Determinants and Symptoms Severity of Pelvic Organ Prolapse and Its Effect on Physical Activities among the Elderly versus Childbearing Women

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Abstract

Background: Pelvic organ prolapse (POP) is a common reproductive problem affecting more than one-third of women between 20–59 years of age, and more than half of women over 60 years worldwide, and negatively affecting their daily physical activities. **Aim**: To assess determinants and symptoms severity of pelvic organ prolapse and its effect on physical activities among the elderly versus childbearing women. **Methodology**: A descriptive research **design** was carried out on a purposive **sample** of 300 cases (150 for each childbearing and old age women) attended to the **outpatient gynecologic clinic** of Minia Maternal and Child University Hospital, at Minia governorate, Egypt, over a period of six months from October 2019 till March 2020, and met the following **inclusion criteria**: Females were of childbearing age (≥ 18-49 yrs.), and of old age (≥60 yrs.), diagnosed as pelvic organ prolapse (POP), able to communicate and agree to participate in the study. **Tools:** Three tools were utilized to collect data. **First tool**: A Structured questionnaire sheet covered (demographic data, medical and obstetrical history, and self-reported symptoms of POP). **Second tool**: Severity of POP assessment tool. **Third tool**: Physical activities assessment scale (ASS). **Results**: It was found that 50% of the elderly women versus (23%) of the childbearing women had severe symptoms of POP, moreover, (66.7% & 13.3%) of them respectively had greater impairment in their physical activities with a highly statistically significant difference between the two studied groups, and there was a positive correlation between the severity of prolapse symptoms and the degree of physical impairment among both studied groups. Furthermore, multiple linear regression analysis reflected that age, higher parity, vaginal deliveries, level of education, body mass index, duration of prolapse, and chronic constipation were significantly affected the severity of prolapse symptoms among both studied groups. **Conclusion**: The severity of POP symptoms was higher among the elderly versus childbearing age women which consequently lowering their physical activities. Additionally, (aging, malpractice of pelvic floor exercise, higher parity, vaginal deliveries, overweight, chronic constipation, and heavy lifting) are the commonest leading determinants of POP and are significantly associated with the severity of prolapse symptoms among the studied sample. **Recommendations**: An urgent need for health educational intervention by health care providers targeting the primary prevention considering the concluded leading determinants of prolapse, as well as secondary prevention for women with mild to moderate degree of genital prolapse at all places especially in the rural communities.

Keywords: Determinants-Childbearing women-Elderly women-Pelvic organ prolapse-physical activities- Symptoms severity.

Introduction

Pelvic organ prolapse (POP) is a reproductive health problem described as the descent of one or more of the anterior vaginal walls, the posterior vaginal wall, and the apex of the vaginal (uterus or vault) or uterus **(Kirby & Lentz, 2017)**. Also, it is defined as a herniation or a descent of one of the pelvic organs such as; bladder, uterus, vaginal apex, and or rectum from its normal anatomical position beyond or into the vagina **(Rosenman, 2016)**.

It is a common health problem affecting more than 30% of women between 20–59 years of age and more than 50% of women over 60 years of age attending gynecologic clinics with an annual incidence of surgical intervention ranged from 15–59 cases per 10,000 women worldwide (**Abhyankar et al., 2019)**. Women with POP are suffering from physical, social, psychological, sexual, and occupational limitations which negatively affect daily physical activities and the quality of their life **(Sánchez et al., 2020)**.

In Upper Egypt; the actual prevalence and incidence rates of POP is difficult to be estimated because of several related factors include; many women have a false concept that uterine prolapse occurs as a normal consequence of childbirth and aging, or others refused to seek medical help because of fear, embarrassment of being examined vaginally **(El Kady et al., 2017)**. Neglecting this health problem in the early stages makes the symptoms to be worsening and the condition can't be corrected without surgical intervention **(Sánchez et al., 2020)**.

Pelvic organ prolapse (POP) occurs when the muscles, tissues, and ligaments supporting the pelvic organs (the uterus, bladder, or rectum) become weak or loose. This allows one or more of the pelvic organs to drop or descend into or out of the vagina **(D'Amico and Barbarito, 2015)**. It happens more often in older women than in younger women as a result of age-related changes especially hormonal changes during menopause **(Fillit et al., 2016)**.

With aging; estrogen level declines and collagen production reduces leading to progressive loss of pelvic floor muscles and connective tissue strength in older women **(Fillit et al., 2016)**, this may be combined with other interrelated anatomical, physiological, genetic, lifestyle, and reproductive factors that increase the chance of POP development include; multiple pregnancies and vaginal childbirth, obesity, frequent heavy lifting, chronic cough or constipation, delivery of large babies, malnutrition, lack of rest during the postpartum period, and the family history **(Kudish et al., 2019)**.

Symptoms of POP vary according to the degree and the type of prolapse. Women with POP may suffer from vaginal, intestinal, urinary, and or intestinal symptoms **(Rosenman, 2016).** Vaginal symptoms involve; pressure, vaginal bloating, and dyspareunia. Bowel symptoms include; fecal incontinence, tension during defecation, and or a feeling of incomplete emptying, while urinary symptoms include incontinence and incomplete emptying of the bladder. Other adverse effects that may be reported included (difficulty or burning urinating, abdominal pain, backache, painful intercourse, urinary tract infection, and difficulty in sitting, walking, standing, and lifting) **(Akter et al., 2017)**.

