Project title: *Quality of life, depression and anxiety in women with abnormal uterine bleeding.*
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Project summary:
Abnormal uterine bleeding (AUB) defines any changes in the duration, frequency or flow volume of periods or bleeding between periods (1). Women experiencing these symptoms are known to have reduced quality of life and experience emotional distress (2, 11). We sought to quantitatively evaluate quality of life and emotional well-being before and after intervention. Participants were recruited from the Hysterectomy Alternatives Program (HAlt) at the Victoria General Hospital's Mature Women's Centre (MWC). Participants filled out validated questionnaires to measure quality of life, anxiety and depression at three intervals: before intervention and at six weeks and six months post-intervention. We also conducted semi-structured interviews asking the participants to describe their overall experiences of AUB and the emotions associated with it. We confirmed that women with AUB have reduced quality of life and that interventions increase functioning. The participant interviews revealed shared experiences such as social embarrassment, mood changes and routines to cope with AUB symptoms. We also found, through questionnaires, that women with AUB experience mild anxiety and depression, and that these both improve following treatment. However, this may not reflect their general psychological state, as the interviews showed that most women attribute their anxiety and depression to their AUB.

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INTRODUCTION

Abnormal uterine bleeding (AUB) defines any change in the duration, frequency or flow volume of periods or bleeding between periods (1). Women experiencing these symptoms are known to have reduced quality of life (2). There are a variety of interventions available. While hysterectomy is a definitive treatment, the associated risks and long recovery periods warrant the exploration of alternative strategies (3). At Winnipeg's Mature Women's Centre (MWC), the Hysterectomy Alternatives (HAlt) program provides both medical and minimally invasive hysteroscopic surgical interventions for abnormal uterine bleeding (1).

Definition of abnormal uterine bleeding

AUB is a common complaint in primary care, affecting up to fourteen percent of women (4). In 2011, the FIGO classification system (the *PALM-COIEN* acronym, Figure 1) for AUB established a universal nomenclature to describe the many causes of AUB (5). This system aims to improve communication within the medical community, optimizing patient care (5). The causes are classified into categories that distinguish structural abnormalities that can be visualized with imaging techniques or direct visualization (PALM) from systemic or vascular disorders (COEIN) (5). There are nine identified causes of AUB: Polyp, Adenomyosis, Leiomyoma, Malignancy and hyperplasia (PALM), Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic and Not yet classified (COEIN). A subclassification system is included for leiomyomas (fibroids) that specifies the location of the mass in the uterine wall (5).

Interventions

Depending on the cause of bleeding, there are three minimally invasive surgical procedures offered: uterine fibroid embolization, endometrial ablation and hysteroscopic resection of intrauterine disease. Each intervention removes or minimizes problematic fibroids, polyps or tissue that cause excessive uterine blood loss (6-8). Uterine fibroid embolization restricts blood flow to fibroids that cause enhanced menstrual blood loss (6). Endometrial ablation can be performed hysteroscopically using an electrode or non-hysteroscopically using heat to destroy the endometrium that is excessively shed during menstruation (7). In hysteroscopic resection, problematic polyps and fibroids that cause excessive bleeding are removed directly from the endometrial cavity, via transvaginal intrauterine instruments (8). In some circumstances women will choose to undergo hysterectomy, for example, if conservative interventions fail to relieve their symptoms (3).

Medical interventions are hormonal suppressive or antifibrinolytic agents that manipulate hormones to reduce or prevent menstrual blood flow (9). Combination oral contraceptives and cyclic progesterone limit endometrial proliferation and allow for withdrawal bleeding, regulating menstruation (9). Long-acting progestin injections and intrauterine progestin-containing systems suppress endometrial growth and activity, gradually causing amenorrhea without withdrawal bleeding (9). Danazol is a synthetic steroid that inhibits estrogen and progesterone receptors, resulting in endometrial atrophy (9). GnRH agonists down-regulate GnRH receptors, decreasing gonadotropins and ovarian hormones downstream (9).

Quality of life and mental health

Abnormal uterine bleeding has been found to cause multiple distresses, including physical symptoms, anxiety regarding bleeding, and emotional upset (10, 11). These factors are assessed in the Spies Uterine Fibroid Symptom and Health-Related Quality of Life questionnaire

(UFS-QOL), an effective tool for assessing patients' well being before and after intervention (10).

The UFS-QOL measures aspects of anxiety and depression, and many women experience symptoms associated with these conditions (10). There are validated tools for assessing anxiety and depression (such as the Beck Depression Inventory, PHQ-9 Patient Health Questionnaire for Depression, Hamilton Anxiety Rating Scale), however research regarding the occurrence of these disorders as comorbidities of diseases that cause AUB is less clear. Studies that have examined this relationship focus on patients receiving a specific surgical intervention (rather than a range of patient-selected interventions) and do not distinguish the diseases causing AUB (12-14).

