

Association Between the Multiparity and Spondylolisthesis in Women 30-70 Years Old, Kohistani Physiotherapy Clinic 1394-1400

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ABSTRACT

Summary: Spondylolisthesis is a common problem among those who complain of back pain and is defined as lysis or incomplete subluxation of one vertebra over another with different grades which is caused by unilateral or bilateral fracture of pars inter articularis or degeneration of the vertebral column.

Studies show that the prevalence of this problem relates to increase age. Age 50 and above is more prone to it. Also, the incidence of this problem increases about 22% among pregnant women. But here in Afghanistan still there is not enough researches done about this.

In Afghanistan the multiparity, hard physical activities during pregnancy, home deliveries are somewhat accepted phenomenon, so the incidence of lysis may be possible below age 50 and lots of women with multiparity who suffer from back pain may have spondylolisthesis.

Study objectives and aims: The aim of this study is to find the relationship between multiparity and lumber degenerative spondylolisthesis among women aged 30-70 yrs.

Methodology: An analytic cross sectional study have been done on 101 female patients who referred to kohistani physiotherapy clinic for their back pain treatment years 2015-2021. The data collected from the patients record sheets and analyzed by epi info and excel programs in computer.

Results: From those 101 patients 6 of them have been excluded from the research because they did not meet the inclusion criteria and 95 cases have been selected. The result of z-test show ($p=0.5$) which means that there is no direct relation between multiparity and degenerative spondylolisthesis. The grade 1 spondylolisthesis has more idiopathic factor than grade 2 and 3. Finding shows 3.4 times.

Conclusion: According to our findings we can say that there is not direct association between multiparity and degenerative spondylolisthesis but incidence of it among women down age 50 supports that multiparity has an important role that we have to consider about.

So, the health education and public awareness programs have to be forced and improved specially for mothers about this particular issue and get practical steps in order to help them in decreasing their low back pains which is the most common problem among Afghan women.

Keywords- lumber spondylolisthesis, multiparity, kohistani physiotherapy clinic.

I. BACKGROUND

Studies show that chronic back pain is one of the most important reason for patient's reference to physiotherapy clinics. Spondylolysis and spondylolisthesis are two important pathologies that people might be afflicted with for years but they might

be unaware of it. Therefore, such diseases may account for chronic back pain^[1]

It's a condition when one vertebra slips forward on the other vertebra. According to the etiology of this problem, there are two types of spondylolisthesis. The isthmic and the degenerative spondylolisthesis. The isthmic results from any defect in the neural arch or better to say the posterior apparatus

of the spine which consists of (pars interarticularies, lamina and pedicles) either by congenital or developmental or pathological reasons, and this condition leads to instability of the lumbar spine.^[2]

It's said that Instability of the lumbar spine is one of the major causes of back pain and is considered as a subtype of non-specific lower back pain. Spondylolysis and spondylolisthesis due to this instability could lead to back pain.^[2] There are many studies done to classify and explain the amount of slippage in spondylolisthesis and the accepted one is the Myerding. The Myerding classification defines the amount of vertebral slippage on X-ray in reference to the caudal vertebrae. There are five grades of spondylolisthesis in the Myer ding classification. Grade I is less than 25 percent slippage, grade II is 26–50% slippage, grade III is 51–75% slippage, grade IV is 76–100% slippage, and grade V is over 100% slippage and is referred to as spondyloptosis.^[3]

The pars interarticularies is vulnerable to fracture during spinal hyperextension, especially when combined with rotation or when experiencing a force during landing. This stress fracture most commonly occurs where the concave lumbar spine transitions to the convex sacrum (L5–S1). A significant number of individuals with spondylolysis will develop spondylolisthesis, accounting for 50–81% of this particular population. It is believed that both repetitive trauma and an inherent genetic weakness can make an individual more susceptible to spondylolysis.^[4]

The major local reasons of DS that probably lead to the development of degenerative vertebral slippage are: (1) arthritis of the facet joints with loss of their normal structural support; (2) malfunction of the ligamentous stabilizing component, probably due to hyper laxity; and (3) ineffectual muscular stabilization. Disc degeneration leads to segmental instability in the sagittal plane and may also result in DS. Pregnancy and sports activities are also associated with DS.^[4] though, previously, pregnancy was not considered as a risk factor in degenerative spondylolisthesis, (Sanderson PL 1996) was the first who highlighted that pregnancy is an important factor in development of degenerative spondylolisthesis.

