period due to the increased probability of having uterus atony. It is highly unlikely that uterine fibroids will progress to cancer; it is estimated that the incidence of leiomyosarcoma in women undergoing fibroid surgery is about one per 400 (0.25%) of the women with fibroids. Larger fibroids do not necessarily imply that they need to be removed since fibroids grow and shrink naturally (Syl De La Cruz & Buchanan, 2017b).

In the case of tumors, the time at which the illness was actually initiated is impossible to know as tumors could take years to be clinically recognized(Baird et al., 2015a). The growth of leiomyoma is dependent on estrogen production. Uterine fibroids are more common in overweight women because of increased estrogen from adipose aromatase activity (Subramaniyam et al., 2020b).

Estrogen has many and large effects on the uterus. Specifically in response to it, the endometrium, or the uterus lining thickens and grows in preparation of potential pregnancy. It also alters the blood circulation and contractions of the uterus that are essential during menstruation and potential implantation. Also, estrogen may influence the maturation of the uterus disorders like fibroids and influence the menstrual cycle. High levels of estrogen can cause the buildup of the lining of the uterus.

The development of the cancerous cells is likely to take place. Not only polyps but also uterine fibroids. Fibroids, or polyps are non-cancerous tumors, which increase in the uterus and could be associated with excess estrogen(Alsudairi et al., 2021). According to ultrasonography, it is estimated that the overall occurrence in women aged 50 years and older in Blacks is far higher (>80) than in White ladies (70) (Marsh et al., 2018). The transabdominally applied ultrasound Fibroids usually appear as well defined, hard swellings, which are whorled. Although sometimes they may be hypoechoic, these are scanning echogenic just as myometrium. They alter the normal figure of the uterus or render it obese. Posterior acoustic shadowing may also be observed even in the noncalcified fibroids, but will be more evident in the calcified fibroids(Wilde & Scott-Barrett, 2009). The study revealed that 86.7 per cent of the fibroids located in the corpus of the uterus, 9.6 per cent was in the submucosa, 57.8 per cent was intramural and only 8.4 per cent was found in the cervix. The most predominant (38.6%) type of nodules presentation pattern was hypoechoic both in the aspect of the sonographic pattern and in terms of type and position of fibroid.(Ukaonu et al., 2022). It has less information with transabdominal sonography and it proves very difficult to carry out on obese patients. Transvaginal sonography has higher sensitivity in the diagnosis of small leiomyomas; they can also detect leiomyomas when uterus is retroverted or retroflexed (Rashid et al., 2016c). The numerous sonographic appearances and imaging of uterine fibroids in some instances can prove to

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be difficult to end up with the correct diagnosis (Baltarowich et al., n.d.). Fibroids are typically depicted as a solid and clear or round concentric mass involving myometrial or attached to a myometrium during ultrasonography (US) study. They also demonstrate fan-shaped shadowing and/or uneven shadowing of acoustic shadowing of the lesion ring. They can have areas of calcification and cystic shaped changes, and hypoechoic, hyper echoic or completely echogenic lesions with different echogenicity in particular cases.(Edzie, Dzefi-Tettey, Brakohiapa, Abdulai, et al., 2023).

The high intensity focused ultrasound has been noninvasively used on patients infected with uterine fibroids in the past decade by use of ultrasound. Such a procedure has been found effective and safe in previous studies as non-invasive management of uterine fibroid. Most recently, Verpalen et al. provided ultrasound-guided HIFU patients with a long-term follow-up study of 123 women. The median measure of non-perfused volume (NPV) was 37.4 percent in the patients treated with the restrictive treatment strategy and 57.4 percent in the patient's patient treated with the unrestrictive treatment procedure with objectives of total ablation(Liu et al., 2021). In five studies ultrasound was used to screen fibroid. These investigations also detect common fibroids that are not clinically established yet, but the time at which these common fibroids actually become disease, remains unknown also. To determine new development of fibroids and monitor tumour growth, no previous research compared ultrasonography-based prospective observation of all patients without fibroid(Baird et al., 2015b).

During the reproductive age, uterine fibroids have been known to increase with age, and it has been mostly reported that a black woman has a higher possibility of having a larger and more disturbing fibroid as compared to a white woman(Marsh et al., 2013) Our population-based study found out that the prevalence of uterine fibroids among Nigerian women who participated in a prospective cohort study under transvaginal ultrasonography was 45.1 percent(Adebamowo et al., 2023).

Among premenopausal women, who were randomly selected and free of a previous history of myomas, and were studied in population-based research, in the United States, 51 percent were found to have uterine fibroids with the help of ultrasonography. The incidence of leiomyomas among the black women is thrice that of the white and black women also develop this tumour at a younger age(Brüggmann et al., 2018). The recurrence of uterine fibroids in pregnancy would be higher as the trend of late childbirth increases however the frequency among pregnant women would range between 0.1 to 10.7 percent. Even though uterine fibroids are increasingly becoming common, there is a lot of uncertainty about what their relationship is to unfavourable pregnancy outcomes(Ciavattini et al., 2015b).

First, a literature search was made using the Cochrane Library and the PubMed/MEDLINE database. On the search terms of Bmyoma, Bleiomyoma, Bfibroid, Bhysterectomy, Incidental Malignancy, Bmyomectomy, Bneoplasm, Bleiomyosarcoma, Bincidence, Bpathology, Histopathology, Bmorcellation, and Bcomplication, a search was performed on the basis of all publications after the year 1960 and the search was done with all languages(Pritts et al., 2015).

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Uterine fibroid are common in women of reproductive age and are influenced by multiple risk factors. This study uses ultrasound to determine their frequency and associated risks in our population to aid early detection and management.

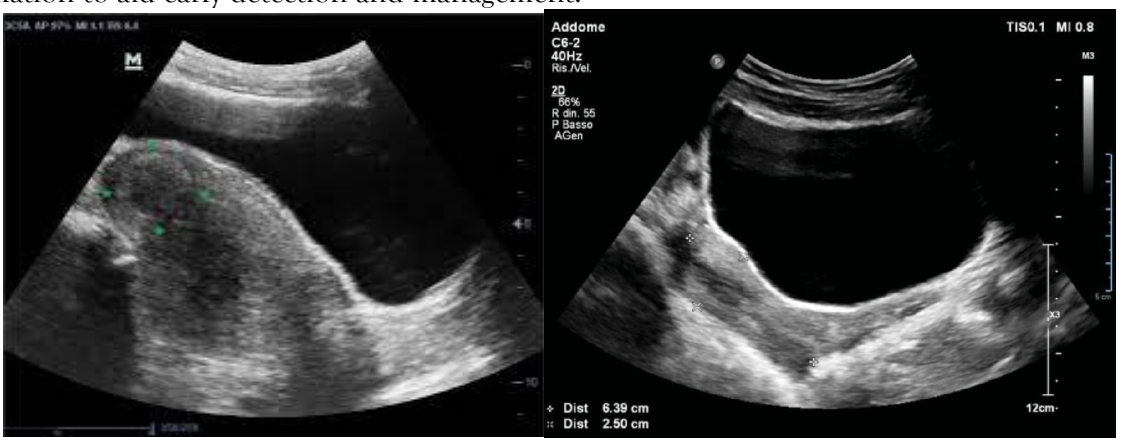

Image 1.1 shows normal ultrasonic view of Uterus. No abnormal mass or shadow is seen image 1.2 shows ultrasonic view of uterine uterine fibroid.

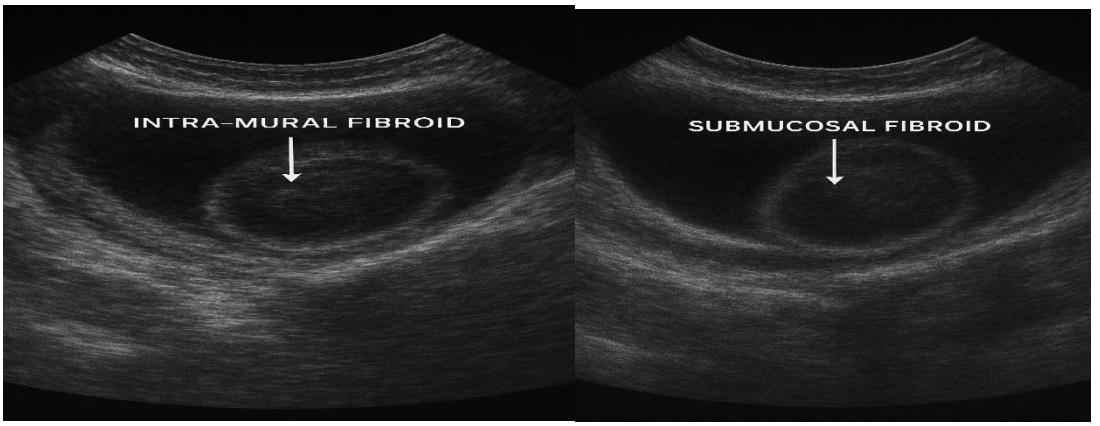

Image 1.3 shows ultrasonic view intramural submucosal fibroid.

image 1.4 shows ultrasonic view Fibroid.

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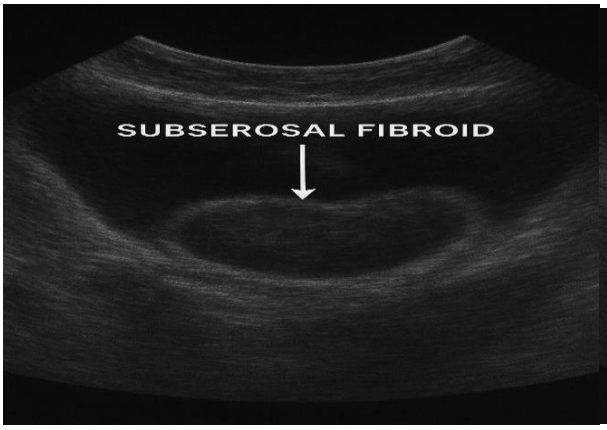

Image 1.5 shows ultrasonic view of subserosal Fibroid.

