

Assessing burden, risk factors, and perceived impact of uterine fibroids on women's lives in rural Haiti: implications for advancing a health equity agenda, a mixed methods study

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Abstract

Background Uterine fibroids, the most common cause of gynecologic surgery, have a reported cumulative incidence of 59% among Black women in the U.S. Uterine fibroids negatively impact the quality of women's lives. No study has been found in the literature about fibroids in Haiti. We conducted a mixed methods study to assess the burden and risk factors of uterine fibroids, as well as their effects on women's quality of life.

Methods A convergent mixed methods study was conducted between October 1, 2019 and January 31, 2020 at MUH's (Mirebalais University Hospital) OB-GYN outpatient department. Quantitatively, in a cross-sectional study 211 women completed consecutively a structured questionnaire. In-depth interviews with 17 women with fibroids and 7 family members were implemented for the qualitative component. Descriptive statistics were calculated for clinical and social demographic variables. Logistic regression was performed to examine associations between fibroids and related risk factors. An inductive thematic process was used to analyze the qualitative data. A joint display technique was used to integrate the results.

Results Of 193 women analyzed 116 had fibroids (60.1%). The mean age was 41.3 . Anemia was the most frequent complication— 61 (52.6%). Compared to women without uterine fibroids, factors associated with uterine fibroids included income decline (AOR = 4.7, 95% CI: 2.1-10.9, $p < 0.001$), excessive expenses for transport (AOR = 4.4, 95% CI: 1.6-12.4, $p = 0.005$), and family history with uterine fibroids (AOR = 4.6, 95% CI: 1.6-13.6, $p = 0.005$). In contrast, higher level of education and micro polycystic ovarian syndrome were associated with lower prevalence (AOR= 0.3, 95% CI: 0.1-0.9, $p = 0.021$) and (AOR= 0.2, 95% CI: 0.1-0.97, $p = 0.044$), respectively . The qualitative findings delineate how contextual factors such as health system failures, long wait times, gender inequality and poverty negatively affect the quality of women's lives. The poverty cycle of uterine fibroids emerged.

Conclusions A vicious cycle of poverty negatively impacts access to care for uterine fibroids in Haiti. Health insurance, social support, and income generating activities may be keys to promote social justice through access to adequate care for women with uterine fibroids in Haiti.

Background

Fibroids are the most common benign tumors of the uterus and are the primary reason that surgery is performed in gynecology (12). Without treatment this condition leads to significant chronic morbidity - and even mortality. In communities that lack sufficient access to medical care, uterine fibroids have been shown to deeply affect a woman's quality of life (13).

There are several methods of treatment currently available for uterine fibroids – including radiological, medical, and surgical interventions (12,14). High-resource countries have achieved remarkable improvements in the treatment of uterine fibroids, including the emergence of laparotomy, laparoscopy and robotic surgery (12,14,15). These treatment options available to women in these settings have helped

many women conserve their fertility. In contrast, access to modern fibroid surgical care is largely out of reach for most women in low and middle income settings because the medical equipment, infrastructure and specialized personnel required for such interventions are not widely available (16–19).

In Haiti, a low-income country, there are only seven beds per 10,000 people compared to the Dominican Republic its neighborhood country with 16 per 10,000 people according to the WHO website consulted June 22, 2020. The availability of specialized care is even more dire, as Haiti only has 5.9 surgical specialist including obstetricians, surgeons, and anesthetists per 100,000 people(20), in marked contrast to the 20-40 anesthetists, and obstetrics-gynecology (OB-GYN) specialists per 100,000 people recommended by the Lancet Commission for global surgery (18). In addition, the lack of equipped operating rooms, medicine, and other human resources hamper access to care for uterine fibroids. Further, the majority of Haitians live in rural areas and have limited access to basic health care and even less access to surgical care (21).

To assess the gap of lack of knowledge about the epidemiology and effects of uterine fibroids on the quality of women's lives in Haiti, we conducted a convergent mixed methods study – the first of its kind. We implemented a cross sectional study to examine the prevalence, complications, and risk factors associated with uterine fibroids. We also conducted a qualitative study to explore patients' illness experience and care seeking trajectories, to understand the impact of uterine fibroids, and identify the structural barriers that shape access to fibroid care.

Methods

Study setting

Mirebalais University Hospital (MUH) is a three-hundred bed facility located in the Central Plateau built and supported by Partners In Health in collaboration with the government of Haiti. One hundred of these beds are in the OB-GYN Department. The primary catchment area (Mirebalais, Savanette, Saut d'Eau) of MUH is 187,077 persons and the secondary catchment area (North, Northeast, Artibonite, part of the west department) serves more than 3.1 million Haitians (22). MUH has 6 operating rooms and performs 6,000 surgeries per year and about 250,000 visits per year overall. About 40% percent of surgeries are for OB-GYN conditions and about 12% of outpatient visits are for GYN. The OB-GYN service includes a triage area, labor and delivery, pre- and post-partum wards, and one gynecology ward. The hospital offers a large range of women's health services including prenatal care, family planning, ultrasound, gynecological care, complete emergency obstetrical care, cancer screening, and gynecological surgery (including uterine fibroids).

