

A Cross-sectional Descriptive Study on the Quality of Life, Anxiety and Depression Among Filipino Patients with Pelvic Endometriosis

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Objective: To determine the impact of endometriosis on the quality of life, risk of anxiety and depression among Filipino women in a tertiary hospital.

Methods: A cross-sectional study was conducted among 210 patients aged 18-50 diagnosed clinically and sonographically with pelvic endometriosis. Verbal and written consent were secured. Descriptive statistical analysis was used to describe the baseline characteristics of the population. Short Form McGill Pain Questionnaire (SF-MPQ) was used to assess the degree of pain symptoms of the patients. WHO Quality of Life Tool (WHOQOL-BREF), Hamilton Anxiety Scale (HAM-A) and Hamilton Depression Scale (HAM-D) in Filipino version were used to evaluate the quality of life, anxiety and depression of the respondents. Series of paired t-tests were performed to determine the differences in the average outcomes (i.e. level of depression, anxiety, quality of life and subscales, pain scores and types of pain). McNemar's chi-square test was utilized to determine the differences in the frequency of mild to severe anxiety and depression before and after treatment. Spearman's rho rank correlation was performed to determine the relationship of the level of pain to the outcome measures. One-way analysis of variance was performed to determine differences in the current mean levels of depression, anxiety, quality of life and its subscales across disease conditions (i.e. endometriosis alone, myoma uteri, adenomyosis, other gynecologic conditions, infertility). The level of significance was set at a p-value < 0.05 using two-tailed comparison.

Results: The most common symptoms reported were the presence of dysmenorrhea (90.95%) and pelvic pain (88.57%), which were both rated at pain scale 8/10. Majority (73.8%) of patients have some form of depression (mild-28.57%, moderate-27.13%, severe-13.33%, very severe-4.76%) with an average level of depression at 12.39 ± 6.5 . Majority (54.76%) of patients likewise have some form of anxiety (mild-15.24%, moderate-20.95%, severe-18.57%) with an average level of anxiety at 15.44 ± 10.38 . Depression and anxiety scores significantly decreased after medical treatment. In terms of overall quality of life and perceived level of health, respondents demonstrated an average score of 3.25 ± 0.91 and 2.86 ± 0.96 , respectively. These post-treatment scores showed significant improvement from baseline. The sub-domains (i.e. physical, psychological, social and environmental) also have relatively high scores ranging from 13.44 ± 2.39 to 15.60 ± 2.63 . These are indicative of very satisfactory quality of life. Other gynecologic conditions, such as infertility, myoma uteri, and adenomyosis, do not contribute significantly to the outcomes measured.

Conclusion: Pelvic endometriosis is a chronic, life-long, inflammatory disease that presents mainly as pelvic pain. This debilitating pain can significantly affect patients' psychological well-being and mental health, which is manifested by the very high incidence of anxiety and depression among Filipino women with endometriosis. Management of endometriosis is complex, hence a multi-disciplinary approach that includes psychiatric counseling may be necessary.

Key words: Anxiety, depression, pelvic endometriosis, pelvic pain, quality of life

Introduction

Endometriosis is a chronic inflammatory disease characterized by the presence of endometrial glands and stroma outside the uterine cavity. It affects between 5 and 10% of women of reproductive age, typically between 25 and 35 years.^{1,2} Up to 80% of women with endometriosis experience chronic pain (such as dysmenorrhea, non-menstrual pelvic pain, dyspareunia and dyschezia) and only 20-25% of patients are symptom-free. According to recent data, 30-50% of infertile women have endometriosis.^{3,4} These figures represent around 176 million women affected worldwide.⁵

Chronic pelvic pain (CPP) is a common and disabling condition among women of reproductive age.^{6,7} Although there is no complete agreement about the definition of CPP, it is characterized by the presence of continuous or intermittent pain in the lower abdomen, persistent for at least six months, severe enough to cause disability or functional impairment, and requiring medical and/or surgical treatment.^{8,9,10} Several studies were reported on the impact of pain caused by endometriosis on the quality of life, incidence of anxiety and depression.