Four stages of uterine prolapse are indicating how far it has descended. Other pelvic organs (such as the bladder or bowel) also may be prolapsed into the vagina. These four categories are; the first stage in which the uterus is in the upper half of the

vagina, the second stage in which the uterus has been descended nearly to the opening of the vagina, the third stage in which the uterus protrudes out of the vagina, and the fourth stage in which the uterus is completely out of the vagina **(Arulkumaran et al., 2020)**. Likewise, gynecologists described uterine prolapse in another way as mild, moderate, and severe prolapse according to the severity of its symptoms, vaginal examination, and its effect on the quality of life **(Andrew et al., 2018)**. Another classification of uterine prolapse was described as incomplete (occurs when the uterus is only partly sagging into the vagina), and complete prolapse (occurs when the uterus falls so far down that some tissue protrudes outside of the vagina) **(Horst et al., 2017**).

Women at the first and second stages of prolapse (a mild to a moderate degree) can be managed without surgical intervention by several methods to prevent aggravation into complicated stages that require surgical intervention **(Giarenis and Robinson, 2014)**. Pelvic floor muscle strengthening exercise is considered the first-line treatment for POP; it can improve the symptoms for women at the first to third-degree of prolapse, also it prevents the organs from slipping down further **(Li et al., 2016)**. Besides, lifestyle modifications, maintain a healthy diet, controlling weight, limiting heavy lifting, reduction of straining all are useful to improve the condition. Furthermore, vaginal pessaries are considered another mechanical method for reducing the symptoms of a prolapse, it

is made from silicone and inserted into the vagina to support the prolapsed organs, but they will not be appropriate for everyone and described only by gynecologists **(Rashad et al., 2018)**.

As teaching is considered a vital role of nursing, nurses play an active role by providing women with the necessary information and counseling regarding; the reasons and risk factors for urogenital prolapse, its symptoms, actions for preventing its occurrence especially for those after menopause, and methods of its the management if it happens **(Rashad et al., 2018)**. Additionally, it is very important to determine to which degree the prolapse symptoms affect patients' quality of life. Also, nurses can teach Kegel exercises for mothers to prevent urogenital prolapse in the postpartum period and the importance of birth spacing as well as the use of contraceptive methods. Besides, they should provide education for post-menopausal elderly women about the importance of estrogen replacement therapy **(El Kady et al., 2017)**.

Significance of the study

Despite POP is a distressing health problem for women with a high incidence and prevalence rates in developing countries especially in Egypt, it has not received sufficient attention, as well as few studies handling this problem and its effect on physical activities among both childbearing and old aged women. Additionally, the associated symptoms of POP such as pain and discomfort are greatly interfering with physical activities, and make those women are

socially isolated. There was one study conducted in Ain-Shams Maternity University Hospital, Egypt by **(El Kady et al., 2017)** reported that (43.5%- 55%) of childbearing and elderly women respectively were suffering from POP, and (22.8 & 28%) of them need for surgical repair interventions.

Identifying and modifying risk factors of POP can play an important role in the prevention and management of POP at the early stages, and consequently improving the level of physical activities. Therefore this study was conducted to identify the leading determinants of POP among elderly versus childbearing women, as well as assessing the severity of the symptoms experienced by both age groups and to which this problem affecting their daily physical activities.

Aim of the study:

The aim was to assess determinants and symptoms severity of pelvic organ prolapse and its effect on physical activities among elderly versus childbearing women.

Research questions

1) What are the leading determinants of pelvic organ prolapse among the elderly versus the childbearing women?

2) What are the associated symptoms and the severity of prolapse symptoms among the elderly versus childbearing women?

3) What are the effects of pelvic organ prolapse symptoms on

physical activities for both studied groups?

Operational definitions

Childbearing age: It refers to an age when women are normally able to be pregnant and give birth to children.

Old age: In the current study refers to women aged 60 years and above.

Determinants: In our study it refers to factors that combine together to affect women health status and contributing to incidence of pelvic organ prolapse. It involves interactions between personal characteristics, medical, lifestyle and individual behaviors.

Physical activity: In this study it means any bodily movement produced by skeletal muscles that is done as a part of daily living including; walking, climbing stairs, working, exercise, active transportation, housekeeping, and recreational activities.

Subjects and Method:

Research design

A descriptive research design was utilized in this study.

Setting

The present study was conducted at the gynecologic outpatient clinic of Minia Maternal and Child University Hospital, Minia city at Minia governorate, which is one of the Upper Egypt, and is located 240 km south of Cairo. This hospital provides free services to women who are resident in Minia city and neighboring villages

Sampling technique and sample size

The subjects of the present study included 300 women (150 for each childbearing and old age group) selected by purposive sampling technique, and were estimated according to the flow rate as reported from (**The registration office of Minia Maternal and Child University Hospital, 2018)**. The total number of women attending the gynecologic outpatient clinic and diagnosed as POP from 2017-2018 was (1350), the sample size was determined according to the statistical equation in which the sample size ranged (30% to 50%) from the total population size according to following formula:

$$n = \frac{\frac{z_\alpha^2 \ p \ (1-p)}{m^2}}{1 + \frac{z_\alpha^2 \ p \ (1-p)}{m^2 \ N}} = \frac{\frac{(1.96)^2 \ (0.5)\ (0.5)}{(0.05)^2}}{1 + \frac{(1.96)^2 \ (0.5)\ (0.5)}{(0.05)^2 \ 1350}} = 300$$

Description:

n = Required Sample Size.