The value of qualitative perspectives

Studies have shown that women with AUB feel that the questions typically asked in surveys and by their physicians do not adequately capture the experience of AUB (13, 15). A 2010 study by Matteson and Clark used focus groups to gain subjective perspectives of AUB and ask whether women feel their AUB is adequately addressed in the clinical setting (13). A 2007 study by Santer and colleagues used both questionnaires and interviews to ask women what aspects of AUB they felt were most bothersome (16). These studies found that typical clinical questions lack depth and do not emphasize issues that women feel are important (13, 16). Social embarrassment and shame, routines to cope with bleeding and impaired sexual relationships are some of the themes commonly overlooked (13, 15, 16). Often the most important issues to the physician can be the least meaningful ones to the patient.

This limited perspective may also affect assessments of depression and anxiety. Many women feel depressed and anxious as a consequence of their AUB, and these symptoms often abate when the AUB is treated (10, 12). A 2002 study by Glover et al explored distress among women in gynecology clinics, including ones with menorrhagia (11). They found that women largely attributed their emotional distress to the physical symptoms and social effects of their abnormal bleeding (11). Therefore, a patient perceived to have a mood or anxiety disorder may actually be displaying psychological consequences of her gynecologic disease (11, 15).

Though qualitative studies are scarce, it is clear that women feel unable to convey the full impact of AUB on their quality of life and emotional well being to their physicians. This contributes to patient dissatisfaction (13). There is a great need for further qualitative research to help physicians understand their patients and provide them with a better standard of care.

METHODS

Participants and setting

Study participants were recruited from the HAlt program at the Mature Women's Centre between June and December 2011. All of the women were referred from their primary care providers for treatment of AUB and associated symptoms such as dyspareunia or bloating. All patients underwent assessment by HAlt physicians and nurses, including a detailed history, pelvic examination, and hysteroscopy when indicated. Patients were approached at their initial visit to the Mature Women's Centre, or at their hysteroscopy. Some participants were recruited from HAlt clinics at the Gimli Hospital.

Participants were deemed eligible if they were new patients to the HAlt program with previously untreated AUB, and gave consent for participation. Fifty patients were asked to participate in the study. Of these, ten declined participation and ten took the consent form home

to consider and were lost to follow-up. Thirty participants gave consent and were enrolled in the study.

Ethics approval was obtained from the University of Manitoba Research Ethics Board and the institutional review committee, and the Victoria General Hospital Research and Evaluation Department.

Questionnaires

After providing consent, participants were asked to complete four surveys during their clinic visit. The studies were: the UFS-QOL questionnaire, the Beck Depression Inventory, the PHQ-9 Patient Health Questionnaire for Depression and the Hamilton Anxiety Rating Scale. These questionnaires are validated, objective tools for assessing quality of life, depression and anxiety. Patients also filled out an AUB symptom survey, either mailed prior to their appointment (as part of the regular HAlt program) or included with the other four surveys. This survey assesses specific symptoms through severity scales and Yes/No questions. One participant left the clinic after completing only two questionnaires. She was lost to follow-up with the study, though continued her care at the clinic. She was excluded from the study, leaving a total study sample of twenty-nine participants.

Interviews

To further investigate the participants' experiences and emotions, semi-structured telephone interviews were conducted. The interviews consisted of eighteen open-ended questions regarding social aspects of their AUB, mental health, family psychiatric history and experience seeking medical care. There were scripted prompts to guide women who found questions confusing or had difficulty articulating their answers. The interview was constructed based on findings from qualitative studies that identified common themes in women's descriptions of AUB (10, 11). Please see the attached interview script (figure 2).

To maintain reliability, the student performed all interviews. All participants were phoned, and twenty-five women completed the interview. Twenty-one women were interviewed prior to receiving an intervention for their AUB, and four after receiving an intervention.

Interventions

The questionnaires and interviews made up the pre-intervention baseline data for each participant. Each participant continued her evaluation with HAlt, and chose a medical intervention, surgical intervention or no intervention, based on her disease causing AUB and personal preferences (table 1). Eleven participants chose medical interventions: five participants chose cyclic progesterone, two chose depoprovera, and the remaining four chose one of danazol, mirena, cyclokapron, and depo-lupron. Thirteen participants chose surgical interventions: four chose polyp resection, three chose endometrial ablation, two chose fibroid resection, two chose uterine fibroid embolization and two were diagnosed with endometrial adenocarcinoma and therefore chose to undergo total abdominal hysterectomy with bilateral salpingoophorectomy (TAH-BSO). One participant chose both a medical and a surgical intervention. Seven participants chose not to receive any intervention.

Post-intervention follow-up

Six weeks and six months after intervention, the five questionnaires were sent to the participants by mail. At three months, sixteen participants had returned their questionnaires by

fax or mail at six weeks, and ten returned their questionnaires at six months. At three months one participant chose to discontinue her participation in the study, requesting that her initial questionnaires be removed, though her interview responses could remain as part of the study.