In 2017, the Philippine General Hospital Section of Reproductive Endocrinology and Infertility outpatient clinic catered to 4,687 patients, both new cases and follow-up patients. Four hundred sixty two women were diagnosed with endometriosis. With so many studies correlating pain caused by endometriosis and high levels of anxiety and depression and lower quality of life, it can be speculated that psychological factors can affect the intensity of pain and the effectiveness of treatment. Although current data do not allow firm conclusions, accumulating evidence suggests that psychopathological diseases might amplify pain symptoms in endometriosis patients, and in this way, contribute to create a vicious circle.

Although several studies have indicated that endometriosis negatively impact the quality of life and poses increased occurrence of anxiety and depression among affected women, it is still unclear whether these conditions are a result of endometriosis itself or other factors such as CPP. If this study would demonstrate poor quality of life and increased incidence of anxiety and depression

among patients with endometriosis, obstetrician-gynecologists can holistically manage their patients and seek collaborative management with other specialties such as Psychiatry or Psychology. Furthermore, there are no studies published that assessed the quality of life and psychological well-being of Filipino women with endometriosis, hence this research.

The objective of the study was to determine the impact of endometriosis on the quality of life, risk of anxiety and depression among Filipino women in a tertiary hospital.

Methods

Research Design

This is a cross-sectional descriptive study.

Study Population

The study population consisted of Filipino reproductive-aged women, consulting at the outpatient clinic of the Department of Obstetrics and Gynecology of UP-PGH, for pelvic endometriosis.

Inclusion Criteria:

- Filipino women Ages 18-50 years of age
- Clinically (i.e. patients with pelvic pain, non-menstrual or menstrual pain) and sonographically (i.e. adhesions, endometriotic focus, endometriotic cysts) diagnosed with pelvic endometriosis (Surgical diagnosis was not a requirement for the inclusion in the study)

Exclusion Criteria

- Women with known case of any psychiatric disorder.

Withdrawal Criteria:

- Women who were not be able to complete the questionnaires
- Women who withdrew their consent in the study

Sampling Design

All patients seen in the outpatient clinic diagnosed to have pelvic endometriosis were included in the study unless they are excluded based on the exclusion criteria. Patient selection was done by the principal investigator and a research assistant.

Sample Size

Two hundred ten (210) women with endometriosis were selected for participation in the study, which was computed based on a previous study conducted by Sepulcri and do Amaral (2008) which showed that 86.5% of women with endometriosis presented depressive symptoms and 87.5% presented anxiety. The sample was computed using a 5% margin of error with a power of 0.80 and a significance level of 95%. An additional 7.5% was subsequently added to the computed sample to account for the possibility of non-response or incomplete data.

Description of the Study Procedure

Procedure on the conduct of the study was explicitly explained to the study participants. Verbal and written consent were secured by the principal investigator and the research assistant. Once the consent was secured, demographic profile of the patients, including age, gravidity, parity, weight, height, and presence of co-morbidities, was obtained and recorded in a data collection form by the principal investigator or the research assistant.

Short Form McGill Pain Questionnaire (SF-MPQ) which consists of 15 pain descriptors was used to assess the degree of pain symptoms of the patients. Validated questionnaires namely World Health Organization Quality of Life Tool (WHOQOL-Bref) and Hamilton Anxiety (HAM-A) and Hamilton Depression (HAM-D) Scale were used to evaluate the quality of life, anxiety and depression among the patients. All questionnaires were in Tagalog version. The questionnaires were given to the participants which they answered in about 25-30 minutes along with the interview process of HAM-A and HAM-D. Either the principal investigator or the research assistant

was always present to answer the questions of the participants should they need clarification. Data collection was done for 3 months.

Description of Analysis

Once data were extracted by the investigators, all the information were manually entered into a Microsoft Excel file. Data processing and analysis were carried out using the program SPSS 20.

Descriptive statistics was used to describe the baseline characteristics of the population in terms of significant variables such as maternal age, obstetric history, presence of other gynecologic conditions, (e.g. adenomyosis, myoma uteri, etc.), use of medications for endometriosis, and history of infertility. Independent samples of t-test and chi-square test of association were performed to determine differences in the outcomes across stratified groups. The level of significance for all sets of analysis was set at $p < 0.05$ using two-tailed comparisons. Significance levels were not adjusted for multiple comparisons performed.

Data were summarized by describing the pain scale and quality of life as well as the presence or absence of depression and anxiety among Filipino patients in relation to the presence of endometriosis and other conditions associated with it (e.g. infertility, adenomyosis, myoma, etc).