Z_α Z_α = Is the Z score at 0.05 ($z_{0.05} = 1.96 \ z_{0.05} = 1.96$).

p = Prevalence of women with POP at Minia Maternal and Child University Hospital in 2018 (0, 5).

m = Margin of Error at 5 % (standard value of 0.050).

N= Population Size

Inclusion criteria: Females aged (≥18-49 yrs.), and (≥60 yrs.), who were diagnosed as pelvic organ prolapse (POP), able to communicate, and agree to participate in the study.

Exclusion criteria: Cases with a previous pelvic reconstructive surgery and the complicated cases that are planned for surgical intervention.

Study duration: Data collection for this study took 6 months, from the beginning of October 2019 till the end of March 2020.

Tools of the study:

Three tools were utilized and filled by researchers for collecting the data of this study. **The First Tool:** Structured interviewing questionnaire developed by the researchers based on relevant literature divided into four parts.

Part I: **Covered demographic data** as; (age, level of education, place of residence, marital status, occupation, and income).

Part II: Medical data as; (history of chronic disease, chronic cough, chronic constipation, body mass index …etc.).

Part III: Covered obstetrical history: Includes (number of pregnancies, number of vaginal deliveries, duration of vaginal delivery, inter-pregnancy interval, duration of prolapse, and maternal complications after delivery).

Part VI: Self-reported symptoms of POP: Include (Physical discomfort, urinary and bowel symptoms, symptoms of the vaginal bulge, altered sexual activity, and lower back pain).

The second tool: The Severity of prolapse symptoms scale adopted from (Digesu et al., 2005) was used to assess the severity of prolapse symptoms. It includes (20) multiple-

choice questions (MCQ), and response options are on a Likert scale with a range between 1and 4 (starting with never, a little, moderately to a lot). A high total score indicates the symptoms are severe while a low total score indicates that the symptoms are mild. It was scored as from (20-<40) indicates mild symptoms, from (40-<60) indicates moderate symptoms, and from (60-80) indicates severe symptoms**.**

The third tool: **The Physical activities assessment scale (AAS) adopted from (Barber et al., 2012)** was used to evaluate the effect of POP on physical activities for both studied groups. The AAS includes 13 items covering a broad sample of sedentary, movement-related, and graded-intensity physical activities. Participants are asked to rate the degree of difficulty to perform each of these activities on a 5-point scale from "No difficulty" to "Not able to do it." The AAS has three subscales: sedentary activities (items 1–4); ambulatory activities (items 6–8); work/exercise activities (items 11–13). The total score of AAS was ranged from 0–100, with a higher values are indicating greater physical activity.

Tools Validity: The questionnaire was piloted on a panel of five experts of obstetrics and gynecological staff, and nursing professors who reviewed the instruments for clarity, relevance, comprehensiveness, understanding, applicability, and easiness.

Tools Reliability: Internal consistency was evaluated using Cronbach's Alpha coefficient test which revealed that the tools of the study were reliable as indicated by the value of (0.86. and 0.93) for severity POP symptoms and physical activity assessment scales respectively.

Pilot study:

It was carried out on 10% of the total study sample to evaluate the applicability and clarity of the tools, assess the feasibility of fieldwork, and to determine the time involvement. They included in our actual sample because no modifications needed to be performed.

Ethical consideration:

All official permissions to carry out the current study were obtained from pertinent authorities. All women were informed about the importance and aim of this study. Oral consent was obtained from all the participants. Likewise, all participants were informed that their participation is voluntary and they have rights to withdraw at any time, and the privacy of obtained information was assured. Also, the women were informed that the collected data would be used only for the present study. An official written approval letter clarifying the purpose of the present study was approved by the director and the head of the obstetrics and gynecology department at Minia Maternal and Child University Hospital.

Field of Work

This a descriptive study was conducted at gynecologic outpatient clinic of Minia Maternal and Child University Hospital, Minia governorate,

Egypt, on 300 cases diagnosed as pelvic organ prolapse (POP), and met the inclusion criteria estimated by statistical equation based on the flow rate of POP women, then the total estimated sample was divided into two equal groups (150 for each childbearing and old age group). The process of data collection started on the first of October 2019 till the end of March 2020 through 4 days weekly (from 9 Am to 12 Pm). It was carried out through the following stages:

1) **Preparatory stage**: included; reviewing the recent related literature, developing the study tools, obtaining the approval from the Institutional Ethics Committee and the needed official permissions, and conducting the pilot study.

2) **Operating stage** included; data collection and data analysis.

The researchers started the data collection by introducing themselves to the participants, and provided for them an explanation about the aim of the study. The researchers interviewed each participant at the gynecologic clinic face to face to fulfill the study tools by themselves through daily basis (4 days per week) during morning shift (about 3 to 4 case daily) from the beginning of March 2019 till the end of October 2020.The total time needed for completing the questionnaire was about 15-40 minutes.