Data analysis

Data analysis included frequencies of all inventories and symptom severity indicators. When applicable, inventory results were broken down into categories (e.g., Hamilton Anxiety (HAM-A) Rating Scale scores are categorized into five categories: No anxiety, Mild, Mild to Moderate, Moderate to Severe and Severe). Mean scores were also calculated for each inventory and symptom severity indicator. P values were calculated using the student's T test. This was performed for the questionnaires at intervals from baseline to six weeks and baseline to six months.

RESULTS

Participants and terminology

In total, twenty-eight participants provided baseline data in the form of five questionnaires. Participation in the follow-up periods was varied, with a minority of participants completing all questionnaires at both the six-week and six-month periods. In reporting these results, the term *"all participants"* will refer to the entire study sample, regardless of how many times they completed the survey. The term *"cohort"* will refer to those participants who completed surveys at each of the three time periods. Generally the cohort group reflected all participants, but identifying a cohort group enabled comparison over time. We considered the baseline data for all participants as a quantitative representation of the experience of AUB, though we did note trends over time. Twenty-five participants were interviewed and their responses were recorded and compared.

UFS-QOL: Symptom severity scores (table 2)

Results of the UFS-QOL are reported as percentages, calculated as per the validated tool. For all participants, the mean symptom severity at baseline was 54.64 with a maximum of 87. For the cohort, symptoms improved from 48.50 at baseline to 28.04 at six months.

UFS-QOL: Quality of life scores (table 3)

At baseline, the mean quality of life for all participants was 45.3 with a minimum of 10. For the cohort, there was no improvement in quality of life from baseline to six weeks (means 56.86 and 50.61, respectively). By six months, however, quality of life improved to 80.04. The change from baseline to six months was statistically significant, with a P value of 0.0285.

Hamilton Anxiety (HAM-A) Rating Scale (figure 3)

For all participants, the baseline mean anxiety score was 12.65 (mild anxiety), with 30% of participants showing either mild to moderate or moderate to severe anxiety. In the cohort, the mean baseline score was 11.50 (mild anxiety). Participants then gradually improved; 8.75 at six weeks and 6.50 at six months. Further, all participants showed mild anxiety at six weeks, compared to 88% at baseline, and 13% showed no anxiety at six months. The change from baseline to six months was statistically significant, with a P value of 0.046.

Beck Depression Inventory (figure 4)

The mean score for all participants at baseline was 12.65 (low depression), though 29% of participants did show moderate anxiety. Again, results improved for the cohort. At baseline the cohort mean was 13.60 (low depression), changing to 14.20 and 7.20 at six weeks and six months, respectively. At six months, 33% showed zero depression, compared to 11% at both baseline and six weeks.

Patient Health Questionnaire (PHQ-9): symptoms (figure 5)

This component of the PHQ-9 measures symptoms of depression. The baseline mean score for all participants was 7.17 (mild major depressive disorder). In the cohort, the mean score was 6.67, improving somewhat to 5.44 at six weeks and 4.33 at six months. Though the values are improving, these scores are all considered mild major depressive disorder.

PHQ-9: functioning (figure 6)

The PHQ-9 also asks the participant to identify how difficult her emotional problems have made it for her to function in her day-to-day life. For all participants at baseline, 63% reported that functioning was somewhat difficult. In the cohort, there was some initial decline in functionality – more participants found functioning somewhat difficult at six weeks than at baseline (44% versus 56%). However, this improved to 33% at six months, with 67% reporting that functioning was not at all difficult.

AUB symptom severity (table 4)

Participants were asked to complete a questionnaire about the severity of certain menstrual and gynecologic symptoms (scaled 0 to 5). For all participants, mean baseline scores ranged from 1 to 4.42. In the cohort, mean severity decreased in nearly all symptoms, though the trends did not always show a gradual decline. For pelvic pain, there was an increase at six weeks (mean 1.75), then a return to the baseline score (0.75) at six months. Some symptoms seemed to get worse before they got better, with severity increasing at six weeks, then decreasing below baseline at six months. This was true for pelvic pressure, abdominal bloating and general bloating. For urinary pressure, there was an overall increase in severity, with a baseline of 1.00 to 1.25 at both six weeks and six months. For bowel pressure, there was an overall a decrease from the baseline score of 1.25. However, there was an increase between six weeks and six months (.25 and 1.00, respectively). The change from baseline to six months for menstrual cramping was statistically significant, with a P value of 0.0026.

AUB symptom presence

At each interval participants were asked to report the presence or absence of two symptoms: bleeding between periods and bleeding after intercourse. In the cohort these symptoms persisted at six weeks, then resolved at six months. This is consistent with the particular interventions the participants received (cyclic progesterone, uterine fibroid embolization, polyp resection and endometrial ablation), where we know that these symptoms may not improve within six weeks and patients are advised as such.