Ethical Considerations

The commencement of the data collection began only after approval of the University of the Philippines-Manila Research Ethics Board (UPMREB) PGH Review Panel. Informed consent was strictly secured from each study participant. It was explained to the participants that, in accordance to the Data Privacy Law of 2012 and the National Ethical Guidelines for Health and Health-Related Research 2017, the confidentiality of information shall at all times be observed. Unless required by law, all the records that will link the participant to specific information, will not be released.

Disclosure of Conflict of Interest

The investigators are not affiliated with organizations or committees that could affect the

results and conclusions of the study. They also have no competing financial interests that could reasonably be viewed as a conflict of interest.

Recruitment and obtaining of informed consent was done by the principal investigator. The informed consent and data were secured by the principal investigator and the research assistant.

Source of Funding

The principal investigator paid for all the expenses incurred in the study. No outside sources of funding was involved.

Results

A total of 210 women were included in the study. Table 1 shows the sociodemographic characteristics of the study respondents. The average age of the participants was 36 years old with more than half of the respondents beyond 30 years old suggesting that most of the respondents were middle-aged women. Most of the respondents were married, finished high school and college levels and were Roman Catholics. Half of the respondents (51.43%) have average working period of nine hours and most of them used public transportation going to work.

Majority of respondents (60.95%) have normal body mass index, and only a few were smokers (3.3%) or alcoholic beverage drinkers (17.62%).

During the data collection, half of the participants reported zero level of stress (with 10 being the highest), with only less than ten percent of the respondents claiming to have a stress level of greater or equal to seven.

Table 2 shows that the most common medical condition present among the respondents was hypertension (12.86%). Other concomitant gynecologic conditions noted were adenomyosis (20.48%) and myoma uteri (15.71%). The most common symptoms reported were dysmenorrhea (90.95%) and pelvic pain (88.57%), which were both rated at pain scale 8/10 by the participants – suggesting a significant impact of these symptoms to these women. Pelvic pain can be considered as chronic pelvic pain, as the mean duration was more than 6 months (3 ± 3.87 years). Dyspareunia and dyschezia were also experienced by some women

Table 1. Sociodemographic characteristics of the study population.

Sociodemographic Characteristics	Frequency/Mean
Age in years	(mean) 36 ± 6.76 [20-53]
Civil Status	
<i>Single</i>	97 (46.19%)
<i>Married</i>	107 (50.95%)
<i>Separated</i>	3 (1.43%)
<i>Widow</i>	3 (1.43%)
Highest Educational Attainment	
<i>Elementary Level</i>	1 (5.24%)
<i>High School Level</i>	94 (44.76%)
<i>Vocational Level</i>	15 (7.14%)
<i>College Level</i>	90 (42.86%)
Religion	
<i>Roman Catholic</i>	177 (84.29%)
<i>Protestant</i>	33 (15.71%)
Body Mass Index	
<i>Underweight</i>	18 (8.57%)
<i>Normal</i>	128 (60.95%)
<i>Overweight</i>	55 (26.19%)
<i>Obese</i>	9 (4.29%)
Gravidity	0 (2) [0-6]
Parity	0 (2) [0-5]
Social History	
<i>Cigarette Smoking</i>	7 (3.33%)
<i>Alcohol Drinking</i>	37 (17.62%)
Employment	
<i>Currently Working</i>	108 (51.43%)
<i>Usual Working Hours</i>	(mean) 9 ± 3.70 [4-24]
<i>Walking to Work</i>	22 (23.16%)
<i>Commuting to Work</i>	73 (76.84%)
Average Monthly Income	
<i>Less than P 10,000</i>	49 (28.32%)
<i>P 10,000 – 30,000</i>	120 (69.36%)
<i>P 30,000 – 50,000</i>	2 (1.16%)
<i>More than P 50,000</i>	2 (1.16%)
Usual Source of Financial Support	
<i>Pension</i>	3 (1.47%)
<i>Savings</i>	108 (52.94%)
<i>Husband</i>	76 (37.25%)
<i>Children</i>	1 (0.49%)
<i>Others</i>	16 (7.84%)
Reported Stress Level (1-10)	0 (5) [0-10]

with perceived pain score of 5 to 6. Seventy one respondents (33.81%) have infertility with a mean

duration of 10 ± 4.48 years. The most common cause of infertility was noted to be pelvic (78.87%), followed by male factor (35.21%).