Data were collected through using a validated structured questionnaire included; demographic data, medical and obstetrical information, and the associated symptoms of prolapse, these parts took about 10-15 minutes, and after that the researchers filled the two adopted study scales from participants individually to evaluate the severity of prolapse symptoms, and to which degree it affects their daily physical activities.

Statistical analysis

The collected data were organized, categorized, and analyzed using the statistical package for social studies (SPSS) version 20. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, mean and standard deviations for quantitative variables. Student t-test was used for the analysis of normally distributed continuous variables .Categorical variables were presented as number and percentage and intergroup differences were compared using Fisher's exact test (for nominal data) or the chi-squared test for trend (for ordinal data), and the r-test was used. Statistical significance difference was considered when p-value $\leq$ 0.05, and high significance when P-value $\leq$ 0.001 and no statistically significant difference was considered when p-value > 0.05.

Results:

Table (1): Shows that (76%) of the elderly women their ages ranged between 60 to 70 years and (60%) of childbearing women aged (> 40-50), with a mean age of (64. 12 $\pm$ 5 and 41.62.) for the elderly and childbearing

women respectively. According to the marital status (68% and 85.3%) of the elderly and childbearing women were married respectively. Regarding the level of education; (60%) of the elderly women were illiterate, while (65%) of childbearing women had secondary education. There were no statistically significant differences between the two groups in terms of place of residence, income, and occupation.

Table (2) displays that the reported symptoms of the vaginal bulge, stress urinary incontinence, constipation, and physical discomfort were significantly higher among the elderly than the childbearing age group. While low back pain and altered sexual activity symptoms were significantly higher among the childbearing than the elderly age group with statistical significant different between both studied groups.

Table (3) illustrates that the most commonly reported leading factors of POP among elderly women were (malpractice of pelvic floor muscle exercise, higher parity, vaginal deliveries, doing heavy works during the postnatal period, the insufficient spacing between births, presence of chronic constipation, and diabetes) with the percentages of (92%, 82%, 78.7%, 73.3%, 66.7%, 63.3%, and 60%) respectively. While the highest percentages of contributing factors that have been observed among childbearing women were (doesn't Practice pelvic floor exercise, repeated carry of heavy objects daily, increased

body mass index, higher parity and delivery of a macrocosmic baby) with percentages of (86.7%, 74.7%, 66.7%, 60%, and 58.7%) respectively. This table answered the research question.

Figure (1) reflects that (50% and 39%) of the elderly women versus (23% and 47%) of childbearing women had severe and moderate symptoms of pelvic organ prolapse respectively with a high statistically significant difference between both groups reflected by (p value=0.000**). This figure answered the research question.

Table (4) displays multiple linear regression analysis for the leading determinants that affect the severity of prolapse symptoms among both age groups. It reveals that age, level of education, body mass index, higher parity, vaginal deliveries, duration of prolapse, and chronic constipation were significantly affected the severity of prolapse symptoms among both groups. This means that the increasing of age, body mass index, number of pregnancies and vaginal deliveries, duration of prolapse, presence of chronic constipation, and low level of education reflect an increase in the severity of POP symptoms among both studied groups.

Table (5) shows that the mean scores of sedentary physical activities, ambulatory physical activities, and work/exercise physical activities were significantly higher among the childbearing group than the elderly group reflected by p-value (0.001), (0.001), and (0.000) respectively.

Figure (2): clarifies that (66.7%) of the elderly women versus (13.3%) of childbearing women have greater impairment in their physical activities, while (53.3%) of childbearing women have moderate impairment in their physical activities, with a highly statistically significant difference between both groups reflected by (p value=0.000**). This figure answered the research question.

Table (6) reveals that there was a positive statistically significant correlation between the severity of prolapse symptoms and the degree of physical impairment among both studied groups. This means that when the severity of prolapse symptoms increased, greater physical impairment occurred.

Table (1): Frequency distribution of the participants according to their demographic characteristics: (N=300)

Demographic characteristics	Elderly Women (150)		Childbearing women (150)		x^2	p
	No	%	No	%		
1. Age						
● 18-30 years	-	-	18	12		
● >30-40	-	-	42	28	69.2	.000**
● >40-50	-	-	90	60		
● 60-65	50	33.3	-			
● >65-70	64	42.7	-	-		
● >70	36	24		-		
Mean ± SD	64. 12 ± 5		41.62. ± 5			
2. Marital status						
● Married.	102	68	128	85.3	9.69	
● Divorced	6	4	14	9.4		.001**
● Widow	42	28	8	5.3		
3. Level of Education						
● Illiterate	90	60	23	15	45.2	.000**
● Secondary School	40	26	97	65		
● High education	20	14	30	20		
4. Place of residence						
● Rural	90	60	85	57	12.9	0.49
● Urban	60	40	65	43		
5. Income						
● Low	80	53	75	50		
● Medium	40	27	28	19	14.1	0.51
● High	30	20	47	31		
6-Occupation						
● Housewife	105	70	93	62	67.6	0.43
● Employed	0	0	57	38		
● Retired	45	30	0	0		

(Chi-squared test) * p = ≤.05 (statistical significance)   ** p = ≤.01 (highly statistical significance)

Table (2): Frequency distribution of the participants according to self-reported symptoms of pelvic organ prolapse (N=300).