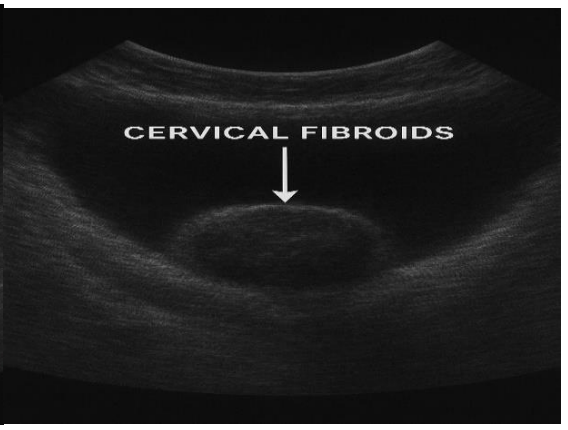

image 1.6 shows ultrasonic view of cervical Fibroid.

II. LITERATURE REVIEW

Uterine fibroids also known as uterine leiomyomas or myomas in simple terms are smooth muscle monoclonal tumors of the uterus. It is estimated that in the US alone, $34, 4 billion are paid on uterine fibroids annually whereas the GBD report reported 9,643,336 new cases of UF diagnosed worldwide in 2019(Dai et al., 2024) .

The study shows that uterine fibroids have varying rates in general population, with reproductive-aged women having a rate of 5.4 to 77 percent. The highest incidence of the uterine fibroids seems to be age 50 or so with the possibility of acquiring a uterine fibroid ten times more likely occurring in a woman at that age than in a woman aged in her 30s. But after the age of 60 this increased risk disappears(Mension et al., 2024).

A recent study gives the estimation of frequency of uterine fibroids to be between 40-60 percent in women under 35 and about 70-80 percent in women over 50 years. The estimation of the incidence is given as 20-77 per cent. It was also discovered, through previous research, that the prevalence of this illness among black women in the US is higher (59%)(Lou et al., 2023).

It has been found that the prevalence rates of uterine fibroids across the entire continent (Europe, Asia, Africa, North, South, America) is between 4.5-68.6% and it is between 217-3745 per 100000 among women in America (Stewart et al.).(Edzie, Dzefi-Tettey, Brakohiapa, Quarshie, et al., 2023).

The prevalence of fibroid in pregnancy is 2% though it is between 0.1 and 12.5 percent. Its prevalence is not the same among the ethnic groups. Its 18 percent to African American women and 8 percent to Caucasian woman (Iram Aslam et al., 2023).

The prevalence of uterine fibroids is very high in different parts of the globe and impacts on healthcare costs, to a great extent. It has been estimated that the cost of uterine fibroids may go as high as 34.4 billion dollars in the United States, 348 million in germany, 120 million in France and

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86 million in England every year. These are more expensive as compared to the two greatest primary diseases that women experience namely, ovarian and breast cancer(Lou et al., 2023).

Uterine fibroids (UF) are a severe health condition with a significant economic impact whose prevalence is highest in Africans who reside around the world (Latif et al., 2022).

Because uterine fibroids and high blood pressure refer to the increased probability of developing these conditions and getting affected by them, they present significant health disparities. Finally, hypertension has been related in many occasions to the fibroid of the uterus.(Stewart & Borah, 2021).

The prevalence of fibroids may be as high as 68.6 percent among countries and studies depending on design of the study, study method of diagnosis and racial/ethnic category of the population being studied. Based on the findings of the new research conducted in the United States of America, at the age of fifty, fibroids can be observed by ultrasound using the age by the differences between the majority of white women and more than 80 percent of the rest of the women belonging to the Afro-American characters.(Giuliani et al., 2020).

African American women in the United States are expected to develop symptoms of a condition which requires medical attention as opposed to white women (Baird et al., 2015a). Hospitalization rates of uterine leiomyomas increase with age as they are highest in the age group 45 to 49 years (62.7/10000). At the age of 50 54 the rate of hospitalization attains the level of 31.8 per 10 000 of women(Pavone et al., 2018).

The prevalence level of the study stands at 37.65%; it stands at 24% in Bombay, 78% in Peshawar, Pakistan and 29. 3% in Nigeria. 5, 6 and 8 The racial and geographic sociodemographic patterns of the uterine fibroids are very diverse thus not similar. In Nigeria, the rates lay at 29.3 percent, metropolitan Bombay 24 percent, Peshawar 78 percent and in the rural areas 37.65 percent. Morbidity due to uterine fibroids diminishes the quality of life of 40 per cent of women even though uterine fibroids are benign(Munusamy et al., 2017).

It has been shown that up to 80 percent of women develop fibroids by age 50, which implies that more women are likely to develop it depending on their age. The top cause of a hysterectomy is fibroids that cause 39 percent of all hysterectomies in united state per annum(Syl De La Cruz & Buchanan, 2017c).

Uterine fibroids are smooth muscle cells, extracellular matrix (ECM54), fibroblasts, and vascular smooth-musculaceells. Uterine fibroids are among the major causes of gynaecological hospitalizations in the US and also cause the most cases of hysterectomy(Vercellini & Frattaruolo, 2017).

Even though prevalence of uterine fibroids in pregnancy ranges between 0.1 and 10.7 percent, fibroids in pregnant women are likely to increase in future due to the increasing tendency of postponed childbearing (Ciavattini et al., 2015a).

The Nurses' Health Study involving nearly 95,000 premenopausal women found the incidence of new fibroid diagnoses annually to be 12.8 per 1,000 women-years and the age-specific incidence in

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Black women was the highest in all the populations and occurred earlier than the rates in other population did(Marsh et al., 2013)

A US study of randomly selected women aged 35 to 49 years that screened them by use of sonography, medical records, and self-report found that uterine fibroid had an incidence of 60% among African Americans by 35 years old and over 80% by 50 years old and 40% among Caucasians by 35 years old and nearly 70% by the age of 50(Zimmermann et al., 2012b).

Studies done in United States (US) on randomly selected women group showed that the lifetime occurrence of Caucasian women exceeded 70 percent by the age of 50 years and 40 percent at age 35 years. Another study in the US also revealed that one of the common symptoms of uterine fibroid, heavy menstrual bleeding was associated with a cost of around 1692 dollars annually incurred by each woman due to loss of work and excess use of health care services due to it(Downes et al., 2010).

It is estimated that approximately 235 million women 6.6 percent of the world female population may be affected by fibroids and 20 to 25 percent of women have fibroids according to a World Health Organization report that came out in 2010(Adawe et al., n.d.).

In short, the majority of fibroids are most likely to be asymptomatic, but the figures that are often quoted are likely to be underestimated. Prevalence rates range between 20-77% in clinical populations with fibroids; nevertheless, fibroids are underrepresented by the majority of imaging modality because of its limited resolution less than 1 cm, even though small myomas might not be clinically significant(Divakar, 2008).

During estimates, the fibroids in the uterus are the most common benign tumors in women. Crum (1999) estimates that 77 percent of American women may have fibroids although 20 percent to 25 percent are those of the reproductive age whose occurrence is clinical(A & A, 2008) .

After the menopause, there is a decrease in the occurrence of clinically significant myomas after it peaks in the perimenopausal years. The impact that fibroids have on reproductive capabilities is disputed especially in connection with the existence of miscarriage or subfertility or not(Gupta et al., 2008).

African-American women have higher incidence of fibroid disease in the randomly selected samples and have a new clinic diagnosis rate that is 3.2 times higher. They also disproportionately experience fibroids and hysterectomies on account of uterine leiomyomata are practically twice as prevalent in them (3.8 vs. 1.6 per 1,000 woman-years)(Boynton-Jarrett et al., 2005).

In one study, the frequency of ultrasound identification of fibroids ranged between 4 and 11 to 18 percent across age groups of 20 to 30 to 30 to 40 years old women, respectively(*Fibroid-Frequency-and-Factors-2ahrscw4ml*, n.d.).

A research work carried out in Multan showed out of 93 women with menorrhagia fibroid, 51 (54.83%) of them were nulliparous. The aim of this study is to tell us about the bite of fibroid and the influences current on it.(*Mohsin,+Prof-2491 (2)*, n.d.).

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METHODOLGY

a. Study Design:

The study is cross sectional design which involves the convenient sampling technique that is the sub type of non-probability sampling technique. In cross sectional study design data is taken from the patients in a single interaction with them.

b. Study Settings:

Outpatient department of Obstetrics and Gynaecology Maqsood medical complex (MMC) hospital Peshawar.