Table 3 shows that the most common treatment regimen among the study participants was GnRH agonist (59.05%), followed progestin only pill (42.86%). Other treatment regimens used by respondents were combined oral contraceptive pills (OCPs) and depo-medroxyprogesterone acetate (DMPA). All medications provided good relief of pain symptoms. However, it was the use of oral OCP

Table 2. Medical condition of the study population.

<i>Medical condition</i>	<i>Frequency/Mean</i>
Past Medical History	
<i>Hypertension</i>	27 (12.86%)
<i>Diabetes mellitus</i>	12 (5.71%)
<i>Dyslipidemia</i>	12 (5.71%)
<i>Heavy bleeding</i>	17 (8.10%)
<i>Bronchial asthma</i>	5 (2.38%)
<i>Myoma uteri</i>	33 (15.71%)
<i>Adenomyosis</i>	43 (20.48%)
<i>Malignancy</i>	1 (0.48%)
<i>Ovarian growth</i>	13 (6.19%)
<i>Dermoid cyst</i>	7 (3.33%)
<i>Endometrial polyp</i>	1 (0.48%)
<i>Polycystic ovaries</i>	9 (4.33%)
<i>Tubal pregnancy</i>	1 (0.48%)
Pelvic Pain	186 (88.57%)
<i>Duration in years</i>	(mean) 3 ± 3.87 [1-25]
<i>Perceived Level</i>	8 (4) [0-10]
Dyschezia	54 (25.71%)
<i>Duration in years</i>	(mean) 3 ± 4.50 [1-25]
<i>Perceived Level</i>	6 (4) [2-10]
Dyspareunia	77 (36.67%)
<i>Duration in years</i>	(mean) 3 ± 2.96 [1-14]
<i>Perceived Level</i>	5 (3) [1-10]
Dysmenorrhea	191 (90.95%)
<i>Duration in years</i>	(mean) 3 ± 3.72 [1-25]
<i>Perceived Level</i>	8 (4) [1-10]
Infertility	71 (33.81%)
<i>Duration in years</i>	(mean) 10 ± 4.48 [1-17]
Uterine	7 (9.86%)
Tubal	8 (11.27%)
Ovulatory	2 (2.82%)
Pelvic	56 (78.87%)
Male Factor	25 (35.21%)

and POP that afforded a hundred percent relief of pain symptoms among those women who used them.

Table 3. Medical treatment regimen of the study respondents.

<i>Medical treatment</i>	<i>Frequency/Mean</i>
GnRH agonist	124 (59.05%)
<i>Duration in years</i>	(mean) 3 ± 2.78 [1-24]
<i>Symptom Relief</i>	122 (98.39%)
DMPA	63 (30%)
<i>Duration in years</i>	(mean) 5 ± 6.67 [1-24]
<i>Symptom Relief</i>	61 (96.83%)
OCP	74 (35.24%)
<i>Duration in years</i>	(mean) 8 ± 13.97 [1-20]
<i>Symptom Relief</i>	74 (100%)
POP	90 (42.86%)
<i>Duration in years</i>	(mean) 6 ± 12.12 [1-24]
<i>Symptom Relief</i>	90 (100%)
Others	7 (3.33%)
<i>Duration in years</i>	(mean) 9 ± 23.21 [3-36]
<i>Symptom Relief</i>	5 (83.33%)

Table 4 shows that the pain scores for domains affective pain and perceived level of pain significantly decreased after medical treatment. Scores for the domains overall quality of life, overall perceived health, physical health, psychological health and social relationships significantly improved after medical treatment.

Table 4 also shows that majority (73.8%) of patients have some form of depression (mild-28.57%, moderate-27.13%, severe-13.33%, very severe-4.76%) with an average level of depression at 12.39 ± 6.5 . Majority (54.76%) of patients likewise have some form of anxiety (mild-15.24%, moderate-20.95%, severe-18.57%) with an average level of anxiety at 15.44 ± 10.38 . Depression and anxiety scores significantly decreased after medical treatment.

In terms of overall quality of life and perceived level of health, respondents demonstrated an average score of 3.25 ± 0.91 and 2.86 ± 0.96 , respectively. These post-treatment scores showed significant improvement from baseline. The sub-domains (i.e. physical, psychological, social and environmental) also have relatively high scores ranging from scores of 13.44 ± 2.39 to 15.60 ± 2.63 . These are indicative of very satisfactory to excellent quality of life.