Self- reported symptoms of POP	Elderly Women (150)		Childbearing Women (150)		P-Value
	Yes	%	Yes	%	
1. Physical discomfort with walking, setting, working, and standing	97	64.7	74	49.3	0.001**
2. Obstructive urinary symptoms as hesitancy, dripping, and Poor urinary stream	35	23.3	28	18.7	0.241
3. Frequency urination	100	66.7	71	47.3	0.001**
4. Stress urinary incontinence	120	80	84	56	0.001**
5. Urgency	111	74	44	29.3	0.000**
6. Constipation	113	75.3	38	33.3	0.000**
7. Symptoms of vaginal bulge	118	78.7	85	56.7	0.002*
8. Recurrent urinary tract infection (irritation, itching, and foul discharge	93	62	40	26.7	0.001**
9. Altered sexual activity (painful intercourse)	80	53.3	105	70	0.02*
10. Lower back pain	82	54.7	110	73.3	0.02*

(Fisher's exact test)   * p = ≤.05 (statistical significance)   ** p = ≤.01 (highly statistical significance)

Table (3): Distribution of the participants according to determinants of pelvic organ prolapse (N=300).

Leading determinants of POP	Elderly Women (150)		Childbearing Women (150)		P-value
	Yes (No)	%	Yes (NO)	%	
1. Presence of chronic disease (Diabetes)	90	60	20	13.3	0.000**
2. Presence of chronic cough	83	55	40	27	0.011
3. Presence of chronic constipation	95	63.3	50	33.3	0.02*
4. Family history of uterine prolapse	35	23.3	23	15.3	0.532
5. Increased body mass index	80	53.3	100	66.7	0.03*
6. Repeated carry of heavy objects	62	41.3	112	74.7	0.023
7. Malpractice of pelvic floor exercise	138	92	130	86.7	0.135
8. Doing heavy works during postnatal period	110	73.3	76	50.7	0.02*
9. Higher parity	123	82	90	60	0.02*
10. Vaginal deliveries	118	78.7	75	50	0.003*
11. Delivery of macrocosmic baby	45	30	88	58.7	0.001**
12. Forced delivery by untrained persons	57	38	33	22	0.011
13. Insufficient spacing between births	100	66.7	80	53.3	0.011
14. Vaginal tear as a complication of labor	55	36.7	45	30	0.111

(Fisher's exact test)   * p = ≤.05 (statistical significance) ** p = ≤.01 (highly statistical significance)
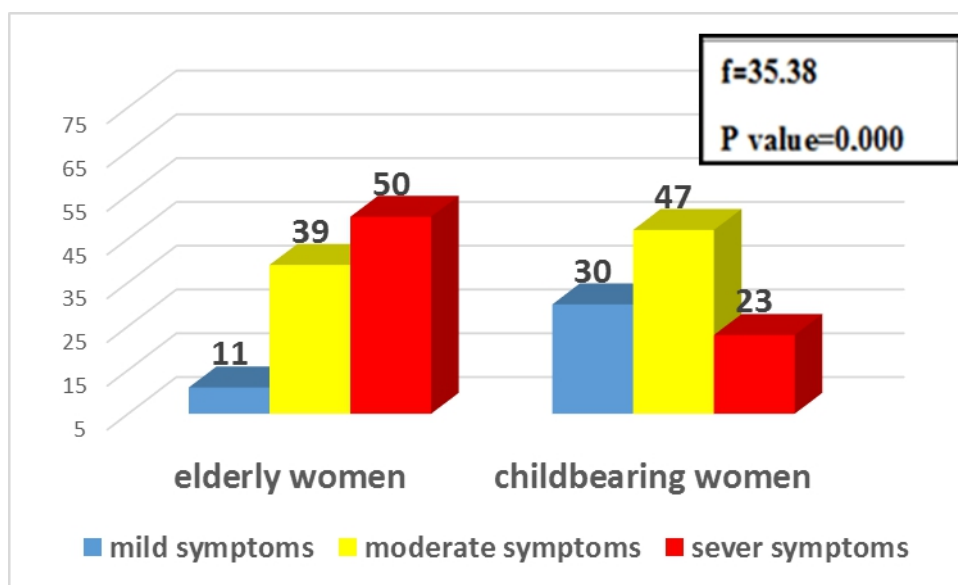
Figure (1): Frequency distribution of the participants according to the severity of prolapse symptoms score

Table (4): Multiple linear regression analysis for determinants that affect the severity of prolapse symptoms among both studied groups :(N= 300).

| Variable	OR	CI (95%)
Age	4.05	2.0-8.0
Level of education	23.9	0.11-1.7
Increase body mass index	46.2	3.3-6.55
Higher parity	1.5	1.3-1.7
Vaginal deliveries	1.5	0.3-0.8
Duration of Prolapse	0.71	0.11-4.58
Chronic constipation	1.21	0.33-5.31

OR= Odds Ratio & CI=confidence.