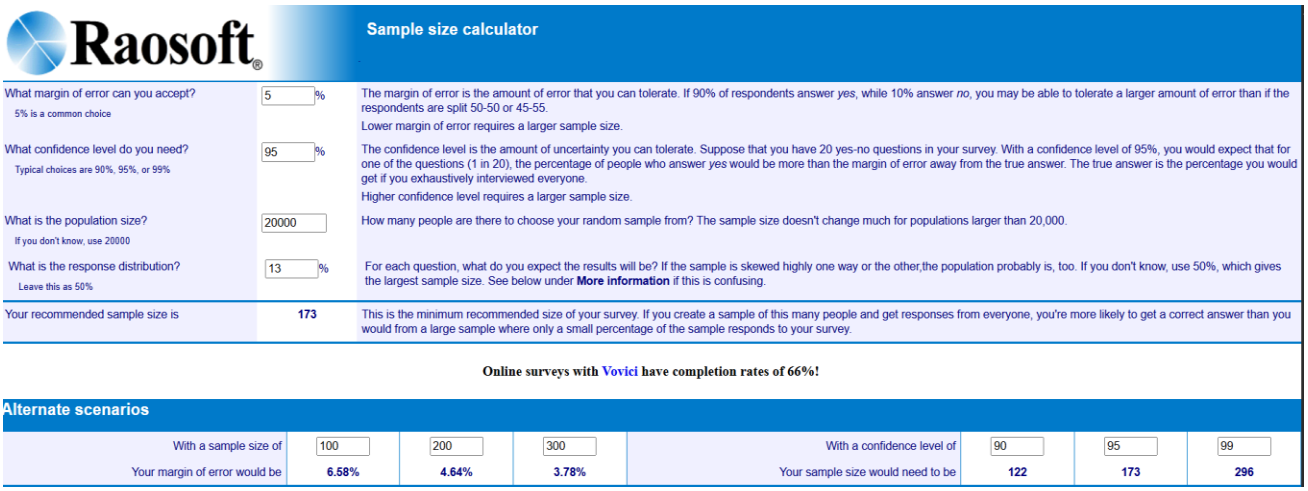
c. Study Duration:

The study is conducted in radiology of department of Peshawar hospital of patients with uterine fibroids with a total 6 months' duration march 2025 to Aug. 2025.

d. Sample Size:

We calculated our sample size using the Raosoft calculator with a 95% confidence level, 5% margin of error, population size of 20,000, and an expected prevalence of 13% based on previous studies. The calculator applies the finite population correction and gave a required sample of about 173 participants.

Population proportion: 13%(Mohsin,+Prof-2491 (2), n.d.)



Raosoft

Sample size calculator

What margin of error can you accept? 5% is a common choice	5 %	The margin of error is the amount of error that you can tolerate. If 90% of respondents answer *yes*, while 10% answer *no*, you may be able to tolerate a larger amount of error than if the respondents are split 50-50 or 45-55. Lower margin of error requires a larger sample size.
What confidence level do you need? Typical choices are 90%, 95%, or 99%	95 %	The confidence level is the amount of uncertainty you can tolerate. Suppose that you have 20 yes-no questions in your survey. With a confidence level of 95%, you would expect that for one of the questions (1 in 20), the percentage of people who answer *yes* would be more than the margin of error away from the true answer. The true answer is the percentage you would get if you exhaustively interviewed everyone. Higher confidence level requires a larger sample size.
What is the population size? If you don't know, use 20000	20000	How many people are there to choose your random sample from? The sample size doesn't change much for populations larger than 20,000.
What is the response distribution? Leave this as 50%	13 %	For each question, what do you expect the results will be? If the sample is skewed highly one way or the other,the population probably is, too. If you don't know, use 50%, which gives the largest sample size. See below under **More information** if this is confusing.
Your recommended sample size is	173	This is the minimum recommended size of your survey. If you create a sample of this many people and get responses from everyone, you're more likely to get a correct answer than you would from a large sample where only a small percentage of the sample responds to your survey.

Online surveys with Vovici have completion rates of 66%!

Alternate scenarios

With a sample size of	100	200	300	With a confidence level of	90	95	99
Your margin of error would be	6.58%	4.64%	3.78%	Your sample size would need to be	122	173	296

e. Sampling Technique:

The technique taken is convenience sampling that is the sub type of non-probability sampling.

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6. SAMPLE SELECTION:

6a. Inclusion criteria:

- Female patients that come for pelvic scan in radiology department of MMC hospital are included in this study.
- patients are divided into three groups on basis of age, with interval of 12 that is (12-24 years), (25-36 years), (37-48years).
- All females either married or unmarried are included
- All reproductive age women are included.
- Both symptomatic and asymptomatic women are included

6b. Exclusion Criteria:

- Age less than 12 and above than 48.
- Females with history of hysterectomy.
- Pregnant females.

7. DATA COLLECTION PROCEDURE:

Data was collected through a standard and validated questionnaire which has include three portions. 1st portion of questionnaire is containing written informed consent. The consent form was filled by literate patients and we explain the consent to those who are not educated. We find this section a bit challenging because majority of the people were not educated.

2nd portion of questionnaire is containing demographic profile of the patient, that is name, age, marital status etc.

3rdportion of questionnaire is contain all the sonographic findings that is uterus size, uterus echotexture, measurement of fibroid, location of fibroid, number of fibroids etc. this part of questionnaire is of great importance because our study mainly depends on these variables also ultrasonography is a non-invasive modality and also an initial modality which will help us in diagnosis of uterine fibroids.

All the information was recorded in the designated questionnaire.

Patients of age group lie between 12 to 48years and the groups will be created with interval of twelve, that is 12-24years, 25-37 years, 38-48 years.

9. DATA ANALYSIS PROCEDURE:

We analyzed the data in SPSS version 20. Frequencies and percentages were used for demographics and clinical variables, cross-tabulations explored associations between fibroids and risk factors, and the Chi-square test determined significance, with $p < 0.05$ considered statistically significant.

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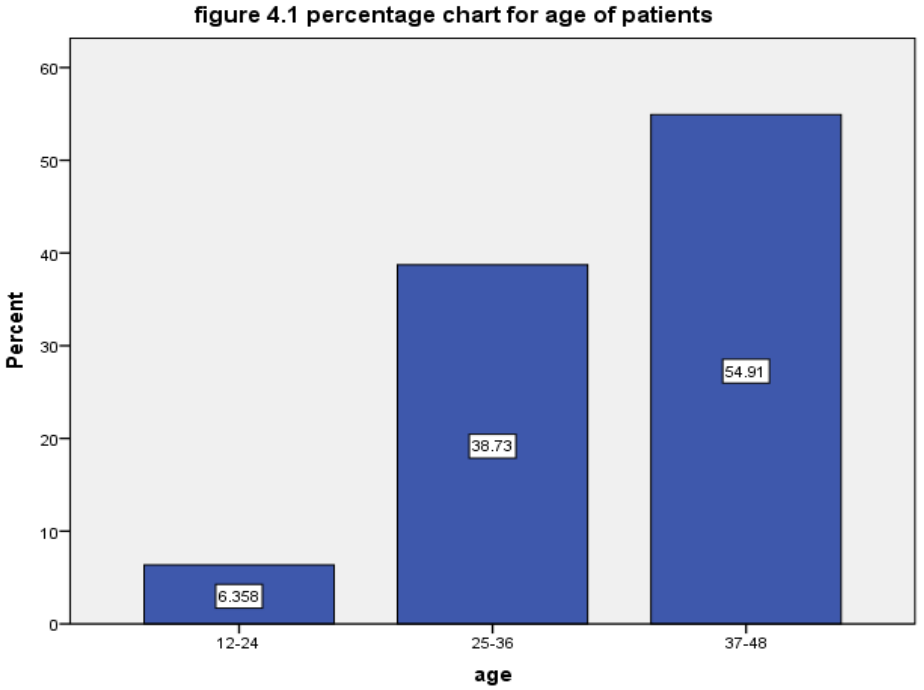
VI. RESULT

AGE

According to the research, the data reveals a significant trend in the age distribution of patients with uterine fibroids. The majority of patients, approximately 54.91%, fall within the 37-48 age range, with a frequency of 95 patients. This suggests that uterine fibroids are more prevalent in women during their late reproductive years. The second most prevalent age group is 25-36 years, accounting for 38.73% of patients (67 individuals). In contrast, the 12-24 age group has the lowest representation, with only 11 patients (6.4%).

Table 4.1 age of the patients

		Frequency	Percent
Valid	12-24	11	6.4
	25-36	67	38.73
	37-48	95	54.91
	Total	173	100.0



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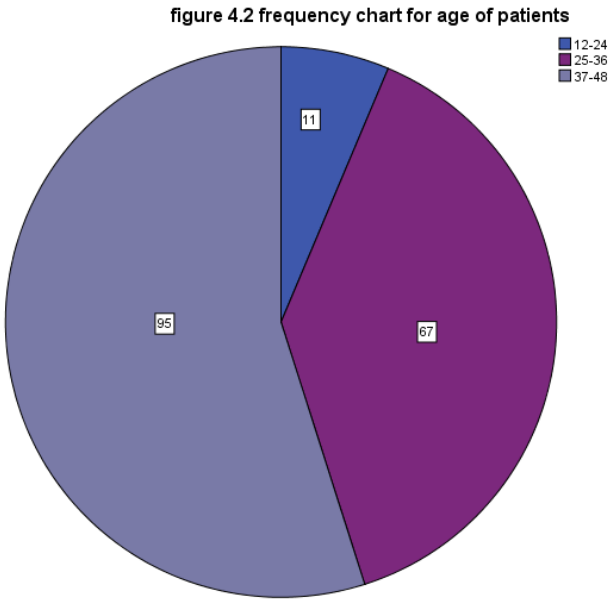

MARITAL STATUS

We have divided 173 patients into two groups—"unmarried" and "married"—are shown in the table 4.3 with their marital status. 38 patients (21.97%) are unmarried. 135 (78.3%) of the patients are married. The fact that the majority of patients (78.3%) are married suggests that a sizable section of the sample population is married. A comparatively lesser fraction of the sample population is not married, as indicated by the lower percentage of patients (21.97%) who are single.

