



Original Article

Association Between Pelvic Floor Dysfunction and Metabolic Syndrome

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ABSTRACT

The failure to properly relax and coordinate your pelvic floor muscles in order to perform a bowel movement is known as pelvic floor dysfunction. The current cross-sectional study's goal is to establish a link between metabolic syndrome and pelvic floor disorders. The syndrome is made up of a number of variables, including "insulin resistance, visceral obesity, atherogenic dyslipidemia, endothelial dysfunction, hereditary vulnerability, increased blood pressure, hypercoagulable condition, and psychological stress." **Objective:** Association between "pelvic floor dysfunction and metabolic syndrome" in middle aged women. **Methods:** This article summarizes research from Jinnah Hospital that sought to ascertain the relationship between metabolic syndrome and abnormalities of the pelvic floor. 277 female patients were chosen for this cross-sectional investigation using a non-probability convenient sampling strategy. According to the inclusion criteria, information on female hospital patients aged 40 to 77 years old was gathered. Self-made questionnaires were filled by respective patients. Data analysis was performed in SPSS version 21. **Results:** There is no association between "pelvic floor dysfunction and metabolic syndrome" as the value is greater than 0.05. **Conclusions:** In middle-aged women, we were unable to find a connection between "metabolic syndrome and pelvic floor dysfunction." We are well aware that women's dysfunction negatively impacts their quality of life and puts a strain on the nation as a whole on the socioeconomic front. Finding solutions to reduce this stress will benefit women and the nation as a whole in the long run.

INTRODUCTION

Insufficient pelvic floor muscle activity leads to a wide variety of symptoms and anatomical differences known as pelvic floor dysfunction (PFD). The three-planed muscle complex with a dome shape that makes up the pelvic floor. Its complex actions include rising, squeezing, tightening, and relaxing. The pelvic floor muscles enable bladder and bowel emptying, support orgasm and sexual pleasure, and maintain the lower abdominal and pelvic organs [1]. Women experience pelvic floor problems commonly. Pelvic floor muscle dysfunction can manifest as lower urinary tract symptoms, bowel problems, sexual problems, protrusion illnesses, and pain. Pelvic floor dysfunction induced by relaxed pelvic floor muscles is frequently easily detected,

that include pelvic organ prolapse and urine incontinence [1,2]. The most prevalent kind of incontinence, stress urine incontinence (SUI), occurs in the presence of stimuli such as coughing or sneezing, settings in which the increased pressure inside the pelvic cavity surpasses the muscle control ability. SUI affects around 26% among women aged 30 to 59, with a peak at age 40 to 49% [3]. However, the complaints of non-relaxing pelvic floor muscles differ and are sometimes not allocated to pelvic floor dysfunction, making these disorders less readily identified [1]. Pelvic floor dysfunction (PFD) is mostly caused by weaker or damaged muscles and ligaments that support the pelvic floor [4]. Vaginal birth and a longer second stage of labour

(SSL) have been identified as key risk factors for PFD in several studies [5]. Many illnesses and pathologies can result from a lack of pelvic floor muscular tension or an electrical anomaly in these areas, including visceral prolapse, urine incontinence, and faecal constipation. Pelvic floor muscle issues are expected to grow by 35% over the next two decades, to an annual average of roughly 1.6 million visits by 2030. Pathogenesis is complex as well as multifactorial [6]. Gestational diabetes mellitus (GDM) is the most common pregnancy complication across all ethnic groups. "When compared to non GDM women, women with GDM had an increased risk of urine incontinence within the first 10 years following birth. Furthermore, GDM is associated with a muscular injury that impairs the pelvic floor and rectus abdominis muscles during pregnancy [7]. In addition to this, the prevalence of "pregnancy-specific urine incontinence (PS-UI) and UI two years postpartum" was considerably greater in women with GDM than in pregnant women who were not diabetic [8]. One of the most important public health concerns of the twenty-first century is metabolic syndrome, which is becoming more and more common over time because of inactivity and a dismal outlook in both industrialised and developing nations [9]. It has been linked to an increased risk of death rate and a variety of diseases, including cardiovascular diseases, kidney disease, cancer (breast cancer, renal cell cancer) [10] and diabetes according to the epidemiological studies [11,12]. While physical activity treatments alone are unlikely to restore insulin resistance, regulate lipid abnormalities and overcome obesity, the combined effect of increased exercise and improvement in CRF on these risk factors can have a significant influence on metabolic syndrome health outcomes [13]. As people aged, metabolic syndrome cases increased significantly. Between the ages of 20 and 39 and 60 and older, the frequency was 19.5 and 48.6 percent, respectively [14]. There were no significant variations in metabolic syndrome prevalence between men and women in either age group. There were considerable disparities in race/ethnicity predominance among each age group [15]. Aim of this study was to ascertain the relationship between "metabolic syndrome and dysfunction of the pelvic floor in middle-aged women."