Table 4. Levels of perceived anxiety, depression, pain level and quality of life among women with endometriosis before and after treatment.

<i>Outcomes</i>	<i>Before treatment</i>	<i>After treatment</i>	<i>t/χ²</i>	<i>p-value</i>
Sensory Pain	13.19 ± 10.15	13.35 ± 7.80	-0.21	0.83
Affective Pain	5.48 ± 4.58	2.36 ± 3.45	9.00	0.01**
Perceived Level of Pain	7.75 ± 2.87	2.46 ± 2.88	19.37	0.01**
Overall Quality of Life	3.04 ± 0.98	3.25 ± 0.91	-2.92	0.01**
Overall Perceived Health	2.54 ± 0.94	2.86 ± 0.96	-4.26	0.01**
Physical Health	11.91 ± 2.74	13.44 ± 2.39	-7.15	0.01**
Psychological Health	14.41 ± 2.62	15.17 ± 2.39	-6.35	0.01**
Social Relationships	15.38 ± 2.76	15.60 ± 2.63	-2.96	0.01**
Environmental Health	13.55 ± 2.12	13.85 ± 2.11	-4.70	0.01**
Level of Depression	12.39 ± 6.50	10.77 ± 6.73	3.68	0.01**
<i>No Depression</i>	55 (26.19%)	80 (38.10%)		
<i>Mild</i>	60 (28.57%)	55 (26.19%)		
<i>Moderate</i>	57 (27.14%)	47 (22.38%)	11.36	0.01**
<i>Severe</i>	28 (13.33%)	18 (8.57%)		
<i>Very Severe</i>	10 (4.76%)	10 (4.76%)		
Level of Anxiety	15.44 ± 10.38	13.43 ± 9.67	3.24	0.01**
<i>No Anxiety</i>	95 (45.24%)	125 (59.52%)		
<i>Mild</i>	32 (15.24%)	27 (12.86%)	17.31	0.01**
<i>Moderate</i>	44 (20.95%)	29 (13.81%)		
<i>Severe</i>	39 (18.57%)	29 (13.81%)		

** Statistically significant

Table 5 shows the correlation of perceived level of pain with anxiety, depression and quality of life. It can be noted that before initiation of medical management, there was a weak positive relationship between pain level and both anxiety and depression – suggesting that those women with higher levels of pain were more likely to report higher levels of anxiety and depression. In contrast, the overall quality of life and overall perceived health demonstrated a weak negative relationship with pain – suggesting that those women with lower levels of pain were more likely to report better quality of life and higher level of overall perceived health. However, the statistically significant results were noted only for domains physical and psychological health.

After medical treatment, a higher pain level was also noted to be associated with higher levels of anxiety and depression, as seen in the moderate positive relationship between these variables. The overall perception of health and quality of life subdomains physical, psychological and environmental health were weakly associated with the level of pain.

The contribution of specific conditions such as infertility, adenomyosis, myoma uteri and other gynecologic problems were identified as seen in Table 6. It can be seen that women with endometriosis and infertility, women with endometriosis and myoma uteri, women with endometriosis and adenomyosis and women with endometriosis and other gynecologic conditions have some degree of anxiety (mild to severe), depression and sensory pain. After medical treatment, levels of anxiety, depression and sensory pain decreased in all groups of women with endometriosis associated with either infertility, myoma uteri and adenomyosis. However, the decrease was mostly not statistically significant, except for the level of depression among those with adenomyosis. On the other hand, there was statistically significant improvement noted for overall quality of life (and sub-domains) for women with endometriosis and infertility. A similar observation was noted in women who have endometriosis and myoma uteri, except for domain social relationships.

Table 7 shows that across the various disease conditions (i.e. endometriosis alone, endometriosis with infertility, endometriosis with myoma uteri,

Table 5. Correlation of perceived pain and levels of anxiety, depression and quality of life among women with endometriosis.