Table 4.3 marital status of patients

		Frequency	Percent
Valid	unmarried	38	21.97
	married	135	78.03
	Total	173	100.0

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figure 4.3 percentage chat for marital status of patients

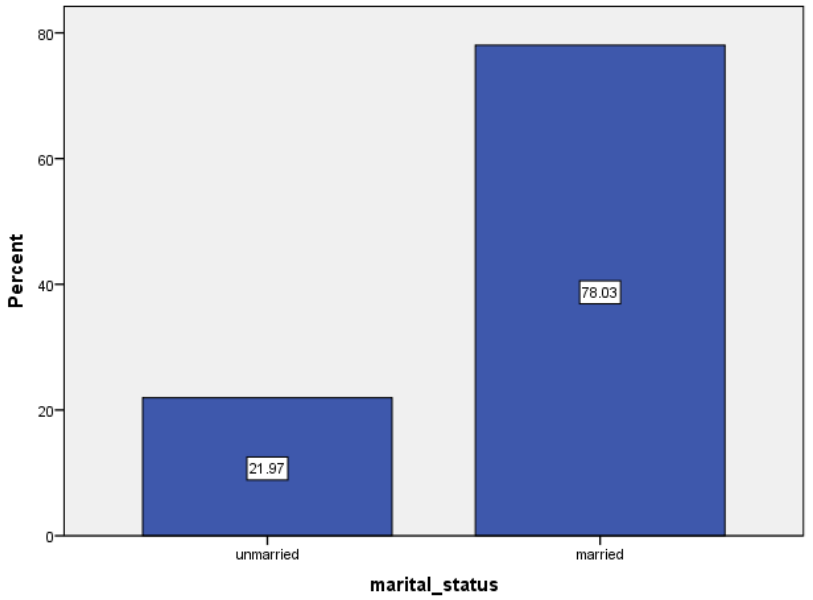
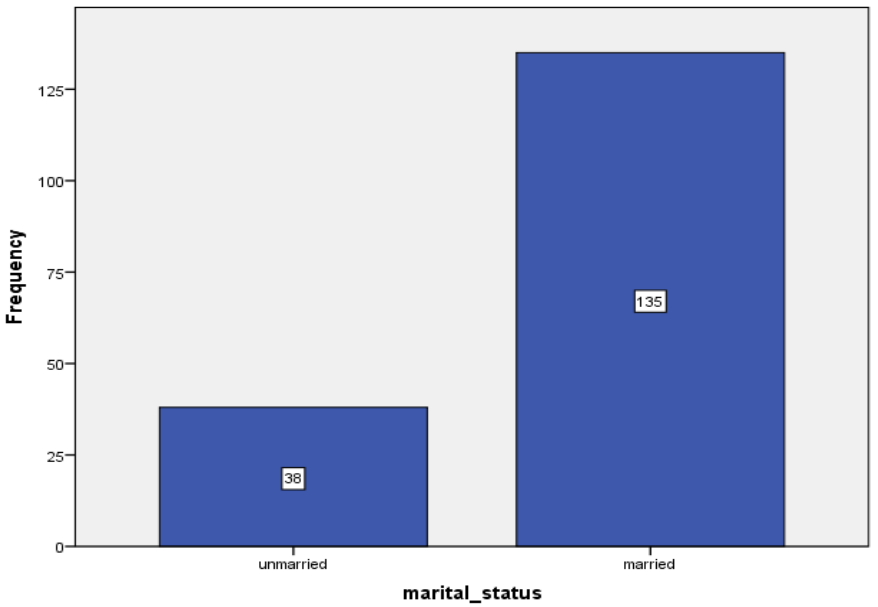


figure 4.4 frequency chart for marital status of patients



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age * marital status

Crosstab

Count

		Marital status		Total
		unmarried	married	
age	12-24	10	1	11
	25-36	28	39	67
	37-48	0	95	95
Total		38	135	173

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	72.609[a]	2	.000
Likelihood Ratio	84.389	2	.000
N of Valid Cases	173		

Number of valid cases are 173 given the p-value of Pearson chi-square and likelihood ratio is (.000) are less than 0.005, we reject the null hypothesis of no association. This indicates a statistically significant association between age and marital status.

MENSTRUAL CYCLE

According to the table, out of the 173 patients, 49.1% (85) have regular menstrual periods and 50.9% (88) have irregular ones. In this patient population, irregular cycles appear to be slightly more common, according to this distribution.

Table 4.5 menstrual cycle of the patients

		Frequency	Percent
Valid	regular	85	49.1
	irregular	88	50.9
	Total	173	100.0

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figure 4.5 percentage chart for menstrual cycle of patients

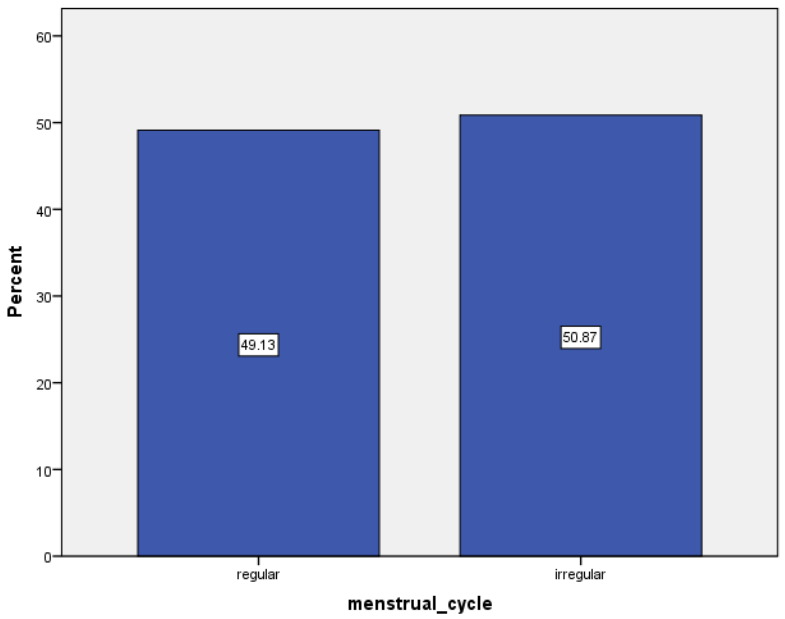
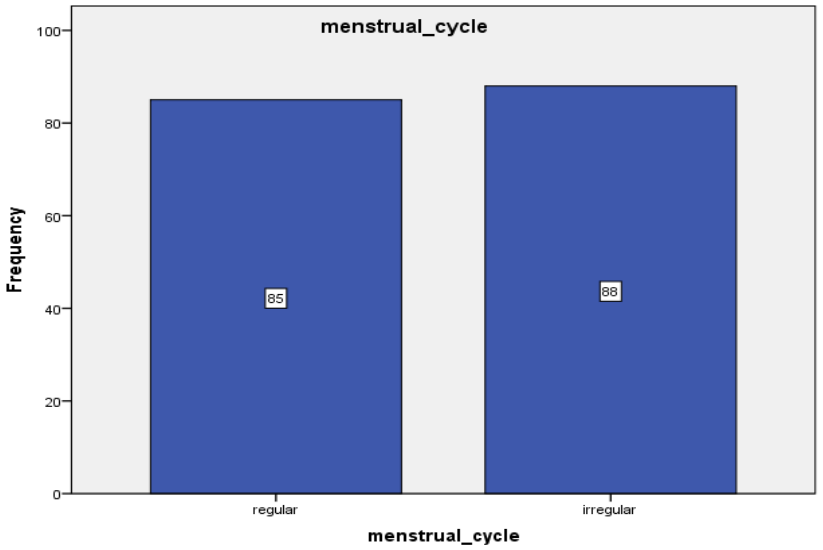


figure 4.6 frequency chart for mentrual cycle of patients



The frequency graph suggests that among the surveyed 173 population, 85 individual experienced regular menstrual cycles, while 88 individuals had irregular cycles.

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age * menstrual cycle
Crosstab

Count

		Menstrual cycle		Total
		regular	irregular	
Age	12-24	8	3	11
	25-36	38	29	67
	37-48	39	56	95
Total		85	88	173

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.474[a]	2	.039
Likelihood Ratio	6.577	2	.037
N of Valid Cases	173		

Both the Pearson chi-square and likelihood ratio test show p-value (.039 and .037, respectively) less than the typical significant level of 0.05. this indicates a statistical association between age and menstrual cycle.

PHYSICAL ACTIVITY

In the table, 173 patients' physical activity levels are shown, divided into two groups: those who exercise ("yes") and those who don't ("no"). Most patients (97, or 56.1%) say they are physically active. Of the patients, 76 (43.9%) do not exercise, which is a considerable percentage.