Table (5): Comparison between the mean score of physical activity subscales for both studied groups

Variables	Elderly Women (150)	childbearing Women (150)	x^2	P-value
Sedentary physical activities	33.6±22.2	43.0±20.6	1.26	0.001**
Ambulatory physical activities	31.5±20.4	42.6±25.7	2.68	0.001**
Work/exercise physical activities	30.4±18.7	44.5±24.1	1.58	0.000**

* p = ≤.05 (statistical significance)   ** p = ≤.01 (highly statistical significance)
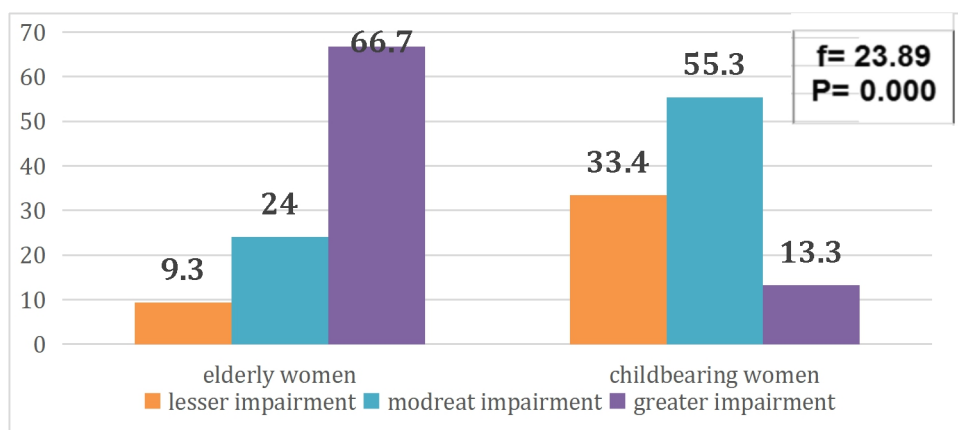
Figure (2): Comparison between the elderly and childbearing women according to the effect of prolapse symptoms on their physical activities.

Table (6): Correlation between the total score of (symptoms severity and physical activities) among the elderly and childbearing women.

Variables	Severity of prolapse symptoms among elderly women	Effect of prolapse symptoms on physical activities among elderly women	Severity of prolapse symptoms among reproductive age women	Effect of prolapse symptoms on physical activities among reproductive age women
Severity of prolapse symptoms				
r. Value P. Value	1 -	.918 .000**	1 -	.843 0.000**
Effect of prolapse on daily activity				
r. Value P. Value	.918 .000**	1 -	.843 0.000**	1 -

* p = ≤.05 (statistical significance) ** p = ≤.01 (highly statistical significance)

Discussion

Pelvic organ prolapse (POP) is a common distressing gynecological problem that negatively impacting the overall quality of life **(Jokhio et al., 2020).** Its incidence is attending to be increased especially in developing countries like Egypt as a result of several interrelated factors including; increased aging population and life expectancy, a culture of early marriage, and higher parity among Egyptian families, especially in rural areas **(Rashad et al., 2018)**. Hence there is a need for identifying the health determinants and modifiable risk factors for preventing its occurrence as well as controlling the severity of its symptoms at the early stages and improving functional activity if it happens.

Results of the current study revealed that the mean age of the elderly and childbearing women was (64. 12 ± 5 and 41.62.± 5) respectively. This result was in the same line with **(Sayed et al., 2018)** who found the experienced uterine prolapse among

women aged (>45 years.) was five times higher than younger reproductive women (18-30 yrs.), and also is congruent with **(Gumanga et al., 2014)** who studied the demographic characteristics of women with POP at the Tamale hospital, Ghana, and found the mean age was similar to our finding. This fact can be explained from the authors' point of view as aging is associated with falling in estrogen and collagen levels that result in weakened pelvic floor muscles and ligaments which consequently leading to an increase in the risk of uterine prolapse. While these results against the study conducted in Ethiopia by **(Mekonnen, 2020)** and reported that about half of the studied women suffering from POP were in the age group of (20 to 35 yrs.), and reported that early marriage and high parity are the most leading determinants of POP among Ethiopian women not related to aging.

As regarding place of residence, it was found that more than half of both studied groups were living in rural areas, and this is matching with

(**Scherf et al., 2002**) who found a significant association between prevalence of POP and the place of residence. Likewise, several studies conducted in different countries like Ethiopia, Nigeria, and Egypt by (**Asresie and Setegn., 2016 Anozie et al., 2020 & El-Kady et al., 2017**) respectively had also concluded that POP was highly observed among women in the rural than urban areas related to early marriage, high fertility rate, the social stigma, lack of access to medical resources, low socioeconomic status, and lack of awareness regarding the disease. While the study of (**Subedi et al., 2019**) demonstrated that there was no association between POP and the place of residence and this differed from our findings.

Concerning educational level, it was found that illiteracy takes the highest percentage among elderly versus childbearing age groups, and this finding was similar to the finding of (**Elsayed et al., 2016**) that documented high illiteracy rate was shown among elderly versus reproductive Egyptian women suffering from uterine prolapse.

The findings of the current study answered the research question regarding the reported symptoms of POP by both studied groups; it was found that the reported symptoms of the vaginal bulge, stress urinary incontinence, constipation, and physical discomfort were significantly higher among the elderly than a childbearing age group. While low back pain and altered sexual activity symptoms were significantly higher in childbearing than old aged women.

These results are matching with those (**Shek & Dietz., 2016**) who found that lower urinary tract symptoms as; frequent urination, urgency, urinary incontinence, and recurrent urinary tract infection were the most experienced manifestations among the elderly women with POP. Likewise, these findings are similar to Nigerian study conducted by (**Omokanye et al., 2012**) revealing that urinary symptoms are commonly reported by cases with POP, also consistent with Indian study by (**Nitin Joseph et al., 2016**) using the same tool and founded that the majority of the studied sample experienced urinary and bowel complaints related to POP that increased with aging.