Uterine fibroids represent the most common illness among women presenting at the MUH's outpatient department (OPD) at the OB-GYN ward. Uterine fibroids, the most frequent gynecologic surgery, and the most prevalent pre-operative diagnosis at MUH represent approximately 50% of the gynecologic surgeries. There were no noticeable changes in the study protocol overtime, but we recognize we did the study in the context of a current strike in the country at this period.

Study design

This study used a convergent mixed methods design in which qualitative data were collected to provide elaboration, clarification, and explanation for the quantitative results and vice versa (23). The quantitative cross-sectional study included all women 20 years of age or older who were seeking gynecological care at MUH's outpatient gynecology ward from October 1, 2019 to January 31, 2020. For the qualitative component, semi-structured interviews were carried out with 17 women with uterine fibroids from the quantitative sample and 7 of their family members. Purposeful sampling (24) was used to identify both sets of participants and to maximize variation. Women were selected in relatively equal numbers from within and outside of the Central Department.

Women having a current gynecologic ultrasound result documented in their medical record during the study period were invited to participate in the study. Family members who knew and supported the participants over time with the disease were selected based on their consent and the participant's reference to the research team.

Excluded from the study were women who: were less than 20 years old, presenting for prenatal care at MUH, and those who refused to consent. Further, women who had a medical emergency or who otherwise were not able to participate due to medical considerations were not included in the study.

Measures

Quantitative data collection: The study instruments were validated after being tested during the first week on patients at the OPD of the OBGYN department to observe potential misunderstanding among participants. A conceptual framework (Figure 1) was used to inform the survey questionnaire which included important covariates including age, parity (number of births), menopause, patient status (initial or follow-up visit), confirmed diagnosis of uterine fibroids, employment, monthly income was assessed by asking the participants to estimate their monthly income, income decline was assessed by asking the participants if they observed any decline in their monthly income after having the diagnosis of uterine fibroids, excessive expense for transport was assessed by expenses for transport that hamper them to do basis things like sending kids to school, buying foods etc. while looking for care for uterine fibroids, household expenses (such as education, food, self-care, and medical care, etc.), zone of residence, average time to get to the hospital, primary method of transport, main profession, health insurance status, education level, and family conflicts. Family conflict was assessed by reported problems of communication and disagreements between the women and their spouses after diagnosis of uterine fibroids (25). Further, the most frequent clinical signs and symptoms associated with uterine fibroids were ascertained including constipation, dysmenorrhea (pain during menstruation), acute pelvic pain (less than 3 months), chronic pelvic pain (more than 3 months), menorrhagia (abundant bleeding during menstruation), metromenorrhagia (bleeding between periods), mictional difficulty (pain with urination), pelvic pressure, pelvic infection, infertility (defined as > 1 year without conceiving a child while being sexually active and not receiving family planning); related conditions included deep vein thrombosis, urinary stones, hydronephrosis, and anemia (Hb<12 mg/dl) (6,9,11,15,26). We also measured self-

reported stress and depression using a locally validated depression screening tool, the Zanmi Lasante-Depression Symptom Inventory (ZL-DSI) (no depression < 13, mild depression 13-17, moderate depression 18 to 27, and severe depression 28-39) (27). Demographics and clinical symptoms data were obtained using a structured the questionnaire. We performed chart reviews to extract data on confirm clinical diagnosis of uterine fibroids and complications of uterine fibroids.

Qualitative data collection

Participants in the qualitative study took part in a single, in-depth semi-structured interview which lasted 60-90 minutes. Interviews took place in a confidential quiet place of the participant's choosing at the hospital. Recorded interviews were conducted in Haitian Creole by the first author and a trained research assistant. Semi-structured interview guides for the women and family members covered the following themes: (1) experiences of living with fibroids; (b) their care-seeking trajectory; (c) the meaning attributed to fibroids; and (d) the effect of fibroids on the family's social and economic life.

Data analysis

For the quantitative analysis descriptive statistics were used to report the sociodemographic and clinical characteristics of uterine fibroids. Bivariate and multivariate logistic regression were used to identify the risk factors associated with uterine fibroids. We used stepwise regression to build our model. We retained variables that were differentially distributed among cases with uterine fibroids ($p < 0.2$ in the design-adjusted Chi-squared). Collinearity was assessed, and for covariates that were identified to be strongly collinear ($r > =0.8$, using Pearson's correlation test), the variable more strongly correlated with uterine fibroids or those known as important were retained for model building (28). All quantitative analyses were performed using Stata, version 16.2.