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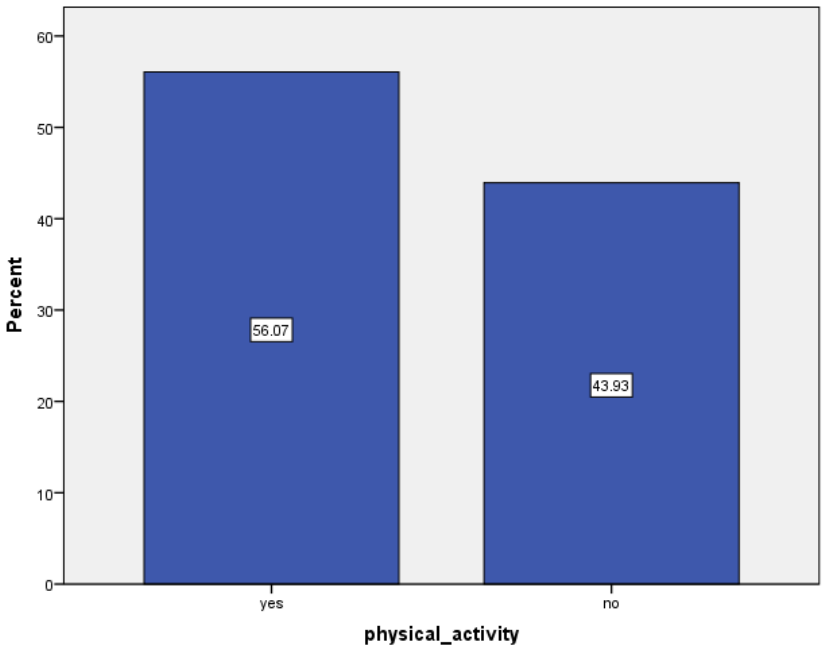
Table 4.7 physical activity of patients

		Frequency	Percent
Valid	yes	97	56.1
	no	76	43.9
	Total	173	100.0

figure 4.7 percentage chart for physical activity of the patients



This bar chart represented the distribution of physical activity among a 173 population, with 56.07% engaging in physical activity and 43.93% not doing so.

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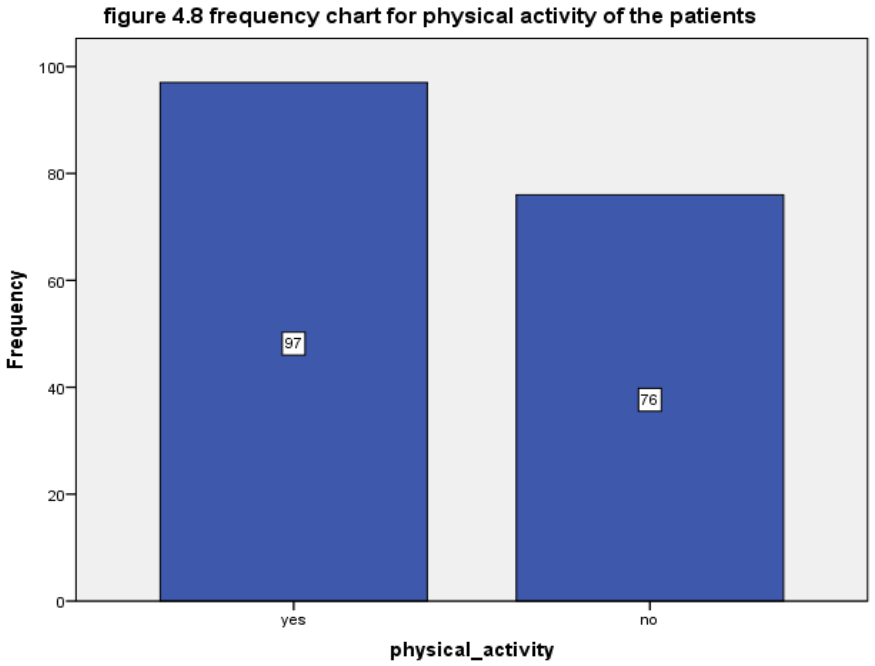

age * physical activity

Crosstab

Count

		Physical activity		Total
		yes	no	
Age	12-24	10	1	11
	25-36	34	33	67
	37-48	53	42	95
Total		97	76	173

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.194[a]	2	.045
Likelihood Ratio	7.283	2	.026
N of Valid Cases	173		

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Both tests indicate a statistically significant association between age and physical activity (p-values .045 and .025 are less than 0.05). this means we can reject the null hypothesis of no association, suggesting there is a relationship between the categorical variables being tested.

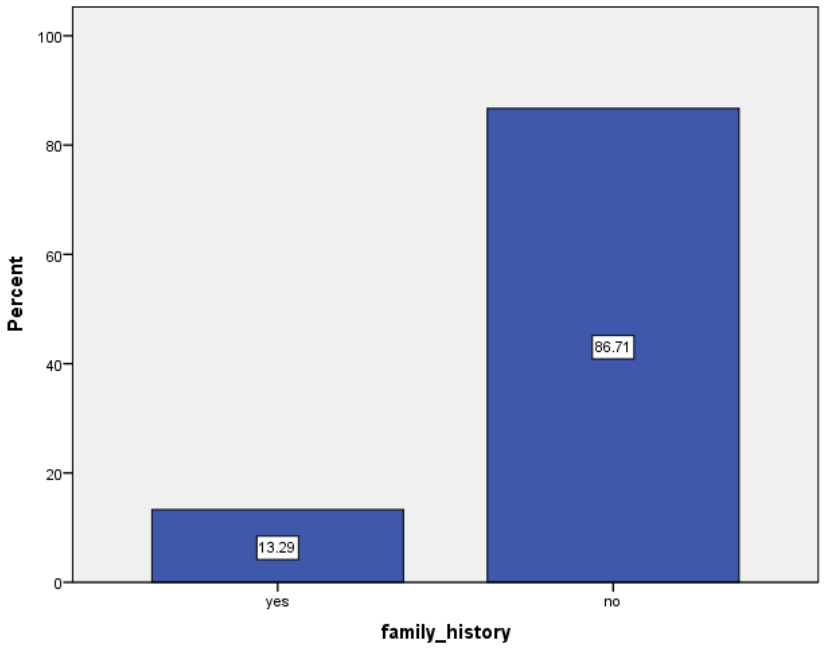
FAMILY HISTORY

Out of 173 patients, 13.3% (23) have a relevant family history, while 86.7% (150) do not, according to the table. This distribution suggests that the majority of the patients in this sample do not have a family history.

Table 4.9 family history of the patients

		Frequency	Percent
Valid	yes	23	13.3
	no	150	86.7
	Total	173	100.0

figure 4.9 percentage chart of family history of the patients



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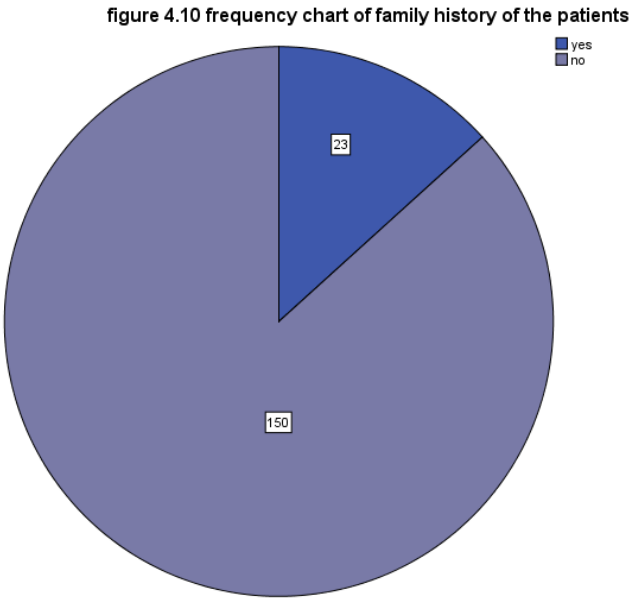

The chart effectively illustrates the distribution of individuals with and without a family history, with the majority 86.71% (150) having no family history and a smaller portion 13.29% (23) having a family history.

age * family history

Crosstab

Count

		Family history		Total
		yes	no	
Age	12-24	4	7	11
	25-36	10	57	67
	37-48	9	86	95
Total		23	150	173

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Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.436[a]	2	.040
Likelihood Ratio	5.187	2	.075
N of Valid Cases	173		

The Pearson Chi- square test indicates a statistically significant association between age and family history (.040 < 0.05). The likelihood ratio test does not indicate a significant association at the 0.05 level (.075>0.05).

HYPERTENSION

Using two groups—those with hypertension ("yes") and those without ("no")—the table shows the prevalence of hypertension among 173 patients. Most patients (136, or 78.6%) do not have high blood pressure. 37 individuals, or 21.4% of the total, have hypertension.