Interviews: day-to-day impact of AUB

Participants spoke about modifying their daily activities or environments while menstruating. Many women avoid certain activities such as exercising, shopping and social

engagements with family or friends. Avoidance of physical activities was due to either heavy bleeding or lack of energy. A couple of women do not leave the house during their periods; one noted that she *"avoids life"* in general.

The participants spoke about their routines for adapting to AUB. By being prepared and rearranging their schedules, they can cope with the bleeding and associated symptoms. One coping mechanism is usage of feminine products – tampons and pads. Women with unpredictable bleeding wear panty liners every day or carry pads and tampons at all times. During a period, the participants described the use of many pads and/or tampons, and the need to change them frequently during the day.

"I pack 'The Arsenal'. I bring lots of extra things to work just in case: a lot of tampons and extra mini-pads. I'm thinking about keeping spare underwear at work."

"Try to keep up but always have to be prepared for a flood. Garbage bags, extra clothes, lots of pads."

"I need to be near a bathroom every twenty minutes."

Some women also mentioned that they adapt the colour of their clothing or furniture. Many women change their wardrobe choices (eg. not wearing white pants). A couple of women said they must sit on a towel and one sleeps in a garbage bag to avoid leaking onto bed linens.

Women feel self-conscious about their AUB and embarrassed about their routines, particularly when they cannot conceal them. Many mentioned frequent washroom usage, particularly at the workplace, as a source of embarrassment.

"I do public presentations so I would worry that it would come, and then have to say to them that if I go to the bathroom a lot it's because I have to change my pad. Not something I like to do on a regular basis."

Experiencing a leak in public is even more embarrassing. One woman provided examples of having a clot run down her leg while in a restaurant or at the grocery store. Participants are also self-conscious about their appearance during their period. For example, they feel that they appear bloated, have pale skin or just looked unwell overall. One woman feels that she just is not able to look her best when bleeding and this bothers her. Odour is embarrassing for a few participants.

Interviews: impact of AUB on mood

Most participants talked about AUB affecting their mood. One woman said that AUB makes her *"a different person"*. The participants' moods would usually change while experiencing symptoms. These include: depression, frustration, anger, irritability, grumpiness, anxiety and having heightened emotions. Sometimes, mood changes resulted in women taking their frustration out on others; one woman noted *"the whole family suffered."*

AUB causes frustration for a variety of reasons. For some women it was a lack of control over their body and symptoms. For example, not knowing when bleeding will occur, having constant symptoms, not understanding the underlying cause. It was irritating for women to feel that nothing can help them. Some women feel that they are too young or too old for AUB.

"I just want to be normal."

"My body can't be healthy when I do everything I can do be a healthy person. It's out of my control."

Interviews: AUB and anxiety

Many of the participants experience anxiety, and most attribute it at least somewhat to their AUB. Some participants are anxious just before beginning their period, while many are anxious for the duration of their period. Some women further described their anxiety as being on edge or getting overwhelmed by little things. For others, anxiety is directly related to AUB.

"I'm almost psychotic – I'm so worried it's showing and then I get to the bathroom and it's fine."

While no participants have been diagnosed with an anxiety disorder, several women have experienced anxiety attacks, or think they have an anxiety disorder. There were women with anxiety disorders in their family; one participant's husband and another's mother and brother have been diagnosed.

AUB and depression

Feelings of sadness and depression are very common among the participants. Only a couple of women attribute their feelings to something other than AUB. The frequency of depressed feeling varied among participants. Some feel depressed occasionally and some frequently (one woman says she feels sad or depressed seven out of ten days).

"I don't truly find joy in anything."

"Mostly it's sadness because I don't have energy and I feel like I'm wasting my life."

"Someone says or does something and I think 'what am I worth around here?' Some days are like that."

A handful of participants have been diagnosed with depression and are currently on medication for depression. Some participants have family members with depression, including siblings, parents and grandparents.

Interviews: experience with AUB and medical professionals

Women have had varied experiences with medical care. Some were satisfied and said that their physicians referred them in a timely manner. Others had negative experiences, with some enduring dismissed symptoms, misdiagnoses, ineffective medications, limited treatment options and a (perceived) general lack of concern from their doctors. For example, one participant described having to go to the emergency department with bleeding and severe headaches before she was referred, despite discussing her AUB with her doctor many times. For some participants, it was necessary to be assertive or even ask multiple physicians to obtain a referral.

"I was pushing [my family doctor] and then she referred me to a gynecologist and then I had to push the gynecologist to get to the clinic."

Overall, participants had a positive response to the MWC. They were impressed with the quality of care and thought that the staff was timely and professional. Participants feel that the staff understands their experiences and were genuinely concerned. They particularly appreciated being offered a variety of treatment options.