For the qualitative analysis, a narrative analysis of all transcripts was performed to identify key concepts or theories related to the research question. Then, transcripts were analyzed in depth using an inductive, narrative and thematic content analysis approach (29,30). Transcripts were reviewed in full, and a subset of transcripts were open-coded by the first author to identify a set of emerging concepts that explained the perceived impacts of uterine fibroids. These initial concepts were reviewed by the third and the fourth authors, and subsequently revised to develop a draft codebook. The codebook was piloted and revised into a final codebook which was in turn used to code the entire dataset. The coded data was analyzed using an inductive process that sought to identify a set of key descriptive concepts. These initial concepts were developed by the first author and revised by the third and fourth authors through an iterative approach to the data, resulting in a final set of descriptive categories (Figure 2).

Finally, quantitative and qualitative results were integrated by using a joint display technique (31) – the 'Poverty cycle' - which highlights the interconnected phenomena emerging from the qualitative and quantitative results (Figure 4). This figure identifies points of convergence across the qualitative and quantitative datasets while demonstrating the cyclical processes that marked the experience of women living with fibroids in rural Haiti.

Results

Quantitative findings

The data flow of all participants in the study is described in the Figure 3.

Table 1 describes demographic characteristics and complications of uterine fibroids of study participants. Among the populations studied, 70 (60.3%) were between 35 to 49 years old. Sixty-one (52.6%) were from the Central plateau Department (primary catchment area), whereas 55 (47.4%) were from other areas of the country. Over one hundred (87.1%) did not have health insurance. Sixty-seven (57.8%) reported that they experienced a decline in household income.

Of 193 participants included in the analysis, 116 (60.1%) had uterine fibroids (Table 1). The two most frequently observed clinical symptoms included stress 92 (79.3%) and dysmenorrhea 73 (62.9%) (Table 2). In addition, documented anemia 61 (52.6%), and infertility 39 (33.6%) were the two most prevalent major complications (Table 1).

In the bivariate analysis (Table 3, model 1.), the odds of having uterine fibroids were 3.8 times greater among those who experienced excessive expense for transport compared to those who did not have this expense (95% CI: 1.65 - 8.74, $p=0.002$). In addition, those who experienced income decline had a 3-fold greater odds of having uterine fibroids compared to those who did not (95% CI: 1.64 - 5.54, $p<0.001$), and those who were farmers had a 5.1-fold greater risk of having uterine fibroids compared to those without a specific profession (95% CI: 1.04 - 25.29, $p=0.044$). Family history with fibroids also demonstrated a strong association with uterine fibroids in this population (OR=5.1, 95% CI: 2.11 - 12.33, $p<0.001$).

In the multivariate analysis (all variables included in the model 2. are shown in Table 3) women who experienced excessive expense for transport had a 4.4 times greater adjusted odds of having uterine fibroids compared to those who did not experience excessive expense for transport (95% CI: 1.55 - 12.38, $p=0.005$). In contrast, women with higher education were less likely to be diagnosed with uterine fibroids compared to those with lower education (AOR=0.3, 95% CI: 0.09 - 0.87, $p=0.021$). Women with income decline had a 4.7 times greater adjusted odds of uterine fibroids compared to those who did not experience an income decline (95% CI: 2.05 - 10.93, $p<0.001$). In terms of clinical factors, women with family history of uterine fibroids had a 4.6 times greater adjusted odds of having uterine fibroids compared to those with no family history of uterine fibroids (95% CI: 1.58 - 13.56, $p=0.005$). The condition of micro polycystic ovary is less likely to be observed among women with uterine fibroids compared to those without uterine fibroids (AOR=0.3, 95% CI: 0.10 - 0.97, $p=0.044$). Associations were not observed between age, patient status, health insurance, number of births, family conflict, polymenorrhagia, deep vein thrombosis, or depression categories with uterine fibroids in the multivariate model.

Qualitative findings

Qualitative data for seventeen women with uterine fibroids and seven family's members of these women were analyzed. Four key themes (A-D, below) describing women's experiences living with fibroids were

inductively identified. They describe the complications and consequences of women's care-seeking trajectories and highlight the structural and contextual factors that shape them.

Health system failure

Many women reported in their interviews that the Haitian health system did not deliver adequate care for their fibroids. While some participants indicated that they began their care-seeking by consulting with a traditional healer close to their home, most eventually sought care for their symptoms within the public or private health system. Women explained that before arriving at MUH, they undertook an extensive number of visits to different care providers – “roaming” from one hospital or clinic to the next in an attempt to seek care for their condition. They recounted that at each stage they were unable to obtain effective treatment. For many, the protracted search for care led to significant delays, increasing pain, and mounting health care costs.