Table 4.11 hypertension in patients

		Frequency	Percent
Valid	yes	37	21.4
	No	136	78.6
	Total	173	100.0

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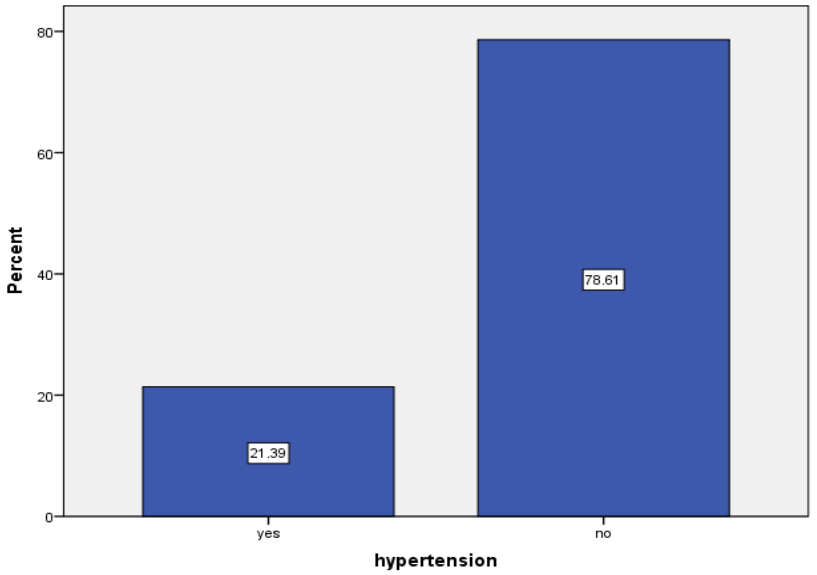
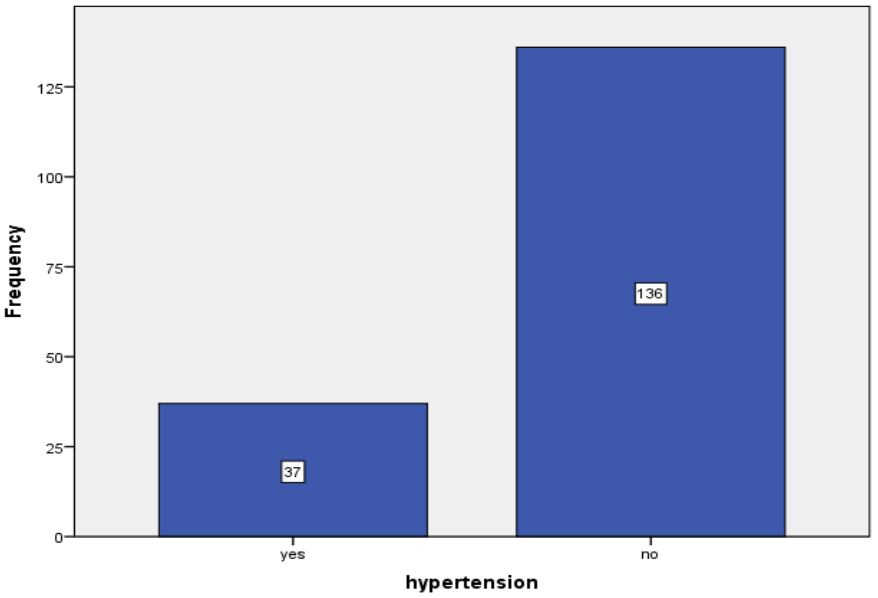
figure 4.11 percentage chart of hypertension in patients



The chart shows the distribution of hypertension among patients, with a clear majority 78.61% not having hypertension and a smaller proportion 21.39% having hypertension.

figure 4.12 frequency chart of hypertension in patients



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age * hypertension
Crosstab

Count

		hypertension		Total
		yes	no	
Age	12-24	0	11	11
	25-36	3	64	67
	37-48	34	61	95
Total		37	136	173

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	26.107[a]	2	.000
Likelihood Ratio	31.171	2	.000
N of Valid Cases	173		

Both tests show a p-value of .000 which is less than the typical significance level of 0.05. this indicates a statistically significant association between age and hypertension.

INFERTILITY

According to the table, 80.3% (139) of the 173 patients are infertile, while 19.7% (34) are not. This distribution shows that a comparatively small percentage of the patients in this group have infertility.

Table 4.13 infertility in patients

		Frequency	Percent
Valid	yes	34	19.7
	no	139	80.3
	Total	173	100.0

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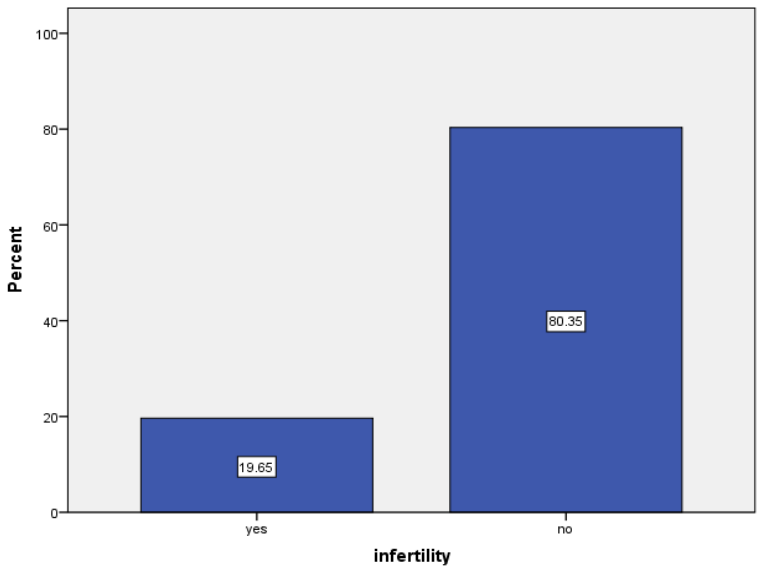
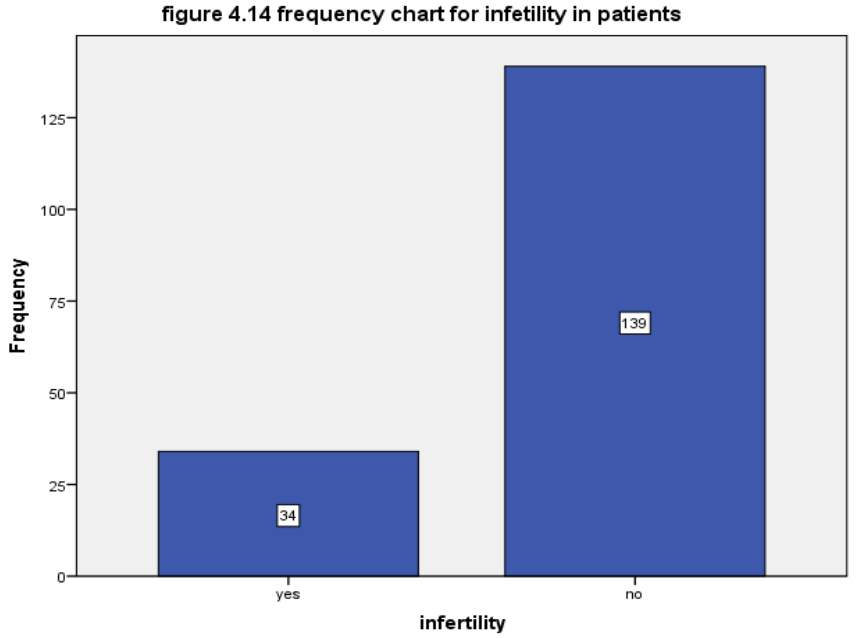
figure 4.13 percentage chart of infertility in patients



The chart shows the distribution of infertility among patients, with a clear majority 80.35% not having infertility and a smaller proportion 19.65% having infertility.

figure 4.14 frequency chart for infetility in patients



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The frequency graph suggests that among the surveyed 173 population, 34 individual experienced infertility, while 139 individuals had not.

age * infertility

Crosstab

Count

		infertility		Total
		yes	no	
Age	12-24	0	11	11
	25-36	20	47	67
	37-48	14	81	95
Total		34	139	173

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.557[a]	2	.014
Likelihood Ratio	10.335	2	.006
N of Valid Cases	173		

Both tests indicate a statistically significant association between age and infertility (p-values .014 and .006 are less than 0.05). this means we can reject the null hypothesis of no association, suggesting there is a relationship between the categorical variables being tested

UTERUS ECHOTEXTURE

The table shows information on the echotexture of the uterus in 173 patients who were divided into "homogenous" and "heterogenous" groups. The uterus echotexture is homogeneous in 101 patients, or 58.4% of the total. There are 72 individuals (41.6%) with a heterogeneous uterine echotexture, which is a considerable minority.

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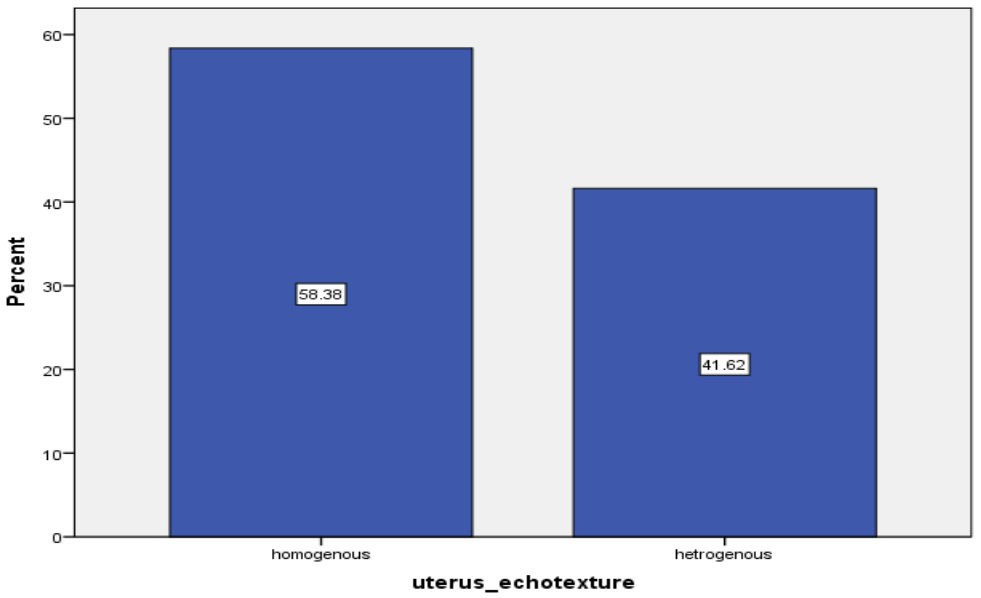
Table 4.15 uterus echotexture in patients

		Frequency	Percent
Valid	homogenous	101	58.4
	heterogenous	72	41.6
	Total	173	100.0

figure 4.15 percentage chart fot uterus echotexture



The chart indicates that the majority of patients 58.38% have a homogenous uterus echotexture. A smaller percentage of patients 41.62% have a heterogenous uterus echotexture.