DISCUSSION

There is much quantitative and qualitative evidence showing that AUB affects functioning and causes emotional strain (2, 10, 11, 13). Our study combined the two approaches, giving a more complete perspective. It has been shown AUB negatively impacts quality of life,

and we predicted and confirmed, this finding (2). The results also confirmed predictions of a correlation between AUB and mental health (12-14). Due to the small study sample, it is not possible to compare the interventions, and it is difficult to apply our observations to the greater population. However, the results give valuable anecdotal evidence that women with AUB have poor quality of life and show some psychological impairment, and that interventions have a positive effect. Other studies have shown that the interventions improve symptoms, but there are only a handful of studies measuring psychological outcomes. The results of our study show trends that warrant further research.

The cohort group showed that quality of life increased, and anxiety and depression decreased following intervention. There were two exceptions at the six-week follow-up. First, participants showed no improvement in health-related quality of life on the UFS-QOL questionnaire. Second, in the PHQ-9, the participants reported that depressive symptoms made functioning slightly more difficult. In both cases, conditions improved at six months. These findings are a paradox, as the participants reported that their AUB and depression symptoms improved, though their quality of life and functioning declined.

AUB symptoms improved following intervention, which is consistent with previous studies (6-9). In the cohort group a few symptoms increased or did not improve, such as abdominal pain and abdominal bloating. These are symptoms are non-specific, and may be difficult to treat as they may not be related to the AUB. This may also be a reflection of the interventions these participants received (cyclic progesterone, uterine fibroid embolization, polyp resection and endometrial ablation), which can lead to unpredictable bleeding. In our experience patients may not see improvement for four to six weeks. As noted, the quality of life and other scores also did not show significant changes in the first six weeks perhaps suggesting that the symptoms and quality of life at six weeks do not reflect the ultimate outcome of the intervention.

The questionnaires showed that on entry, the participants had, on average, mild anxiety and mild depression. The interviews revealed that most patients who experience these emotions associate them with their AUB. There are important clinical implications to these findings. First, some women may be treated for anxiety or depression as psychiatric conditions, when really a gynecologic intervention may be the answer. Thus for a patient with a depressed mood, it may be beneficial for the physician to screen for AUB, and explore it as a possible underlying cause. Second, a woman's emotional symptoms may be excused as an effect of her AUB. Emotional distress is common for women with AUB, but physicians must judge when distress has become pathologic and requires separate intervention. For example, it is common for women to feel anxious about frequent public bathroom usage, but staying inside the house for several consecutive days may show an abnormal level of anxiety.

The similarities in interview responses were remarkable, and it seems that AUB is a nearly universal experience. We found that our participants have embarrassing experiences (such as leaking through clothes), and then become fearful of future episodes, so they develop specific routines to contain their bleeding or avoid activities until they feel safe and physically well. For those who bleed regularly, their periods dominate their schedules and activities, and those with unpredictable bleeding must be constantly prepared. The entire experience is frustrating and women are eager to get help. These findings were consistent with other studies. In a study of focus groups, Matteson and Clark identified certain themes that emerged from their discussions (13). Three of their themes were also prevalent in our study: irritation and inconvenience, social embarrassment and ritual-like behaviour (13). O'Flynn concluded that women try to manage their AUB within social constraints that drive them to conceal their menstruation (15). The

participants in our study emulated this so-called "menstrual etiquette", and identified it as a major source of anxiety (15).

In comparing the interview responses with the results of the UFS-QOL, the interviews provided a much more detailed description of quality of life than a numerical score could. Matteson and Clark agree, and have stated that achieving a better understanding of the patient experience improves clinical care and research (13). The participants' testimonies were profound, as seen by the sample of quotes. The participants expressed important sentiments that were not captured in the UFS-QOL survey, such as mood changes or missed work. Also, it was interesting that nearly all participants were willing, if not eager, to be interviewed, but participation in the mail-out surveys was low. It could be that women feel that sharing their own stories is more valuable than a scaled score. These benefits of qualitative methods should be noted for future research – there is a need for more interview and focus group studies.

The major limitation of our study was small sample size. Participants were recruited primarily during times when the volume of patient referrals tends to be low. A greater sample would have given more power to the study, and the results would have more accurately reflected the greater population. The study was also limited by low retention at the six-week and six-month intervals. More data at these times could have allowed for comparison of the different interventions and provided stronger evidence for changes over time.

An important advantage of our study was combining quantitative and qualitative measures. Quantitative studies fall short because they do not examine the participants' perceptions of their psychological state. Qualitative studies ask participants about their emotions, but do not objectively measure them. Our study combined the strengths of each method, obtaining valid measurements of anxiety and depression, and also considering the participants' perspectives. Another advantage is that the participants received the standard care provided in the HAlt program. They were not assigned to any specific interventions and were given options once the diagnosis was made. Participation did not involve any measures unusual to HAlt patients (questionnaires and phone interviews are common at the clinic). Therefore we were able to observe and evaluate each participant throughout her normal clinical experience.