“I came to know I had fibroids at General Hospital in Port-Au-Prince. [Before that] the « Medsen Fey » [herbalist and shaman] told me I was pregnant. Well, there was a « Medsen Fey » who told me I was going to have twins. I said, ‘God knows everything. I know nothing.’ I spent money over, over, and over again [on treatments] and nothing worked out. I got really sick on July 26, 2019. They rushed me to the emergency room of the General Hospital. I came here [to MUH] after I left the emergency room of General Hospital. They asked me to bring the sonography result back, but I could not find a doctor. I finally found one at 9 :00 a.m. I was sent to *Rue Monseigneur Guilloux* [private clinic]. And ... it was 10 :00 a.m. When I got to the place I was sent, the receptionist told me, ‘No, there is no doctor here for this disease’ and said I have to come back the following day at 6 :00 a.m. My cousin could not come with me because she had to drop her children off to school. My other cousin told me she would come to take me and bring me here. They came here with me. General Hospital did not transfer me to MUH. My cousins and I came here ourselves. I consulted several times”

-Unemployed woman with uterine fibroids from Port-Au-Prince

Long wait time for incomplete services

Traveling to MUH Mirebalais from the Central Plateau via public transport often entailed a long wait time for getting access to care for their fibroids. Women explained that they often had to leave their homes a full day before their medical appointment. They noted that seeking care for their fibroids at MUH required reporting to different services within the hospital, and each service had a long queue. In some cases, participants reported spending an entire day waiting for their medical consultation, only to be told to leave the hospital and return on the next day. For these women, the wait for a single consultation resulted in a long-time commitment with significant social and economic implications.

“I usually leave home at 6:00 am... I take the bus in Delmas 33 to go to Croix-Des-Bouquets. I take another bus there so that I get to the hospital by 8:00 a.m. Well...when I get there, I have to get my records released, I have to get my vital signs checked and, they transfer my records to the doctor. I wait for the

doctor if he has not arrived yet... There are a lot of people. There are a lot of people [waiting] for gynecology. This process is very long ... I do not like to sleep at the hospital. There is nowhere to sleep there. If I do a test today at the hospital, I must come take the results tomorrow. So, I go [home] to Port-Au-Prince and I return back to Mirebalais. So, that costs me money.”

-Teacher with uterine fibroids from Port-au-Prince

Gender inequality

Women with uterine fibroids explained that they often felt pressured to perform all housework including cooking and caring for children (if applicable) with little to no support or minimal support from their spouses or partners. Family members shared this same perception. The effects of uterine fibroids made it exceedingly difficult for women to carry out the physical labor expected of them, but they nonetheless attempted to keep up with the duties they were expected to fulfill.

“Usually, I do everything, I wash clothes, I make sure that my husband’s clothes are ready, I make sure that my child’s clothes are ready, I make sure they have food and I give the maid instructions while I am not at home.”

-Nurse with uterine fibroids from Delmas

“If she [my wife] was in good health, she would do all the housework. But she cannot. She cannot take care of the household. Sometimes she cooks, but sometimes she does not. She cannot sit and cook when she suffers from the complications of the disease.”

-Family member, husband from Mariani

Women reported that the effects of the gendered expectations related to fertility were particularly painful for them. Fertility challenges caused women personal sadness, but infertility also led to social exclusion. Women explained that that they were blamed for the fertility challenges that they experienced because of untreated fibroids:

“I am unhappy and so is my husband because of the fibroid, because most Haitian men would like to have children. As soon as you cannot, their family members start naming you: “Manman Milet” (a sterile woman).”

-Teacher with uterine Fibroids from Mirebalais

1. *Poverty*

Women indicated in their interviews that the physical effects of fibroids imposed on them a number of social and economic consequences. Notably, women with fibroids were largely excluded from social and economic opportunities. Participants recounted how the effects of their fibroids made them lose their job

or have to give up their business. The loss of income severely impacted their ability to do housework and pay for their children's school fees.

"I do not have a job. I used to work in an orphanage and a restaurant. I worked in the morning and in the evening. I had to quit both jobs because of the fibroid."

-Unemployed woman with uterine fibroids from Port-Au-Prince

The disease [uterine fibroids] affects my mother because she would have worked in order to take care of my education. The disease [uterine fibroids] affects my mother because she cannot cook, clean up the house, send me to school.

-Family member, daughter from Mirebalais

Discussion

The study found the quantitative and the qualitative results are interconnected, and we merged them under the concept of a poverty cycle of uterine fibroids (Figure 4). In the poverty cycle of uterine fibroids one aspect interacts with another. The concept suggests that limited funding constrains the capacity of the health system to deliver care for fibroids because first 87.1% of women with uterine fibroids did not have health insurance that can facilitate access to care and prevent out pocket expenses, second these women roamed in the health system without access to adequate care due the lack of a good ambulance network, procedures and mechanisms that can facilitate access to care, third 47.1% of these women were coming out of the catchment area of the hospital in 5 other departments and 70.9% of the participants in follow up for more than 12 months. Consequently, uterine fibroids become complicated and debilitating while complicated women stay with the illness with possible increase morbidity and mortality. Therefore, women lost their job and business and did not have income and savings, falling deeper into poverty whereas they experienced excess.