While the most common symptom reported in studies conducted in Egypt and Jordan by (**Mawajdeh et al., 2003**) was vaginal discharge and this was against our findings. Researchers' opinion that this variation in POP associated symptoms may be depending on several interrelated factors as age, degree of uterine prolapse, health status, obstetric factors, and this opinion is very matching with (**Berdichevsky et al., 2015**) who concluded that POP associated symptoms vary depending on the following health determinants; aging, education, body weight, occupation, presence of health problems as chronic cough and constipation, and discussed that such factors are strongly affecting ligaments, pelvic floor muscles, and organs in old age more than young adult women, and worsening the level of prolapse into late stages.

Additionally; the findings of the present study answered the research question concerning the leading determinants for POP among both studied groups. It was found that the most commonly reported contributing factors among the elderly women were (malpractice of pelvic floor exercise, parity of more than 3, vaginal deliveries, doing heavy works during the postnatal period, the insufficient spacing between births, presence of chronic constipation, and diabetes). On the other hand, the highest percentages of contributing factors that have been observed among the childbearing women were (malpractice of pelvic floor exercise, repeated carry of heavy objects daily, increased body mass index, higher parity, and delivery of a macrocosmic baby). These results are matching with several studies that demonstrated a significant association between POP and vaginal deliveries, multipara, an increasing body mass index, malpractice of Kegel exercise, and chronic constipation (**Eleje et al., 2014, Ballard., et al.,2016, Sumathi, 2017, and Mekonnen, 2020**).

There was validation by **(Wiegersma, et al., 2014)** documented that more than half of the intervention group experienced an improvement of overall prolapse symptoms after the practicing of pelvic floor exercises, and discussed that Kegel exercise is the first line for the prevention and management of POP because it maintains the strength of pelvic floor muscles and ligaments. Besides, our findings were supported by the results of **(Hassan et al., 2015)** that investigated the contributing factors of uterine prolapse among Emaritian women and found that the majority of participants were don't practicing pelvic floor muscle exercises and had less awareness regarding its benefits.

Also, our findings were similar to the studies of **(Isik et al., 2016 & Mekonnen, 2020)** which revealed that age, body mass index, higher parity, vaginal labor, and co-morbidity with diabetes were significantly associated with POP risk. This can be attributed to that the weight of a growing baby puts a strain on the pelvic organ and pelvic floor muscle in addition to the pregnancy hormones cause relaxation of the supporting ligaments in preparation for delivery these combined and cause weakness of the supporting structures in later life.

Additionally, our results are supported by the study of **(Sumathi, 2017)** who reported that more than half of the studied elderly women with POP were suffering from chronic constipation. This can be explained as there is a decrease in total body fluid and bowel movement as a result of the aging process combined with limited physical activities which increased the risk of chronic constipation among the elderly than young women. Chronic constipation increases intra-abdominal pressure directed down onto pelvic structures and causes repeated stretch and strain. While it was against the results of **(Thapa et al., 2014)** who concluded that constipation did not aggravate POP, and it is mainly aggravated by aging and obstetric factors.

Furthermore, our results reflected that repeated heavy lifting was a highly reported risk factor of POP among both groups. When the women's daily life involves repeated heavy work or heavy lifting, it increases the abdominal pressure that pushing pelvic organs downwards and makes the prolapse more likely to have occurred. This finding was supported by **(Belayneh et al., 2019)** who found a significant association between the incidence of prolapse and the heavy lifting among the Ethiopian women living in rural areas, and explained the reason for this could be as rural women have more duties to perform loaded activities such as assisting their husbands in farmland, marketing, and water fetching.

Moreover, in our study obesity acts as an independent risk factor of POP. It was found that more than half of the childbearing group who has POP their body mass index more than twenty five. This finding was supported by **(Lee., et al., 2017**) who confirmed a high prevalence of POP among adult women with high BMI compared to women who did not. The most displayed mechanism of POP development among obese women is the increase in intra-abdominal pressure that causes the weakening of pelvic floor muscles and fascia.

In contrast, the relationship between diabetes mellitus and POP was investigated by **(Isik et al., 2016)** who stated that diabetes can affect all pelvic organs, and clarified that the exact mechanism isn't clear, but it has been suggested that diabetes can cause damage for nerves that controlling internal organs and relaxation of pelvic floor muscles as long-term complications which consequently increase the risk for urinary incontinence and uterine prolapse.

As regards the severity of prolapse symptoms, it was found that the severity of POP symptoms was higher among the elderly group than the childbearing group. Also, it was documented that the symptoms of (bulging, heaviness, urinary and bowel symptoms, and physical discomfort) were greater reported among the elderly group. These findings were matching with **(Hassan et al., 2015)** who reported that the elderly women had severe POP symptoms compared to the middle-aged women and explained that this fact can be due to a long duration of POP among old-aged women, as well as, the presence of chronic diseases as pulmonary diseases, diabetes, and chronic constipation that more common among elders may aggravate the symptoms for them more than childbearing women. Furthermore, the effects of the aging process and postmenopausal changes further weaken the pelvic floor structures. Also, our findings are in the same line with **(Samuelsson et al., 1999)** who examine signs of genital prolapse in a Swedish population of women and found that about one-quarter of women (20-49 years) reported moderate symptoms of POP as compared to half of the elderly women who had severe POP symptoms.