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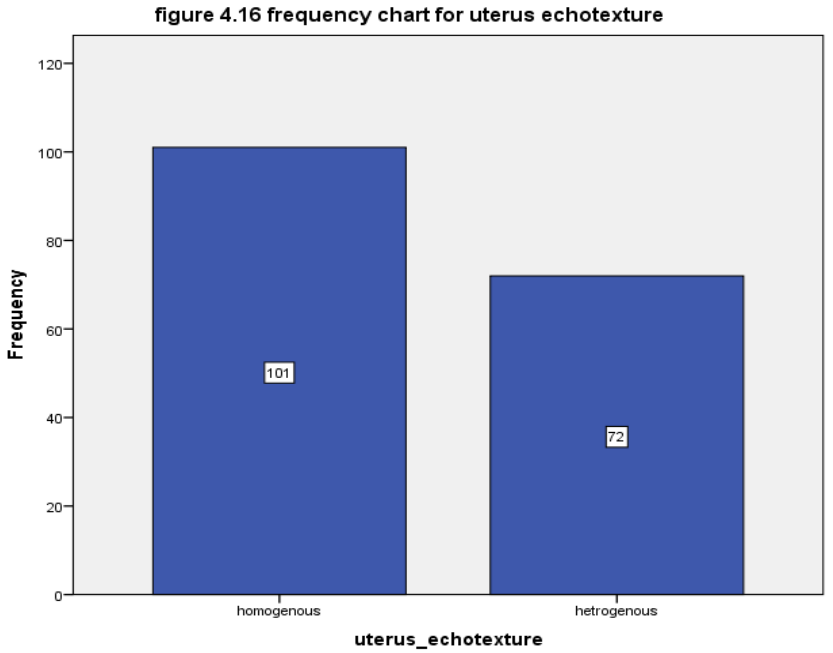

age * uterus echotexture

Crosstab

Count

		Uterus echotexture		Total
		homogenous	hetrogenous	
Age	12-24	7	4	11
	25-36	43	24	67
	37-48	51	44	95
Total		101	72	173

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Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.915[a]	2	.384
Likelihood Ratio	1.923	2	.382
N of Valid Cases	173		

Both tests show p-values (.384 and .382) greater than the typical significance level of 0.05. this indicates no significant association between age and uterus echotexture.

UTERUS SIZE

The table indicates that of the 173 patients, 47.4% (82) have a normal uterine size between 7-9 and 52.6% (91) have an enlarged uterus size larger than 9. According to this distribution, the patient group has a somewhat higher prevalence of increased uterine size.

Table 4.17 uterus size in patients

		Frequency	Percent
Valid	normal 7-9	82	47.4
	enlarge greater than 9	91	52.6
	Total	173	100.0

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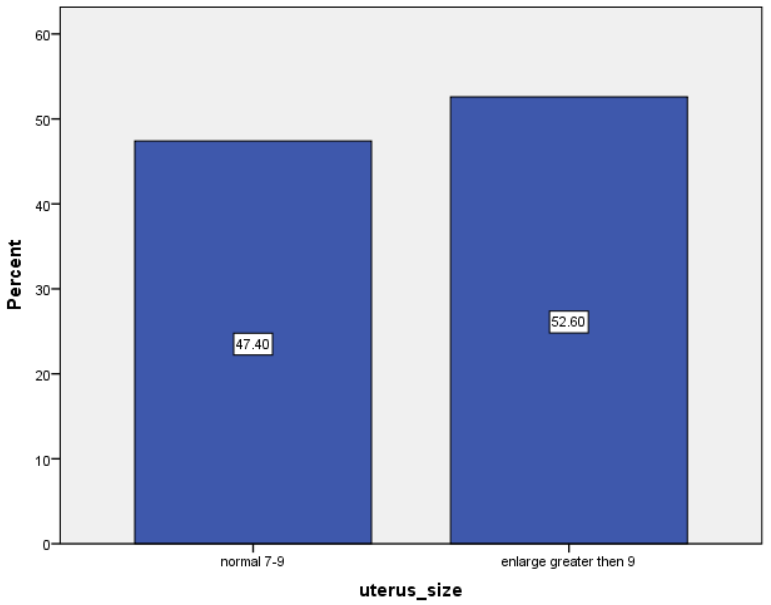
figure 4.17 percentage chart for uterus size in patients



This chart shows that the majority of patients 52.60% have a normal uterus size, while a significant proportion 47.40% have an enlarge uterus size.

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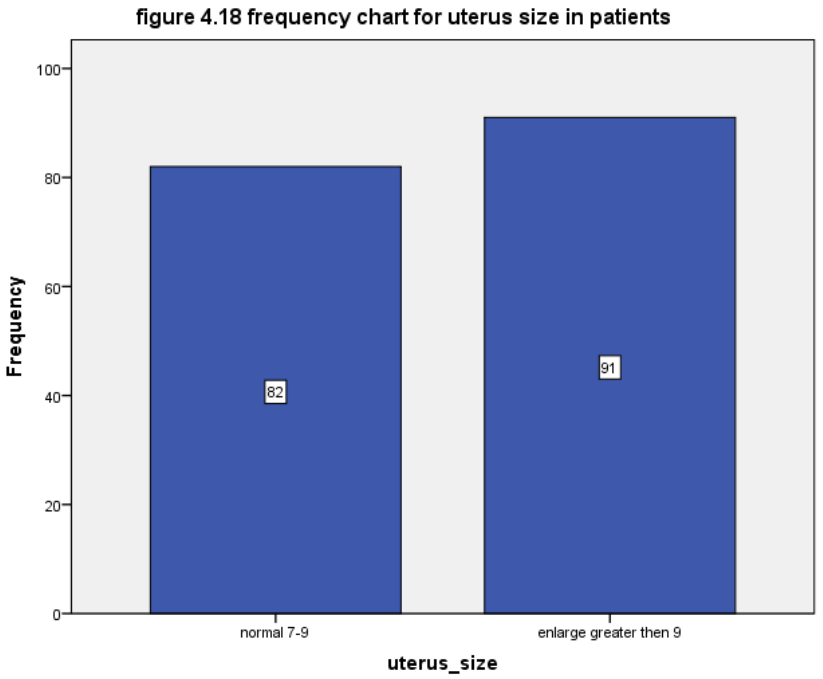

The graph displays the frequency distribution of uterus sizes out of 173 patients, 82 have a normal uterus size and 91 have an enlarge uterus size

age * uterus size

Crosstab

Count

		uterus_size		Total
		normal 7-9	enlarge greater than 9	
Age	12-24	7	4	11
	25-36	30	37	67
	37-48	45	50	95
Total		82	91	173

Chi-Square Tests

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	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.348[a]	2	.510
Likelihood Ratio	1.356	2	.508
N of Valid Cases	173		

Number of valid cases are 173 both tests (Pearson chi-square and likelihood ratio) show p-values (.510 and .508) greater than the typical significance level of 0.05. this indicates no significant association between age and uterus size.

V. DISCUSSION

Uterine fibroids are non-cancerous or benign structure in the smooth muscles, which develops in the uterus. They can also be referred to as leiomyoma or myoma. They are some of the most common gynaecological disorders among fertile women. The rate of occurrence of uterine fibroids; presented either as a percentage or as a prevalence rate; is the proportion of occurrence present in a given population. The burden and the risk of uterine fibroids, one of the most common health issues in reproductive-age women, has been explored at length. This research examined the prevalence and the risk connected with the cases of uterine fibroids in women of reproductive age and diagnosed with the help of ultrasound.

According to Dr. Mehreen Khalil et al, the age was 27.9 (±5.3) years (Mean (±SD)). Frequency of fibroid was established among 68 (56.2) patients of menorrhagia. The prevalence of Family history fibroid had 51 (42.1%) women of which their fibroid was found positive in 30 (58.8%) women hence the most common factor that led to fibroid in this study, followed by obesity 28 (35.4%) and nulliparous 10 (25.6%)(Mohsin,+Prof-2491 (2), n.d.).

According to Emmanuel Kobina Mesi Edzie et al, the ages were between 17 and 61 years with mean −36.29 +/- 8.08 years. The highest frequency was reported among category 35 to 39 (n = 642, 26.00%), 30 to 34 (n = 563, 22.80%) and 40 to 44 (n = 381, 15.43%). In 2018, 2019, 2020, and 2021, the respective mean ages of the patients were 36.70 35.97 37.43 18.00 years (95CI= 35.97 37.43), 37.07 36.45 37.70 18.00 years (95CI = 36.45 37.70), 35.92 3 In 2018, 2019, 2020 and 2021, the incidence rate with Uterine fibroids was: 66.77 (95% CI = 60.63 72.90), 81.86 (95% CI = 75.19 88.58), 85.60 (95% CI = 78.85 92.35) and 92.40 (95 % C All these years showed that the highest incidence rate among them belonged to the age bracket of 3539 years(Edzie, Dzefi-Tettey, Brakohiapa, Quarshie, et al., 2023).

According to Tina Bizjak et al, out of 2,000 women, 921 (46.1%) of them accepted our invitation and among them 21.1 percent had uterine fibroids. Fibroid prevalence was significantly lower in the younger group (2535 years) compared to 3645year (prevalence in the 3645year group was 33.5, and 4656year (prevalence in this group was 60%). The prevalence of

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fibroids was high among women who never used oral contraceptives as compared to those who did (27.0% vs. 19.7%)(Bizjak & Bečić, 2016).