The study revealed a high prevalence of uterine fibroids at the MUH's OPD. This high prevalence was expected because the population has arrived after attempting to receive adequate care at other facilities and the majority of women in the study were between 35 and 49 years of age – the age bracket with highest prevalence of uterine fibroids. Further, ultrasound was used as the reference method to select our population and it has high sensitivity for the diagnosis of uterine fibroid (32).

The study found the most frequently reported symptom was stress. We believe that gender inequity and the complicated uterine fibroids can increase the level of stress among these women. The most two frequent complications reported in our study were anemia and infertility. The finding about anemia is understandable because of the bleeding associated with uterine fibroids. In addition to the presence of fibroids, the lack of specialized care for infertility in the country could be another cause of the high rate infertility observed in this study.

The study did not find an association between age and uterine fibroids in the multiple logistic regression model. This finding is at odds with a previous study which demonstrated that people greater or equal to 40 years old were more likely to have uterine fibroids (1). In addition, this study demonstrated that health insurance coverage in Haiti was extremely low and was about 6 to 7 times lower than the health insurance coverage in U.S. and Europe (33). The high out-of-pocket expenditures may be explained by the lack of public health insurance in Haiti or persistence gaps in universal health coverage. As such, women often cannot afford care in a private clinic. Approximately 88% of women with uterine fibroids were poor and 59.5% were unemployed. Our findings suggest that most women with uterine fibroids were waiting for surgical intervention for more than 12 months.

In the study women with uterine fibroids experienced decline in their income after the diagnosis of uterine fibroids and more than four-fifths of them were poor. These findings can explain why women with uterine fibroids were more likely to experience excessive expenses to go to the hospital because little expenses can limit them to respond to their basic needs. The qualitative findings have shown that that women with uterine fibroids stayed for a while with the disease and complications, lost their job, and those with lower education were more likely to have uterine fibroids. These findings support the fact that women with fibroids were subjected to economic and social exclusion and poverty. Previous studies have shown that women with uterine fibroids were more likely to miss days at work and lost their job, and those with lower income were more likely to experience severe disease and had negative experiences with higher education (6,34,35). In our study, women with higher education appear to be more likely to seek care, may be because they tend to be more powerful economically compared to women with lower education.

Our quantitative findings support the concept that women with fibroids were excluded from various forms of 'social goods' – most notably health care and education. The qualitative findings provided a deeper and more comprehensive view of the mechanisms by which women with fibroids were socially isolated and were often cast aside by community members or in-laws because their fibroids prevented them from conceiving. Our study underscored the importance of social determinants of health which were contributing factors in women's suffering from fibroids and supported the emerging concept of the poverty cycle of uterine fibroids.

In the study, women with micro polycystic ovary were less likely to have uterine fibroids whereas other previous studies have shown the contrary (1,36). A previous study realized by Huang et al among women with infertility has shown results in the same direction (37) However the population of this study was different from our population but this similarity can be linked to the High rate of infertile women in our population. In addition, previous studies have shown that family history is an important risk factor for uterine fibroids in the literature (1,38) and this study also demonstrated this association. However, stress, anemia, depression, menorrhagia, metrorrhagia, dysmenorrhea were not associated with fibroids, whereas a previous study has shown a significant association between these variables and fibroids (6). The absence of associations of uterine fibroids between stress and anemia can be explained by the fact both are broadly distributed in the population studied. Further study is needed to examine the burden of uterine fibroids among the Haitian population overall.

In term of strengths, this study is the first of its kind in Haiti. It offers important insights into the myriad social and economic effects that women living with uterine fibroids face in settings where access to care is limited. It used ultrasound as the main method to diagnose uterine fibroids with less possibility to miss the diagnosis compared to studies which used the self-report questionnaire.

However, this study has several limitations. As a cross-sectional study using a hospital-based population, it is not generalizable to those who have not access care or who have accessed services at a health center. The qualitative data is also not generalizable. It is possible that other clinical conditions may have been misdiagnosed as fibroids - a possible confounder resulting in an overestimation of prevalence. To mitigate misdiagnosis, we used ultrasound which has high specificity and sensibility to establish the diagnosis of uterine fibroids (32). The prevalence may also be underestimated since uterine fibroids can be also asymptomatic. Further studies are needed to explore the mechanism by which social economic and biological factors increase the risk of uterine fibroids in Haiti.

Conclusion

The prevalence of uterine fibroids in this population of rural women in Haiti is high, and the social and economic consequences associated with fibroids are deeply rooted in a vicious cycle of poverty, gender inequity, physical and social suffering. Women are motivated to pursue care for this treatable disease, but they encounter costly delays as they navigate a health care system that is fragmented and overwhelmed by a dearth of equipment and qualified health professionals. Health insurances, availability of biomedical equipment's, well trained human resources, infrastructure building, and programming that actively redresses the fragile economic and social conditions facing women with fibroids may be key elements to promoting the social and economic rights by improving the health and quality of life of women with uterine fibroids in Haiti.