In summary, we found that the emotional impact of AUB is important. Our participants showed depression and anxiety, and whether or not they identified AUB at the cause, their emotional state improved with intervention. These are preliminary trends that should continue to be studied, and we have seen that qualitative assessments (through participant interviews) are useful in research for obtaining a thorough depiction of their experiences. An important observation was that women become frustrated with their physicians who dismiss the severity of their symptoms (whether emotional or physical) or present limited options for intervention. With greater awareness of alternative treatments to hysterectomy and a better understanding of the experience of AUB, women can feel truly supported by their medical team and physicians can provide care in a way that is meaningful for the patient and effective for treating the disease.

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Figure 1: FIGO classification system including leiomyomas subclassification system (5)

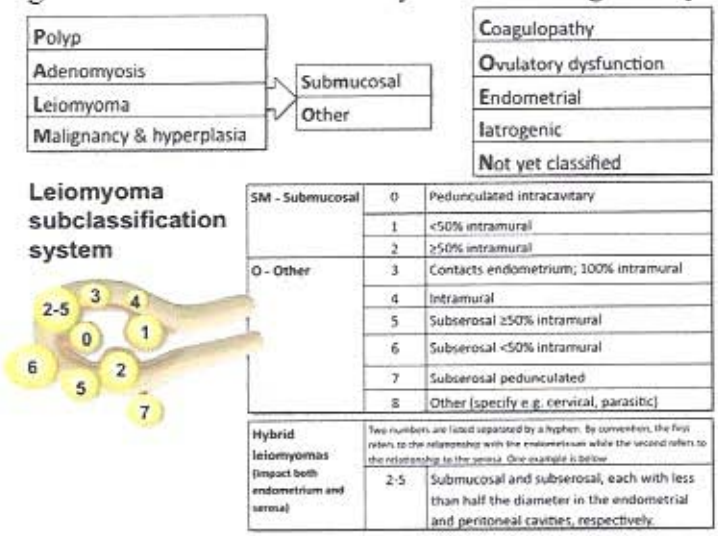


Figure 2: Participant interview script

I'm going to ask you some questions about your Abnormal Uterine Bleeding (I'll call it AUB for short). This is a chance to tell us your thoughts and feelings in your own words. There are no right or wrong answers; we just want to know about your experience of AUB. However, we do want to stay on track, so I may stop you if your answers lose relevance to the question. Remember this is just between you and I, your answers will not be shared with any other staff (for example, nurses or physicians), so please be honest. We can stop if you feel uncomfortable. Do you have any questions? Ready?

1. *Please describe any changes to your daily routine since your AUB began.*
   Prompt: Describe how your daily schedule has changed
2. *Please describe any activities you avoid because of your AUB.*
3. *Please describe any changes in mood since your AUB began.*
4. *(If yes to above) Please describe the timing of your mood changes. Are they constant or do they only occur when bleeding?*
   Prompt: Do you only feel or act that way when having your period or is it all the time?
5. *Please describe any feelings of irritation or frustration about your AUB.*
6. *How often do you feel sad or blue?*
7. *(If yes to above) How much do you think your sadness is related to your AUB?*
8. *How often do you feel anxious?*
9. *How much do you think your anxiety is related to your AUB?*
10. *Have you ever been diagnosed with depression?*
11. *Have you ever been diagnosed with an anxiety disorder?*
12. *Has anyone in your family ever been diagnosed with depression?*
13. *Has anyone in your family ever been diagnosed with anxiety disorder?*
14. *Please describe any feelings of self-consciousness or embarrassment about your AUB.*
    Prompt: Describe any changes in your relationships with people.
15. *Has your AUB changed how you feel about your purpose in life?*
    Prompt: Has it changed how you think about the meaning of your life?
16. *How did your doctor respond when you told him/her about your AUB?*
17. *Please describe any difficulties you experienced in getting help for your symptoms.*
18. *How do you feel about being here at the Mature Women's Centre?*
    Prompt: Emotionally, do you feel better or worse being here?