<i>Outcomes</i>	<i>Before treatment</i>	<i>95% CI</i>	<i>p-value</i>	<i>After treatment</i>	<i>95% CI</i>	<i>p-value</i>
<i>Level of Anxiety</i>	0.25	0.11 to 0.37	0.01**	0.41	0.28 to 0.51	0.01**
<i>Level of Depression</i>	0.26	0.13 to 0.37	0.01**	0.47	0.37 to 0.58	0.01**
<i>Overall Quality of Life</i>	-0.14	-0.26 to 0.01	0.11	-0.09	-0.25 to 0.02	0.19
<i>Overall Perceived Health</i>	-0.10	-0.24 to 0.04	0.13	-0.20	-0.10 to -0.36	0.01**
<i>Physical Health</i>	-0.21	-0.07 to -0.33	0.01**	-0.32	-0.22 to -0.46	0.01**
<i>Psychological Health</i>	-0.15	-0.01 to -0.28	0.01**	-0.21	-0.10 to -0.35	0.01**
<i>Social Relationships</i>	-0.01	-0.21 to 0.06	0.84	-0.13	-0.26 to 0.01	0.08
<i>Environmental Health</i>	-0.09	-0.22 to 0.05	0.21	-0.15	-0.03 to -0.29	0.03*

endometriosis with adenomyosis, etc.), there were no significant differences in terms of level of depression, anxiety, and quality of life (and its sub-domains) based on the multiple one-way analyses of variance performed.

Discussion

The results of the study showed that among the 210 women with endometriosis, 90.95% experienced dysmenorrhea and 88.57% experienced chronic pelvic pain, with the mean pain score of 8 and mean duration of 3 years. This finding of a very high incidence of pelvic pain among patients with endometriosis is compatible with the reported incidence of up to 80% by Guidice in 2010.² Using the McGill Pain Questionnaire (SF-MPQ) with the highest score of 15, respondents were noted to have mild to severe form of sensory pain (e.g. throbbing, stabbing, etc.) with a mean score of 13.35 ± 7.80 even after medical treatment. The perceived level of pain improved from a score of 7.75 ± 2.87 to 2.46 ± 2.88 , after medical treatment. This is also supported by the study of Angioni, et al. in 2014¹¹ and Vercellini, et al. in 1999¹², where medical management resulted into controlled pain symptoms by blocking ovarian

estrogen production, by inducing pseudo-pregnancy (i.e. causing amenorrhea), or by locally stopping the stimulation of estrogen to ectopic endometrium hence decreased pain and inflammation.

Using the WHO Quality of Life Tool (WHOQOL-Bref), findings showed that respondents have satisfactory quality of life. This is in contrast to the study by Facchin, et al. in 2015¹³ and by the integrative review of Marinho and colleagues in 2017¹⁴ where endometriosis had a negative impact on all domains of quality of life including physical, psychological, social and environmental health. In these two studies, the negative effect of endometriosis on quality of life is attributed to the pain symptoms brought about by endometriosis. The inconsistencies between the two studies and the result of the present study may be attributed to the role of cultural differences (e.g. coping strategies, beliefs about pain, personality traits, subjective meaning of pain, etc.). Filipino women may have stronger coping mechanisms and social support systems, hence reflecting a satisfactory quality of life even with endometriosis. However, it is important to note that the quality of life and overall perceived health of respondents significantly improved after medical treatment.

Table 6. Levels of perceived anxiety, depression, pain level and quality of life across conditions.