Abbreviations

MUH: Mirebalais University Hospital,

OPD: Out-Patient Department

AOR: Adjusted Odds Ratio

OR: Odds Ratio

ZL-DSI: Zanmi Lasante Depression Symptom Inventory

OB-GYN: Obstetrics and Gynecology

GYN: Gynecology

Declarations

Ethical Approval and Consent to Participate

The study was reviewed and approved by institutional review boards of Harvard University and Zanmi Lasante, the local IRB committee in Haiti. Written informed consent was obtained.

Consent for Publications

Not applicable.

Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available due to important sensible confidential information about the participants of the study but are available from the corresponding author on reasonable request.

Competing interests

None declared.

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Authors' contributions

CM conceived and coordinated the study. AM supported data analysis, formatting, and manuscript preparation. AK supported qualitative data analysis and manuscript preparation. HG helped the qualitative data analysis, merge the results and assisted with the manuscript preparation. MSF supported quantitative data analysis and the preparation of the manuscript. PF provided advice in the conception of the study. JM supported the analysis, interpretation, and manuscript preparation. All authors critically reviewed and approved the current version.

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Tables

Please see the supplementary files section to view the tables.

Figures

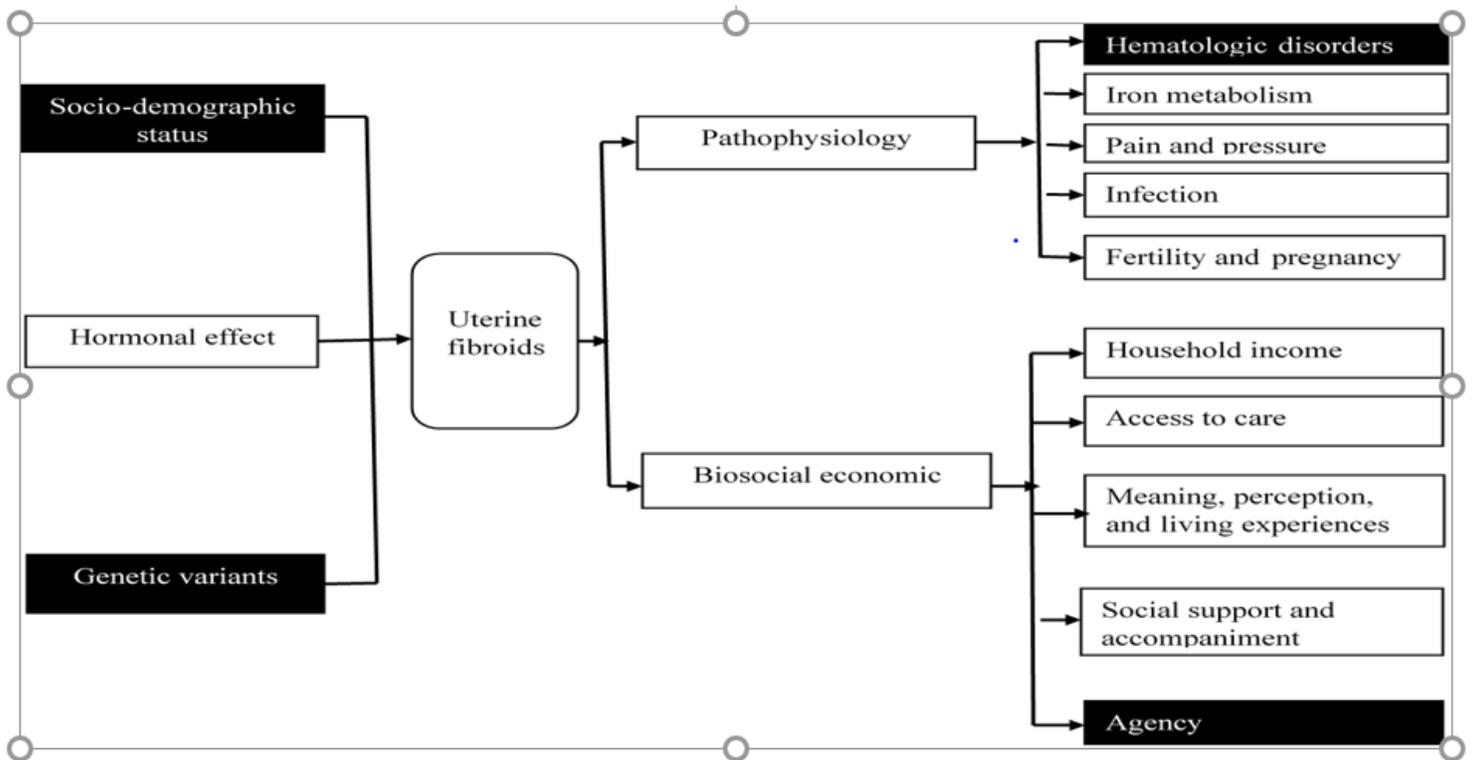


Figure 1

Conceptual framework

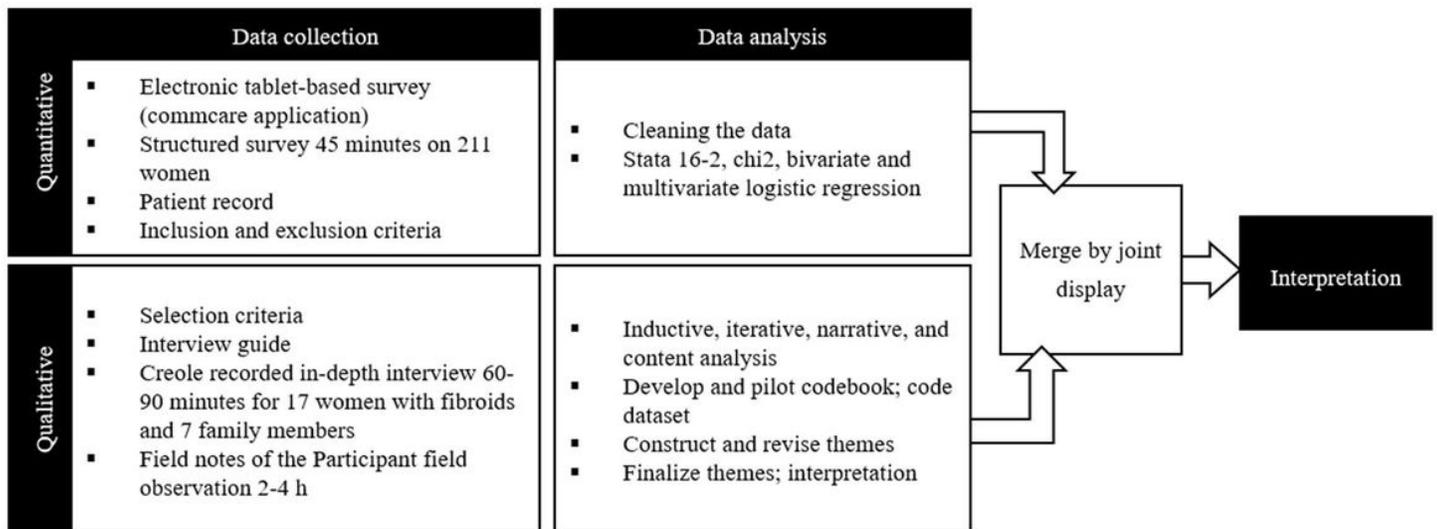
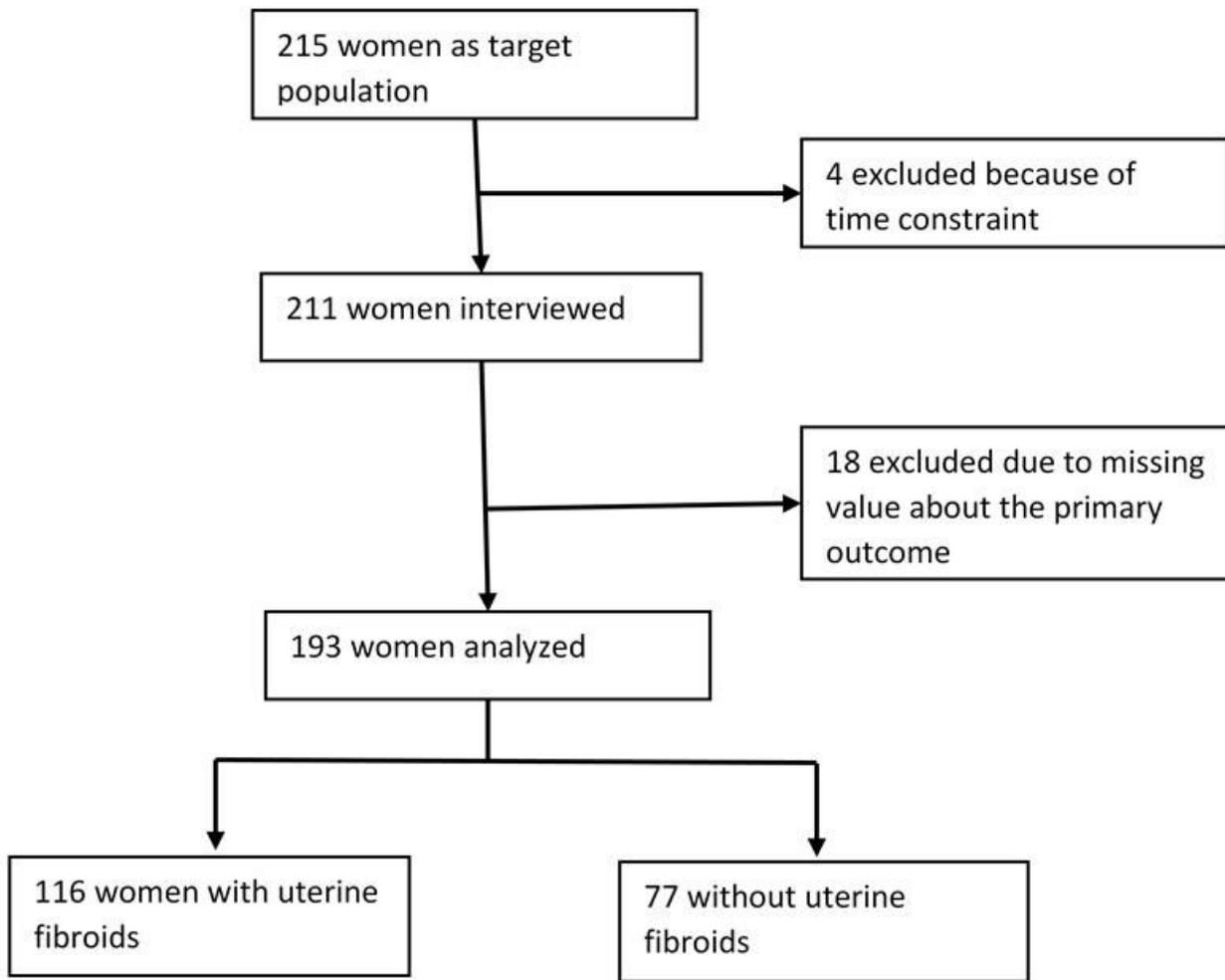