METHODS

Sample size is calculated with Rao soft sample size calculator. Estimated population size 277 participants. But the analysis was done of 250 participants. Middle aged women between 40-77 years. Inclusion-criteria: The presence of any 03 of the following 5 risk factors. For Asian women, an elevated waist circumference of at least 80 cm. Triglyceride elevation (more than or equal to 150 mg/dL) or

medication for triglyceride elevation. Low levels of "high-density lipoprotein cholesterol (less than 50 mg/dL)," or medication to address low levels of this lipid. Exclusion criteria: Participants who had a history of cancer were disqualified. Women frequently have serious physical or mental illnesses. To prevent the influence of hormone therapy's effects on lipid profiles, women who were now receiving or had recently (within the past year) undergone hormone replacement therapy were excluded. Pelvic Floor Distress Inventory: A Performa/Questionnaire for Data Collection 20 (PFDI-20) The PFDI-20 is a reliable and valid condition-specific questionnaire that measures the severity of symptoms and discomfort brought on by pelvic floor diseases. Elevated waist circumference, Elevated triglycerides, Reduced high-density lipoprotein cholesterol, Elevated blood pressure, Body Mass Index (BMI). The data was analyzed by using the SPSS 21.0 statistical software

RESULTS

Data was gathered from 250 students for a cross-sectional study on the Association between Metabolic Syndrome and Pelvic Floor Dysfunction in Middle Aged Women. The data produced the following statistical findings when used with SPSS. The frequency distribution of various tables was determined, and these tables were shown graphically.

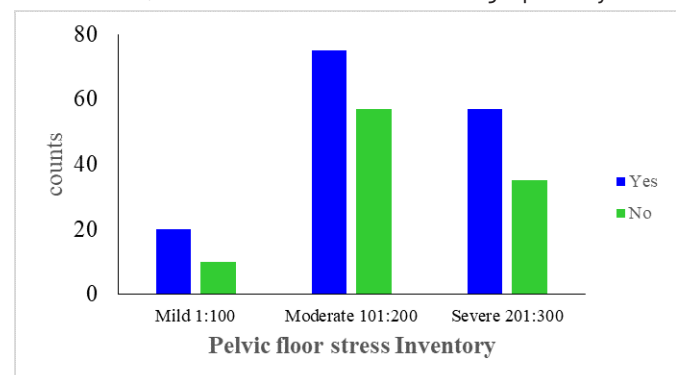


Figure 1: According to bar chart, 250 candidates 101 to 200 candidates found out menopause at moderate level in pelvic floor distress inventory

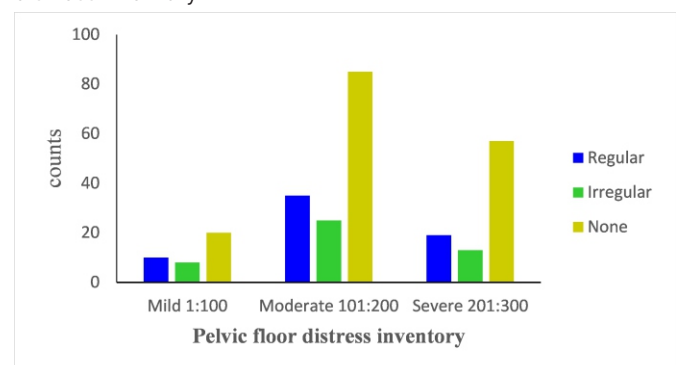


Figure 2: According to the bar chart 250 candidates the range of

101 to 200 found out menstrual cycle at moderate level with percentage of 12.80% having regular menstrual cycle while 8.80 % having irregular menstrual cycle and 30.40% having no menstrual cycle at all

Variables	Menopause Yes	Menopause No	P-Value
Pelvic floor distress inventory Mild (1-100)	20	15	0.731
Moderate (101-200)	72	54	
Sever (201-300)	54	35	

Table 1: Association between menopause and pelvic floor dysfunction

a 0 cells (.0%) have expected countless than 5. the minimum expected count is 13.20.