Table 1: Participant interventions

Intervention	Number of participants (N)
Medical interventions	**11**
Cyclic progesterone	5
Depoprovera	2
Danazol	1
Mirena	1
Cyclokapron	1
Depo-lupron	1
Surgical interventions	**13**
Polyp resection	4
Endometrial ablation	3
Fibroid resection	2
Uterine fibroid embolization	2
TAH-BSO (Participants diagnosed with carcinoma)	2
No interventions	**7**

Table 2: UFS-QOL symptom severity scores

[Maximum possible score: 100, **not statistically significant ($p > 0.05$)]

UFS scores	All participants	Cohort		
	Baseline	Baseline	6-week**	6-month**
Mean	54.64	48.50	41.21	28.04
Minimum	0	0	3	0
Maximum	87	81	72	65.6
N	28	9	9	9

Table 3: UFS-QOL quality of life scores

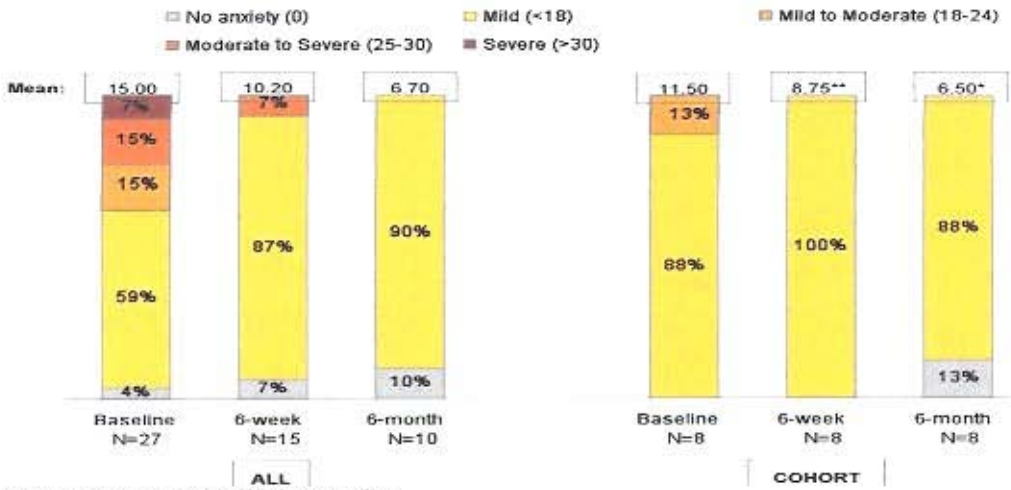
[Maximum possible score: 100, *statistically significant ($p < 0.05$), **not statistically significant ($p > 0.05$)]

QOL scores	All participants	Cohort		
	Baseline	Baseline	6-week**	6-month*
Mean	45.35	56.86	50.61	80.04
Minimum	10	20.7	17.2	16.4
Maximum	100	99	100	100
N	28	9	9	9

Figure 3: HAM-A Anxiety Rating Scale scores

[*statistically significant ($p < 0.05$), **not statistically significant ($p > 0.05$)]

Total Score	Level of Anxiety
0	No anxiety
<18	Mild
18-24	Mild to Moderate
25-30	Moderate to Severe
>30	Severe



Total percentage may exceed 100% due to rounding

Figure 4: Beck Depression Inventory scores

[**not statistically significant (p >0.05)]

Classification	Total Score	Level of Depression
Low	1-10	These ups and downs are considered normal
	11-16	Mild mood disturbance
Moderate	17-20	Borderline clinical depression
	21-30	Moderate depression
Significant	31-40	Severe depression
	Over 40	Extreme depression

Note: A persistent score of 17 or above indicates a possible need for professional treatment.

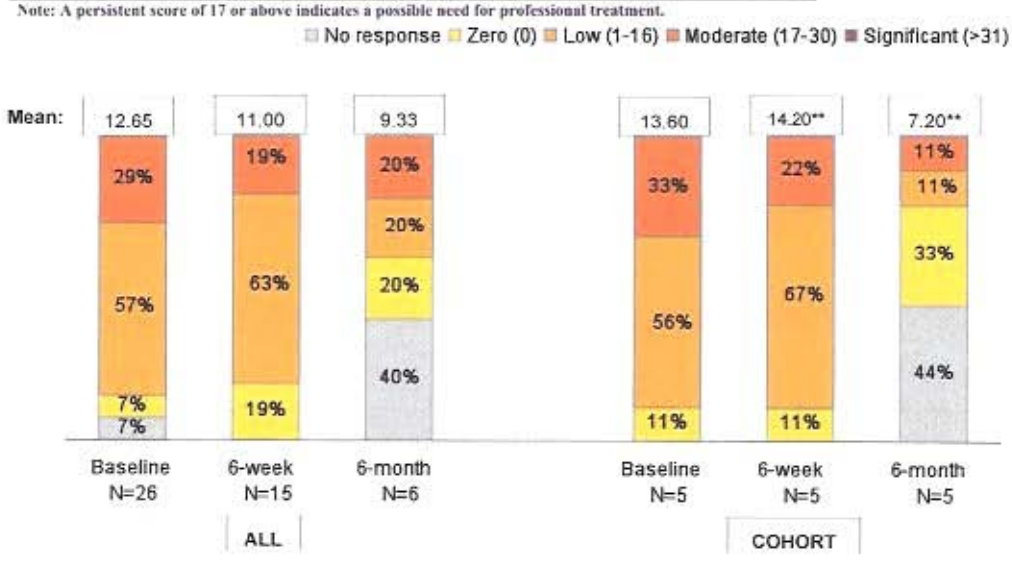


Figure 5: PHQ-9 symptom scores

[**not statistically significant (p >0.05)]

Score	Action
0-4	The score suggests the patient may not need depression treatment
5-14	Mild major depressive disorder. Physician uses clinical judgment about treatment, based on patient's duration of symptoms and functional impairment.
15-19	Moderate-major depressive disorder. Warrants treatment for depression, using antidepressant, psychotherapy or a combination of treatment.
20+	Severe major depressive disorder. Warrants treatment with antidepressant, with or without psychotherapy, follow frequently.