There are many physiological changes during pregnancy, and relaxation of the pelvic and other joints is an essential and normal feature (Abramson, Roberts and Wilson 1934). This change correlates with the levels of the hormone relaxin (Zarrow, Holmstrom and Salhanick 1955). It has been shown that parous women have significantly greater laxity than nulliparous women but after the first pregnancy laxity did not change with the number of pregnancies (Calguneri, Bird and Wright 1982). The action of relaxin is not fully understood, but it appears to increase the tissue level of collagenase (Mazoujian and Bryant).^[5]

Degenerative spondylolisthesis is most common at the L4/L5 level and in women. There are

several possible reasons for its predilection at this site, but there is no satisfactory explanation for the predominance in women. We considered that pregnancy was a possible influence. We reviewed the records and radiographs of 949 women and 120 men aged 50 years and over who had attended a spinal surgeon for low back pain over a five-year period. We found that women who had borne children had a significantly higher incidence of degenerative spondylolisthesis than nulliparous women (28% v 16.7%; $p=0.043$). The men had a 7.5% incidence, significantly less than nulliparous women ($p = 0.031$). Our results suggest that pregnancy is an important factor in the etiology of degenerative spondylolisthesis.^[5]

The abdominal muscles' ability to stabilize the pelvis and spine decreases as pregnancy progresses and remains compromised post-partum. Indeed there are compelling data about the increase in LBP during pregnancy and post-partum on one hand, and the importance of trunk muscles in maintaining spine stability and function on the other.^[2]

Most of the studies support that the degenerative spondylolisthesis was significantly associated with increased age in both sexes. [Prevalence of degenerative spondylolisthesis showed a statistically significant increase through older age groups in males ($p=0.003$), females ($p=0.001$) and in total sample ($p=<0.0001$). No cases of degenerative spondylolisthesis were observed in men less than 40 years, nor in women less than 50 years of age. The highest prevalence of degenerative spondylolisthesis was observed in the 60–69 year age group with a lower prevalence observed in individuals older than 70. Our findings are in accordance with the results of the Copenhagen Osteoarthritis Study.^[4]

In Afghanistan the multiparity and doing hard physical activities by women are an accepted phenomenon, there is not enough studies done in Afghanistan regarding this issue, neither on prevalence of DS gender based nor casual based.

So, on that, the aim of this study was to find out association between the number of births and Spondylolisthesis in women 30-70 years old.

II. STUDY OBJECTIVES AND AIMS

The aim of this study was to find out association between the multiparity and Spondylolisthesis in women 30-70 years old.

Also, to find out the effective methods of prevention from spondylolisthesis.

III. METHODOLOGY

This is an analytic cross sectional study on 101 women with Low Back Pain referred to Kohistani physiotherapy clinic in Kabul, years (1394-1400). The data collected from records of women with low back

pains who had spondylolisthesis. The information analyzed by Epi info & excel program.

Criteria of inclusion: be married women, age group 30-70, have children more than 2.

Criteria of exclusion: be single, nulliparous women, have less than 3 children

Variables:

This study have been done on married women according to their Age group and number of children they have and severity of the condition.

IV. RESULT

We collected the data of DS cases from Kohistani physiotherapy clinic in Kabul city.

From the total 101 women patients with spondylolisthesis, in which 6 of them excluded because they had not meet all the inclusion criteria and the findings were as follows:

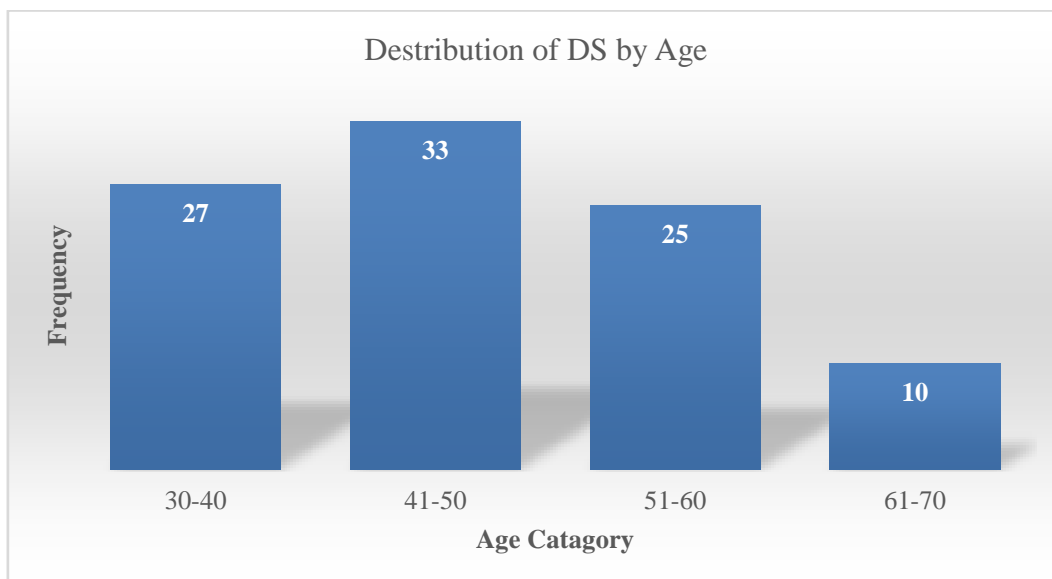


Figure 1:

This figure shows the DS prevalence according to the age groups, age 41-50 has the highest number.

While study shows in the other worlds no patients recorded under age 50.

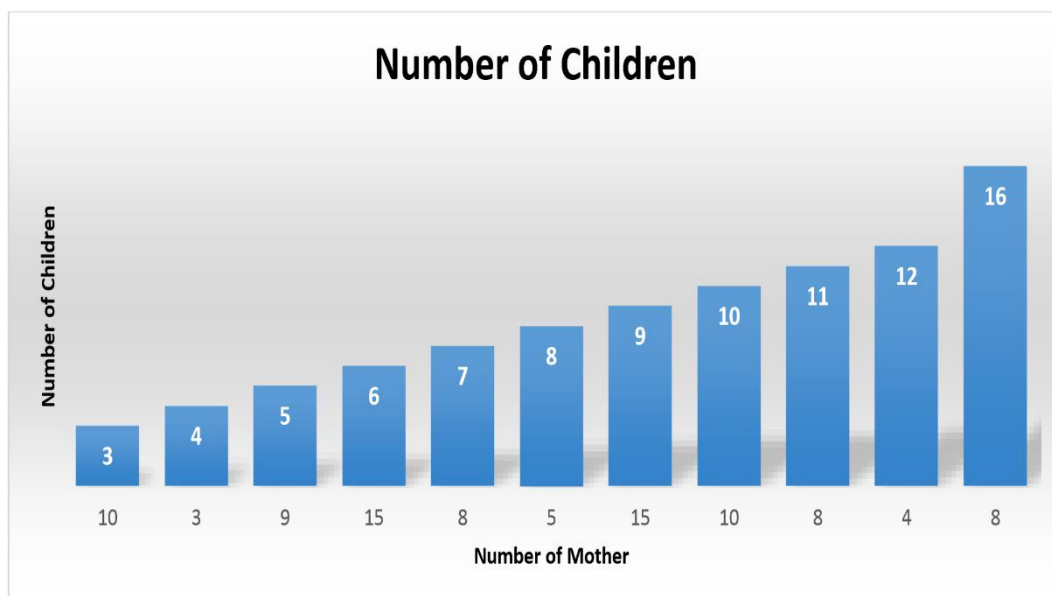


Figure 2:

Figure 2 shows the number of children that the affected mothers have. Study shows that the prevalence

of spondylolisthesis increases by 22% in pregnant women

Table 1:

Patient main complain(symptoms)	Frequency	Percent	Exact 95% UCL
LBP & both legs pain	7	7.37%	14.59%
LBP & knee pain	17	17.89%	27.10%
lumbo pelvic pain	29	30.53%	40.82%
lumbp pelvic pain & left leg pain	16	16.84%	25.90%
pelvic &right leg pain	26	27.37%	37.48%
TOTAL	95	100.00%	

As it's said that lumbo pelvic pain and stiffness is the main complain of patients, here the percentage of lumbo pelvic pain is higher than other symptoms.