Figure 2

Descriptive categories



LIST 2

Figure 3

The data flow of all participants

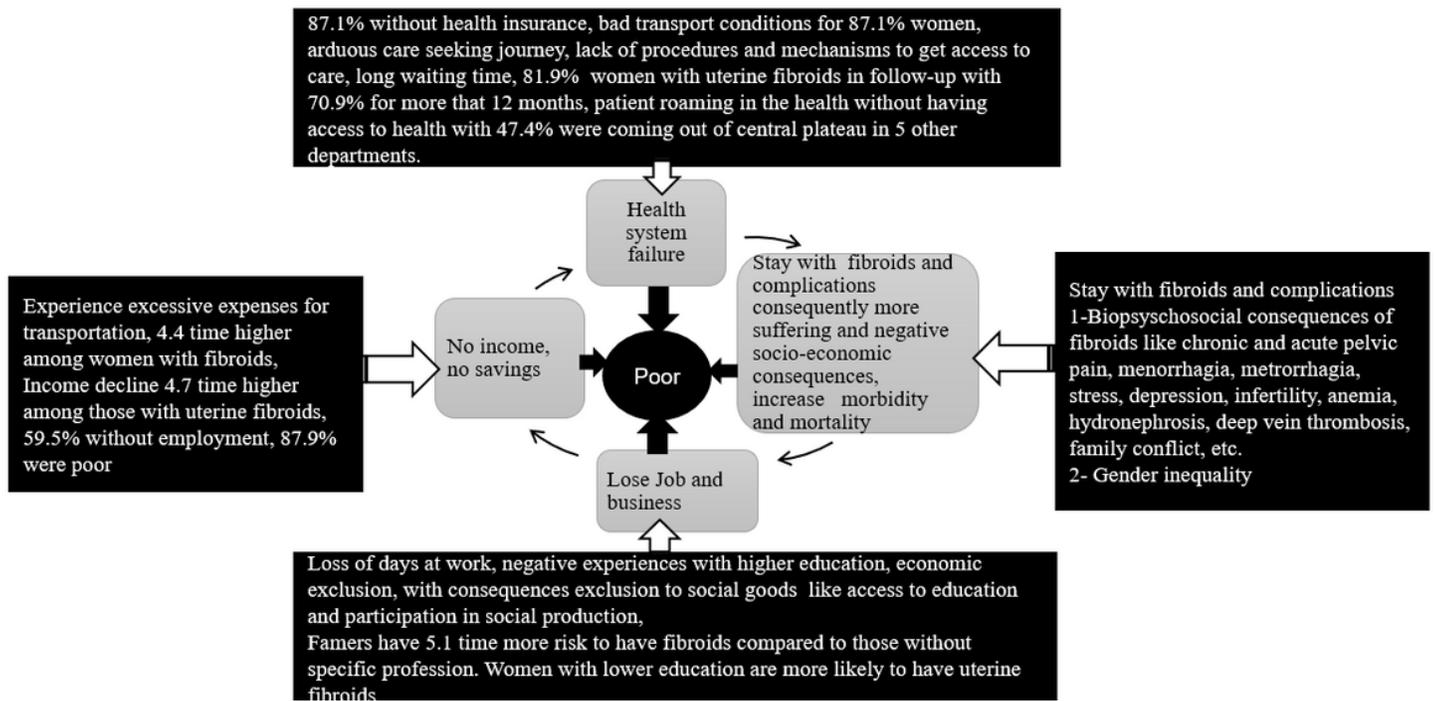


Figure 4

'Poverty cycle'

Supplementary Files

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