Outcomes	Before	After	p-value
Infertility			
<i>Level of Anxiety</i>	15.15 ± 10.21	14.32 ± 9.12	0.46
<i>Level of Depression</i>	11.62 ± 6.55	10.80 ± 6.62	0.28
<i>Sensory Pain</i>	14.07 ± 10.54	14.48 ± 8.33	0.78
<i>Affective Pain</i>	5.82 ± 4.40	3.10 ± 3.85	0.01**
<i>Perceived Level of Pain</i>	7.80 ± 2.80	2.76 ± 2.82	0.01**
<i>Overall Quality of Life</i>	3.01 ± 1.02	3.35 ± 0.84	0.01**
<i>Overall Perceived Health</i>	2.65 ± 1.07	2.83 ± 0.92	0.16
<i>Physical Health</i>	11.96 ± 2.64	13.34 ± 2.56	0.01**
<i>Psychological Health</i>	13.95 ± 2.66	15.03 ± 2.57	0.01**
<i>Social Relationships</i>	14.65 ± 2.58	15.25 ± 2.30	0.01**
<i>Environmental Health</i>	15.14 ± 2.91	15.51 ± 2.79	0.05*
Myoma uteri			
<i>Level of Anxiety</i>	11.33 ± 7.78	11.91 ± 8.73	0.69
<i>Level of Depression</i>	11.55 ± 5.82	9.73 ± 6.34	0.10
<i>Sensory Pain</i>	12.97 ± 11.86	12.24 ± 6.91	0.70
<i>Affective Pain</i>	4.55 ± 4.93	1.39 ± 2.70	0.01**
<i>Perceived Level of Pain</i>	7.73 ± 3.00	2.39 ± 3.13	0.01**
<i>Overall Quality of Life</i>	2.94 ± 1.06	3.39 ± 0.86	0.01**
<i>Overall Perceived Health</i>	2.67 ± 1.02	2.64 ± 0.93	0.87
<i>Physical Health</i>	12.67 ± 2.59	14.03 ± 2.34	0.01**
<i>Psychological Health</i>	14.87 ± 2.28	15.58 ± 2.34	0.02*
<i>Social Relationships</i>	15.68 ± 2.71	15.80 ± 2.58	0.41
<i>Environmental Health</i>	14.07 ± 2.15	14.42 ± 2.37	0.01*
Adenomyosis			
<i>Level of Anxiety</i>	14.53 ± 9.37	14.33 ± 8.83	0.85
<i>Level of Depression</i>	14.09 ± 5.93	11.95 ± 6.78	0.03*
<i>Sensory Pain</i>	12.60 ± 10.26	12.60 ± 7.20	0.99
<i>Affective Pain</i>	5.56 ± 4.23	1.81 ± 2.90	0.01**
<i>Perceived Level of Pain</i>	7.98 ± 2.33	2.21 ± 3.02	0.01**
<i>Overall Quality of Life</i>	3.26 ± 0.93	3.42 ± 0.85	0.34
<i>Overall Perceived Health</i>	2.63 ± 0.87	3.05 ± 0.92	0.02*
<i>Physical Health</i>	11.76 ± 2.61	12.96 ± 2.66	0.02*
<i>Psychological Health</i>	14.54 ± 2.24	15.13 ± 2.58	0.05*
<i>Social Relationships</i>	15.52 ± 2.83	15.72 ± 2.73	0.14
<i>Environmental Health</i>	13.52 ± 2.22	13.83 ± 2.14	0.01**
Other Gynecologic Conditions			
<i>Level of Anxiety</i>	15.41 ± 11.21	13.66 ± 11.69	0.27
<i>Level of Depression</i>	12.41 ± 5.99	11.03 ± 7.46	0.22
<i>Sensory Pain</i>	11 ± 9.71	15.07 ± 10.02	0.13
<i>Affective Pain</i>	4.21 ± 4.15	2.97 ± 3.88	0.23
<i>Perceived Level of Pain</i>	7.31 ± 2.71	2.69 ± 3.15	0.01**
<i>Overall Quality of Life</i>	3.17 ± 0.85	3.45 ± 0.83	0.04*
<i>Overall Perceived Health</i>	2.57 ± 0.78	2.72 ± 0.80	0.49
<i>Physical Health</i>	12.55 ± 3.02	13.58 ± 2.42	0.06
<i>Psychological Health</i>	14.71 ± 2.70	15.15 ± 2.69	0.07
<i>Social Relationships</i>	14.87 ± 3.35	15.22 ± 3.02	0.03*
<i>Environmental Health</i>	13.88 ± 2.34	14.28 ± 2.36	0.02*

Table 7. Analysis of variance across disease conditions.