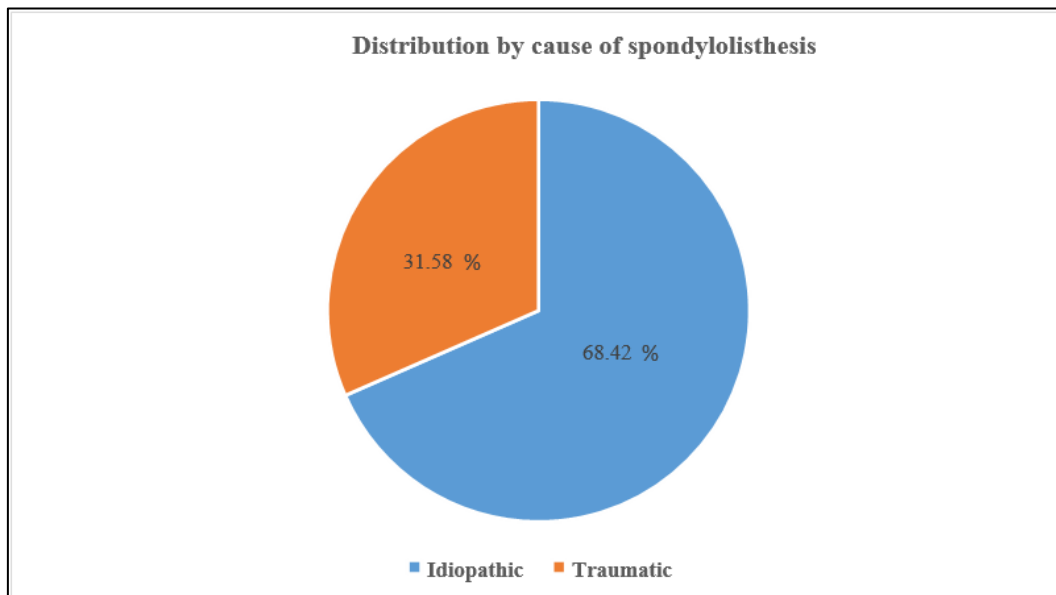


Figure 3:

Figure 3 shows the causes for spondylolisthesis, the blue color is the idiopathic (no significant reason), the orange color is the traumatic (any direct trauma, fallen down during pregnancy)

Table 2:

Spondylolisthesis grading& number of children	Obs	Mean	Var	Std Dev	Min	Max	Pr > t
Grade 1	56	8.3214	13.8584	3.7227	3	16	0.5173
Grade 2	39	7.8462	10.0283	3.1668	3	16	0.5052

V. DISCUSSIONS AND CHALLENGES

Low back pain is one of the most common and persecuting condition people suffers from. There are many reasons for developing lumbo pelvic pains, such as: hard physical activities, multiparity, bad or poor nutrition, bad posture (either dynamic or static). Here in Afghanistan where the multiparity, hard physical activities, weak lifestyle especially in rural areas are

accepted phenomenon, back pain is also an accepted condition for them, in particular the women. They live with back pains for years and they continue their activity daily livings. Unfortunately there isn't enough studies to describe the epidemiology of back pains sex based, age based, factor based as I reviewed the MOPH, Afghanistan surveillance.

Or there may be studies done but not recorded by MOPH Afghanistan.

That is why this study have been done to at least find out one factor of the lumbo pelvic pain among women which is the DS and its` relation with multiparity. And describe the condition along with its risk factors.

It was narrated in one study (The influence of pregnancy on the development of degenerative spondylolisthesis) that the incidence of DS in patients with back pain is twice as high in multiparous women as in nulliparous women.^[5]

Many studies support that the prevalence of DS appears after the age of 50.^[4]

But this study showed that multiparity increases the prevalence rate of DS before age 50.

Though this is very small study, only one physiotherapy clinic patients, but still could be the beginning of the future steps in this regard.

VI. CONCLUSION

The data shows that degenerative spondylolisthesis has no direct relation with the number of full term pregnancies but prevalence of DS before age 50 shows that multiparity could be as one factor of developing DS among multiparous women.

So, it's very essential to increase people awareness about the risks of multiparity in developing back pains and lumbo pelvic insufficient stability and how to manage their back pains.

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