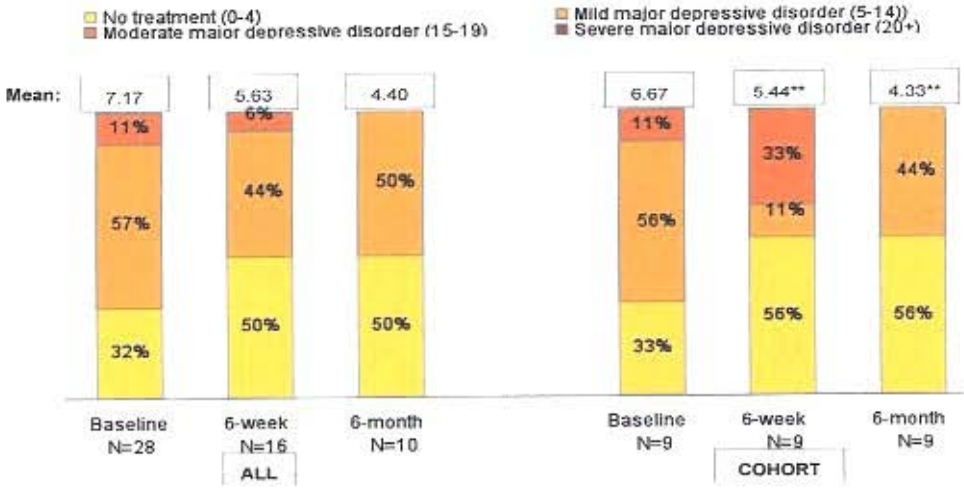


Figure 6: PHQ-9 functioning scores

[**not statistically significant (p >0.05)]

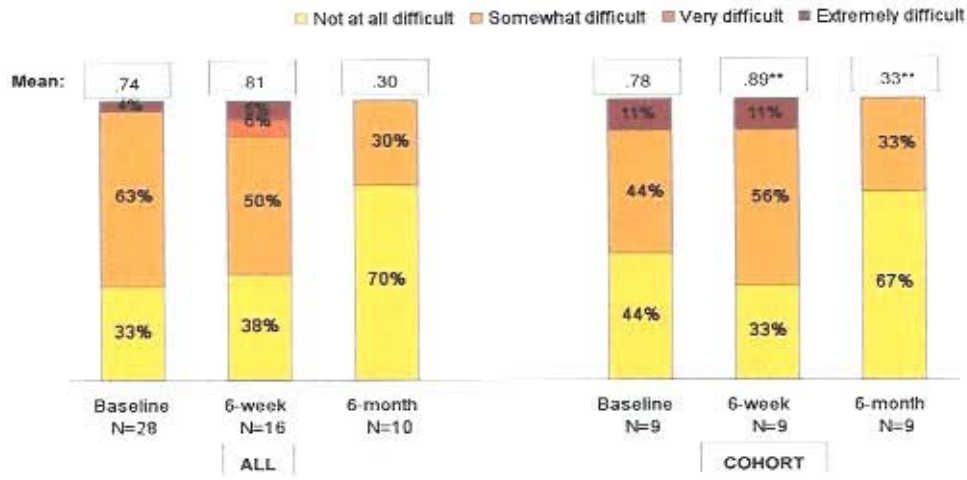


Table 4: AUB symptom severity mean scores

[*statistically significant (p <0.05)]

Symptom	All participants N = 19	Cohort N = 4		
	Baseline	Baseline	6-week	6-month
Heavy menstrual bleeding	4.42	4.75	3.50	2.50
Menstrual cramping	3.74	3.50	2.25	0.50*
Pelvic pain	2.44	0.75	1.75	0.75
Pelvic pressure	2.40	1.50	2.25	0.75
Urinary pressure	2.25	1.00	1.25	1.25
Backache	3.33	3.00	3.00	2.00
Abdominal bloating	3.06	2.50	3.00	2.00
Dyspareunia	1.00	1.00	0.25	0.25
Bowel pressure	2.12	1.25	0.25	1.00
Bloating	2.63	0.75	2.25	0.50
Constipation	1.71	1.00	0.75	0.75