<i>Outcomes</i>	<i>Endometriosis Alone</i>	<i>Infertility</i>	<i>Myoma uteri</i>	<i>Adenomyosis</i>	<i>Others</i>	<i>p-value</i>
<i>Level of Anxiety</i>	15.29 ± 9.67	14.32 ± 9.12	11.91 ± 8.73	14.33 ± 8.83	13.66 ± 11.69	0.26
<i>Level of Depression</i>	11.28 ± 6.71	10.80 ± 6.62	9.73 ± 6.34	11.95 ± 6.78	11.03 ± 7.46	0.47
<i>Sensory Pain</i>	13.53 ± 8.37	14.48 ± 8.33	12.24 ± 6.91	12.60 ± 7.20	15.07 ± 10.02	0.24
<i>Affective Pain</i>	2.53 ± 3.56	3.10 ± 3.85	1.39 ± 2.70	1.81 ± 2.90	2.97 ± 3.88	0.15
<i>Perceived Level of Pain</i>	2.48 ± 2.80	2.76 ± 2.82	2.39 ± 3.13	2.21 ± 3.02	2.69 ± 3.15	0.06
<i>Overall Quality of Life</i>	3.28 ± 0.78	3.35 ± 0.84	3.39 ± 0.86	3.42 ± 0.85	3.45 ± 0.83	0.91
<i>Overall Perceived Health</i>	2.91 ± 0.89	2.83 ± 0.92	2.64 ± 0.93	3.05 ± 0.92	2.72 ± 0.80	0.81
<i>Physical Health</i>	13.22 ± 2.38	13.34 ± 2.56	14.03 ± 2.34	12.96 ± 2.66	13.58 ± 2.42	0.56
<i>Psychological Health</i>	14.88 ± 2.34	15.03 ± 2.57	15.58 ± 2.34	15.13 ± 2.58	15.15 ± 2.69	0.12
<i>Social Relationships</i>	15.53 ± 2.77	15.25 ± 2.30	15.80 ± 2.58	15.72 ± 2.73	15.22 ± 3.02	0.20
<i>Environmental Health</i>	13.87 ± 2.15	15.51 ± 2.79	14.42 ± 2.37	13.83 ± 2.14	14.28 ± 2.36	0.42

Results of the study, as shown in Table 4, also revealed that majority of the respondents had some form of depression and anxiety. This is similar to the findings of several studies including that of Sepulcri and do Amaral in 2008¹⁵, Chen, et al. in 2015¹⁶ and Lagana in 2017¹⁷, where endometriosis was found to be associated with higher incidence of depression and anxiety disorders. The results of the present study showed that the incidence of anxiety and depression among women with endometriosis is associated with the degree of pain secondary to endometriosis. This result of the effect of pain on anxiety and depression is also in agreement with the results of the studies by Yun Low in 1992¹⁸, Lorencatto, et al. in 2006¹⁹ and Carvalho, et al. in 2015.²⁰

The risk of depression and anxiety disorders in women with endometriosis can be explained by the inflammatory and dysregulated immunological reactions. Studies of Drosdzol-Cop in 2012²¹ and Bedaiwy, et al. in 2002²² showed that there is higher level of IL-6 and TNF-alpha among those women with endometriosis compared to those without. These pro-inflammatory hormones may impair brain-blood barrier and disturb some brain areas such as anterior cingulate cortex, leading to the mood symptoms and behavioral disturbances.²³

Other gynecologic conditions such as infertility, adenomyosis and myoma uteri were present among the study subjects. Table 7 shows that between disease conditions (i.e. endometriosis alone, endometriosis

with infertility, endometriosis with myoma uteri, endometriosis with adenomyosis, etc.), there were no significant differences in terms of level of depression, anxiety, quality of life (and subdomains) based on the multiple one-way analyses of variance performed. This means that infertility, adenomyosis, myoma uteri and other gynecologic conditions do not affect the incidence of anxiety and depression as well as the pain perception and quality of life of the subjects with endometriosis.

Conclusion

Pelvic endometriosis is a chronic, life-long, inflammatory disease that presents mainly as pelvic pain. This debilitating pain can significantly affect patients' psychological well-being and mental health, which is manifested by the very high incidence of anxiety and depression among Filipino women with endometriosis. Management of endometriosis is complex, hence a multi-disciplinary approach that includes psychiatric counseling is necessary.

Limitations of the Study

First, since this is a descriptive, cross-sectional study, results are time-bound, and may therefore change when performed at a different time. Second, part of the study was measurement and description of pain scores, status of quality of life, depressive and anxiety symptoms prior to starting any form of medical suppression. Hence the results may have been affected by recall bias. Lastly, the correlation of each type of medication (i.e. GnRH, OCP, POP, etc.), and duration of use with study outcomes were not included, and beyond the scope of this study.

Recommendations

Based from the results of this study, the authors recommend that women with endometriosis be referred to the Department of Psychiatry to further evaluate the presence of psychiatric conditions such as anxiety and depression, and/or other psychiatric disorders. This can provide them with psychological support and give them holistic management including counseling, cognitive behavioral therapy, group-based interventions and if warranted, medical

treatment of psychiatric diseases. Presence of psychological distress may possibly contribute to inadequate pain control.

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