The study of **Talat Zehra *et al*** involved the 300 patients with uterine leiomyomas. With a standard deviation, the weight of the patients was 59.8±9.12 and the age of patients was 42.52±7.98. The patients had a height of 63.012.23 and a BMI of 23.43.85 with mean and standard deviation. Women aged between 36-40 years were the highest (28%) followed by those aged between 46-50 years (20%) and 51-55 years (14.3%%) with respect to the number of leiomyomas. The co-morbid conditions mentioned by 10 percent of the women were hypertension. 3.8 percent had diabetes, associated with high blood pressure, 69.8 percent of the female respondents had anemia, and 76.9 percent had irregular uterine hemorrhage. Among the women, 21.6 were found to have two or more fibroids and 72.2 only had one fibroid. 5.7 percent of women had fibroids among their relatives. 5.4 percent of the women used various contraceptives in one way or the other(Zehra et al., 2022).

Faiza Ibrar *et al* who noted that of 140 patients having fibroid uteri in gynecology department: 32 (22.86%) belonged to primiparous, and 108 (77.14%) belonged to multipara. It had an average parity of five. An average age of mother was found to be 46 years. Irregular menstruation was the presenting complaint in the majority of the patients with uterine leiomyoma, whereby 42 patients (38.9%) had menorrhagia, 28 patients (24.9%) had metrorrhagia and 8 patients (7.4%) had polymenorrhagia. The other presenting ailment was an abdominal mass experienced by 25 people (23.1%) in this study(Ibrar et al., 2010)**.**

Fatima Latif *et al* observed 140 multiparous women in her survey. Of the 140 females with fibroid uteri who came to the gynecology department, 100 (64.1%) had this condition. The most common clinical presentation of cases that were reported was menstrual inconsistency, which included urinary frequency in 29 (27.9%) women, menorrhagia in 105 (75%) patients, polymenorrhagia in 24 (17.1%) patients, and abdominal discomfort in 44 (31.4%) patients. Of the females, 47 (33.6%) had a family history of uterine fibroids(Latif et al., 2022).

According to **Yuxin Dai *et al*** the incidence and prevalence of uterine fibroids have been rising globally over the last ten years, with AAPCs having an incidence rate of 0.27% and a prevalence rate of 0.078%. There were notable upward trends in UF ASIR in 52 out of 88 countries between 2010 and 2019. Most age groups showed rising trends in the age-specific incidence and prevalence of uterine fibroids, with the exception of women aged 45–54, who did not exhibit any discernible trends. The HDI and UF incidence did not correlate, according to ecological analysis, but they did have an inverse relationship with fertility. The incidence of uterine fibroids was positively correlated with alcohol intake, hypertension, overweight, and obesity and negatively correlated with smoking(Dai et al., 2024).

Navaneetha Krishnan Subramaniyam *et al* observed 137 patients, most of whom were under the age of 36–50 years (63.5%), followed by 21–35 years (24.08%) and 51–65 years (12.4%). The participants' average age was 42.08 ± 8.89 years, and their BMI revealed that the prevalence of fibroids was higher in women with 25 kg/m2 to 29.9 kg/m2 (54.74%) and ≥30 kg/m2 (8.75%) than

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in women with 18.5 kg/m2 to 24.9 kg/m2 (36.49%). The average body mass index (BMI) of the fibroids found in our study was 27.5 kg/m2, and other risk factors were not significantly associated with uterine fibroids(Subramaniyam et al., 2020b).

Mariam Adawe *et al* states that uterine fibroids were present in 90 out of 319 women, which indicates a 28.2% frequency. Approximately 67 (74.4%) of the fibroid's participants had symptoms, including pelvic discomfort (65, 72.2%), menorrhagia (57, 63.3%), pelvic mass (20, 22.2%), and infertility (9, 10%). There was a protective effect of delayed menarche (adjusted OR 0.4; 95% CI, 0.1 to 0.8), but women in the age group of 31 to 50 years (adjusted OR 4.2; 95% CI, 2.0 to 8.5), those who were separated from their spouses (adjusted OR 4.4; 95% CI, 1.8 to 10.5), overweight (adjusted OR 4.9; 95% CI, 2.6 to 9.6), and obese (adjusted OR 4.1; 95% CI, 1.6 to 10.5) were more likely to be diagnosed with uterine fibroids(Adawe et al., n.d.).

According to **Riitta Luoto *et al*** average number of fibroids was 1.7, and the prevalence was 66%. The case wise concordance for hospitalization for uterine fibroids was higher in MZ pairs (0.31, 95% CI 0.24–0.37) compared to DZ pairs (0.18, 95% CI 0.14–0.22). Genetic factors accounted for 54.8% (95% CI 46.2–62.7%) of the variance in vulnerability to fibroid hospitalization, and women with fibroids had higher body mass index (23.7 vs 21.7, P=0.0086), lower age at first birth (25.7 vs 29.3, P=0.012), and higher parity (3+ children 48.2 vs 29.6%, P=0.009) than women without fibroids(Luoto et al., 2000).

Erica E. Marsh, *et al* observed 101 individuals (mean age 24.5 ˜ 3.5 years), 43% identified as Black and 57% as White. Overall, 15% of women had fibroids detected by ultrasonography (26% of black women and 7% of white women). The average size of the fibroids was 2.3 x 2.1 cm. Even after controlling for the existence of fibroids and the usage of contraception, there was still a notable variation in endometrial thickness between races(Marsh et al., 2013).

Benjamin Dabo Sarkodie *et al* state the range, mean and standard deviation (SD) of the patients' age were 14–54 years, 31.89 years and ± 7.92 respectively. Factors that associated significantly with uterine fibroid in Ghanaian women included obesity (X2 = 17.3, p-value = 0.001), participant's age range (X2 = 47.4, p-value = 0.001), parity (X2 = −10.169, p-value = 0.001), and age at last delivery (X2 = 34.579, p-value = 0.001)(Sarkodie et al., 2016).

D. MAVRELOS *et al* observed 122 women's. At the initial evaluation, their ages ranged from 27 to 45 years old, with a median age of 40. Most of them had several fibroids (60.7%), and none of them became pregnant (59.0%). Between the first and last exams, the median interval was 21.5 months (range: 8-90). According to reports, the fibroids' median volume increased by 35.2 year. Compared to larger fibroids, fibroids with a mean diameter of less than 20 mm have grown at a much faster rate (P = 0.007)(Mavrelos et al., 2010).

Our research results revealed that the patients visiting the Maqsood Medical Complex (MMC) in Peshawar usually experience pelvic scans. There were 173 respondents included in our study. The age groups of the surveyed are: 12-24, 25-36 and 37-48. As shown in statistical values, most of the patients fall between 37 and 48 years old (54.9 percent), 25 and 36 years old (38.7 percent) and 12

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and 24 years old (6.4 percent). According to the data that we collected, uterine fibroids are more common in women of late reproductive age, as compared to younger age women. The proportion of patients with uterine fibroids in terms of incidence and percentage is as follows according to marital status: 85.5 percent of patients are married and 14.5 percent of them unmarried. This implies that of the group or the set of patients with uterine fibroids, married women stand a greater chance of suffering the condition. Out of 173 patients, 88 women (50.9%) experienced irregular cycles of the menstrual cycle compared to 85 of 173 women (49.1%) with regular periods. This implies that the irregular menstrual cycle affected more women in this research when compared to normal one. Women with irregular menstrual cycle has high risk of uterine fibroids. The frequency of physically active patients is greater than the frequency of patients that may not be active since 97 (56.1%) out of the 173 patients are physically active compared with 76 (43.9%) not physically active. The fibroids chances are increases in those women who are physically inactive and less than those who are physically active. Out of the total number of patients examined, we found out that 23 patients, representing 13.3 percent of the total patients surveyed, had the family history of the disease. Meanwhile, 150 of the total 173 patients (86.7 percent) had no family background of the problem. In our present study, we found out that among the 173 patients, 21.4% have hypertension, and 78.6% do not. According to the data, 58.4 percent of the patients possessed homogenous uterus echotexture, which means that there is a possibility of no major fibroids or other impairments of the uterus, hence having regular periods. in contrast, 41.6 percent of the patients possessed a heterogenous uterus echotexture and could be undergoing irregular periods because there could be the development of uterine fibroids or irregularities. In our study the analysis demonstrates that out of these 173 patients there are 82 (47.4%) patients with normal size of the uterus and 91(52.6%) patients with enlarged size of the uterus which indicates a prevalence in the number of patients having a enlarge size of the uterus. By taking this case in reference to uterine fibroids, the report findings reveal that 19.7 percent of the 173 patients experience infertility implying that the prevalence of infertility among the patients with uterine fibroids is not as high as it is on 80.3 percent of the patients.

There is Limited Local Data, particularly in Pakistan, assessing the frequency of uterine fibroids detected through ultrasound. Most available data are from Western or urban hospital-based populations. Insufficient Ultrasound-Based Screening Studies, while histopathological and surgical findings are often reported, fewer studies focus exclusively on ultrasound detection, which is a non-invasive, widely used diagnostic tool. The actual prevalence in asymptomatic women remains underexplored. Inadequate Analysis of Risk Factors, although age, parity, BMI, family history, and hormonal factors have been associated with fibroids, many studies do not evaluate these factors comprehensively or in combination. There is also a lack of focus on modifiable lifestyle risk factors such as physical activity which we included in our study. Underrepresentation of Younger Age Groups, most research focuses on women above 35 years, leaving a gap in understanding fibroid occurrence in women in their 20s and early 30s that's why we included women from 12years of age.

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V. CONCLUSION

Uterine fibroids are common benign tumors in reproductive-age women, with higher prevalence among those aged 37–48 years and married women. Irregular menstrual cycles, physical inactivity, family history, and hypertension were identified as key risk factors. Ultrasound commonly revealed enlarged uterine size and heterogeneous echotexture, while infertility showed a moderate association with fibroids. These findings highlight the need for greater awareness, routine screening, and preventive strategies to reduce modifiable risks and improve women's reproductive health.

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