Authors added that the severity of POP symptoms was higher among the elderly women versus childbearing women due to elderly women may

consider POP symptoms as a normal part of the aging process, refused to report and seek medical help, and consequently ignorance of these symptoms at early stages make the problem to worsen and aggravated to sever stages.

Additionally, multiple linear regression analysis was done for the leading determinants that affect the severity of prolapse symptoms among both groups. It reveals that age, body mass index, higher parity, vaginal deliveries, level of education, chronic constipation, and duration of prolapse were significantly affected the severity of prolapse symptoms among both groups. These findings were supported by the study conducted in North West Ethiopia and Nepal by **(Belayneh et al., 2019)**, and reflected that uterine prolapse affects old-aged women (>55 years.) five times higher as compared to younger women as a secondary to fall in estrogen level during the postmenopausal period that responsible for pelvic floor structure strength.

Also, these results were supported by **(Masenga et al., 2018)** who documented a significant association between the duration of uterine prolapse and the severity of prolapse symptoms as well as the functional level. Besides, our results revealed that the level of education was significantly affecting the POP symptoms. It appears that women with high education had lower severity of POP symptoms compared to those with lower degrees of education. This finding was supported by **(Masenga et al., 2018)** who illustrated a significant relation between the severity of

prolapse and the educational level in the Tanzanian rural community. Moreover, our findings are in agreement with **(Jokhio et al., 2020)** who found the severity of POP was higher among illiterate Pakistan women as compared to educated women with a low rate of reporting and consultation among them.

While this finding was against **(Asresie and Setegn., 2016)** who stated that there is no statistical significant difference between POP symptoms and the level of education. Authors' view of the point that educational level strongly affects the awareness of women regarding healthy lifestyle techniques including controlling chronic diseases as cough, constipation, maintain a normal weight, use of contraceptive methods, and birth spacing compared to illiterate women. Besides, educated women tend to be more open in discussing their health issues and seek for help and consultation.

Moreover, findings reflected that increased body mass index is significantly associated with the severity of prolapse. This fact was in the same line of the studies conducted by **(Belayneh et al., 2019 and Jokhio et al., 2020)** and documented that there was a direct relationship between obesity and prolapse severity and discussed that obesity makes extra-pressure on the pelvic organs and causing them to further descend and aggravate. Furthermore, it was found that constipation is another detected determinant that significantly associated with the severity of prolapse symptoms, as chronic constipation is

associated with chronic straining and increased intra-abdominal pressure, and this finding is consistent with the related studies of **(Wu et al., 2014, Sumathi., 2017& Jokhio et al., 2020).**

On other hand, the findings of the current study answered the research question concerning the effect of POP symptoms on daily physical activities. It was estimated that the physical activities of elderly women were greatly negatively affected by POP symptoms rather than a childbearing group; also there was a positive statistically significant correlation between the severity of prolapse symptoms and the physical impairments among both studied groups. These findings were similar to the findings of **(Laganà et al., 2018)** that revealed POP symptoms were negatively impacting women QOL in all domains (physical function, role limitation, social activities, occupational activities, and sexual). Also, these findings were consistent with a study conducted in Pakistan by **(Jokhio et al., 2020)**, and found old-aged women reported a great impact on their daily life activities which including; hygiene, home/work life, and social life versus the middle-aged women.

Furthermore, these findings are in agreement with **(Fritel et al., 2017)** who found that the frequency, duration, and the severity of POP symptoms were significantly associated with poorer physical mobility, and work/exercise limitation. Another validation by **(Ali-Ross et al., 2009)** showed that there was a significant negative correlation between women's physical activities and the severity of POP symptoms. Therefore greater attention is required at the population level to improve the awareness and knowledge of that health problem, its contributing risk factors in order to prevent its occurrence, and early reporting and management if it happened.

Limitations of the study:

Analysis for few variables could not be done for all women with POP related to unavailability of detail information at the outpatient clinic medical records

Conclusion

Based on the results of the current study it can be concluded that the severity of POP symptoms was higher among the elderly versus a childbearing women which consequently lowering their level of physical activities. Moreover, (aging, malpractice of pelvic floor exercise, higher parity, vaginal deliveries, obesity, chronic constipation, and heavy lifting) are the commonest leading determinants of POP and are significantly associated with the severity of prolapse symptoms among the studied sample.

Recommendations

An urgent need for health educational intervention by health care providers targeting the primary prevention of POP, as well as, secondary prevention for women with mild to moderate degree of genital

prolapse at all places especially in rural communities.

Educational classes are encouraged targeting girls before marriage in schools and universities focusing on improving their awareness regarding this gynecological problem, its causes, risk factors, and methods of prevention.

Establishment of a campaign by the country aimed at early detection, diagnosis, and treatment of pelvic organ prolapse, especially for older women living in the rural areas such as the 100 Million Health Campaign.

Effective use of mass media to put a spot on this health issue as well as reducing the social stigma, changing the wrong concept that "it occurs as a normal part of aging process", and to encourage early consultation.

A replication of the study on a larger sample from different geographical areas should be done to achieve generalization of the results.

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