In this table P value is greater than 0.05 so there is no association between menopause and pelvic floor dysfunction

Variables	Waist Circumference Normal	Waist Circumference abnormal	P-Value
Pelvic floor distress inventory Mild (1-100)	40	18	0.303
Moderate (101-200)	80	27	
Sever (201-300)	65	20	

Table 2: association between waist circumference and pelvic floor dysfunction

A 112 cell (91.1%) have expected count less than 5. The minimum expected count is .13. In this table the P value is greater than 0.05 that shows there is no association between waist circumference and pelvic floor dysfunction

Variables	Triglycerides Normal	Triglycerides Abnormal	p-Value
Pelvic floor distress inventory Mild (1-100)	7	36	0.216
Moderate (101-200)	59	81	
Sever (201-300)	33	34	

Table 3: Association between triglycerides and pelvic floor dysfunction

a 182 cell (97.8%) have expected count less than 5. The minimum expected count is .13. In this table the P value is greater than 0.05 this shows that there is no significant association between triglycerides and pelvic floor dysfunction.

Variables	HDL Normal	HDL abnormal	P-Value
Pelvic floor distress inventory Mild (1-100)	98	86	0.319
Moderate (101-200)	27	14	
Sever (201-300)	12	13	

Table 4: Association between HDL and pelvic floor dysfunction

a 61 cell (81.3%) have expected count less than 5. The minimum expected count is 13. In this table the P value is greater than 0.05 that shows there is no association between HDL and pelvic floor dysfunction

Variables	Fasting Blood Sugar Mean + S.D	P-Value
Pelvic floor distress inventory Mild (1-100)	138 ± 11	0.116
Moderate (101-200)	152 ± 18	
Sever (201-300)	170 ± 2	

Table 5: Association between fasting blood glucose and pelvic floor dysfunction

a 66 cells (78.6%) have expected countless than 5. The minimum expected count is 13. In this table the P value is greater than 0.05 that shows there is no association between fasting blood glucose and pelvic floor dysfunction

DISCUSSION

This investigation looked at the relationship between middle-aged women's "metabolic syndrome and pelvic floor dysfunction." Because of their increased incidence as the proportion of aged women increases and the detrimental effects they can have on a "woman's quality of life, pelvic floor disorders" are emerging as a serious public health concern. According to the study's findings, about 55% of women experience pelvic floor dysfunction, and participants who have metabolic syndrome also occasionally experience pain, abdominal bloating, diarrhoea, dizziness, sweating, and nausea. POP is a frequent illness that affects between 30% and 50% of women over the age of 50 worldwide. There is a strong link between the prevalence of pelvic organ prolapse and the metabolic syndrome. Fasting blood glucose, triglycerides, and HDL are important components of the five types of metabolic syndrome in individuals with pelvic organ prolapse. According to the results, an increase in triglycerides and a decrease in HDL had an impact on the severity of pelvic organ prolapse by 1.58 times and 1.42 times, respectively [16]. As you can see from the pie chart, 60% of the patients with pelvic floor disorders are menopausal, and their relationship to the pelvic floor is heavily taken into account. In our study, it was shown that out of 250 participants, the majority of patients had abdominal heaviness and discomfort, but few experienced symptoms of straining excessively to urinate or have frequent bowel movements due to high glucose levels. According to the results of the current study, women who had higher BMIs, larger waist circumferences, higher LDL levels, and higher FG levels are more likely to develop OAB [17]. Genitourinary atrophy, which is basically a component of the entire condition and is usually linked to these issues in middle age. Because of their shared hormone response, the tissues of the pelvic floor react individually to postmenopausal hormone loss. This review article discusses the potential anatomical and/or functional consequences of oestrogen shortage and emphasises the identify and act of puberty and maturing on pelvic floor

function. It emphasises the importance of assessing the quality-of-life effects of leakage, protrusion, and gastrointestinal shrinkage and offers a technique for the original evaluation of pelvic function in midlife women [18]. As people age, their bodies weaken and other medical issues arise, which raises PFD prevalence. Numerous risk factors have been discovered by researchers as contributing to PFD development. 62 The prevalence of PFD was substantially correlated with age. This was in line with research findings that indicated at least one symptomatic PFD was present among women older than 40 [19]. "The metabolic syndrome (MS) is regarded as a risk factor for SUI in females, and studies have revealed a strong association between the two. In a single person, MS represents a collection of risk factors for numerous disorders, including hypertension, hyperglycaemia, obesity, and improper lipid metabolism. MS can impair the body's ability to process proteins, carbs, and fats. According to studies, SUI in women is associated with obesity, hypertension, and hyperglycaemia. Additionally, the glucose metabolism issue and oxidative stress response brought on by MS can induce vascular and muscle damage as well as make pelvic floor relaxation even worse [20].

CONCLUSIONS

According to the most recent research, there is no connection between "high density cholesterol, fasting blood glucose, waist size, or blood pressure and pelvic floor dysfunction." As we examine, the research believed that middle-aged women between the ages of 40 and 77 had symptoms of mild, moderate, and severe conditions.

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