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## Prevalence and Functional Limitations Associated with Anterior Knee Pain among Females

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### Article History

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### Abstract

**Purpose:** Anterior knee pain begins when the kneecap does not move freely and bumps into the bottom portion of the thigh bone. This can be the result of the patellofemoral joint being out of alignment or the kneecap being in an abnormal position. The muscles on the front and back of your thigh are tight or weak. Patellofemoral pain syndrome (PFPS) is the term used to describe a common knee condition that causes pain in the front of the knee, near the patellofemoral joint. To determine the prevalence and functional limitations associated with anterior knee pain among female.

**Methodology:** An analytical cross-sectional study was conducted in the district Gujranwala. The sample size was 237. General female population of age 20 to 40 was included in this study. Convenient sampling technique was used. A Kujala scores (anterior knee pain scale) was used for data collection. The total scores of the questionnaire were 100. Participants with score less than 84 were

positive anterior knee pain and those who had score more than 84 were negative anterior knee pain results.

**Findings:** Results shows that out of 237 participants 42 female with percentage 17.7% having positive results of ANP (anterior knee pain) and 195 females with percentage 82.3% have negative results of ANP.

**Conclusion:** This survey concluded that the 17.7% of the subjects were positive for ANP according to ANPQ. It was more common in young females. The daily physical activities are impacted by ANP. The majority of respondents who received positive scores struggled with knee flexion and experienced pain that affected their overall performance.

**Keywords:** *Anterior Knee Pain, Patellofemoral Pain Syndrome, Anterior Knee Pain Scale, Physical Activities.*

## 1.0 INTRODUCTION

The patellofemoral pain syndrome is primarily experienced by young women and is defined by anterior knee discomfort without other disease-related symptoms such as a raised Q-angle. Activities like squatting, stair walking, and jogging are to blame for the discomfort because they have a negative impact on many elements of everyday life.<sup>1</sup> Anterior knee pain (AKP) or patellofemoral pain syndrome (PFPS) has been identified as a common diagnosis in young, athletic females. The acronyms AKP and PFPS are frequently used interchangeably when referring to a syndrome that comprises pain in the anterior region of the knee that can be brought on by patellar dislocation, patellar subluxation, or, on occasion, no trauma.<sup>2</sup> During physical activity, severe pain around the knee cap is characteristic of patellofemoral pain syndrome. PFP's causes have been the subject of numerous studies, and it has been discovered that they are multifactorial. It is suggested that pain in the patellofemoral joint can last for a long time and lead to less sports participation. Strong awkwardness and over action are significant reasons for knee torment in Sports related PFP.<sup>3</sup> The AKP was formed as a result of a very wide range of events.

The main causes of AKP in young, active patients are believed to be soft-tissue impingement, structural anomalies, chondromalacia patella (CMP), the decreased patellofemoral system envelopment function, and pelvifemoral dysfunction. Imaging is crucial for recording tissue damage and/or structural changes in AKP patients.<sup>4</sup> It has been demonstrated that up to 74% of athletes who suffer from anterior knee pain limit or even stop participating in their sport. Anterior knee pain has a significant impact not only on sports participation and levels of physical activity, but also on quality of life and ability to perform daily activities.<sup>5</sup> Front knee torment has been demonstrated to be multifactorial. Utilizing strategic relapse investigation, the reason for this study was to evaluate the pervasiveness of front knee torment at double cross focuses three months and two years after medical procedure and to recognize factors fundamentally affecting front knee torment at each time point.<sup>6</sup> In the donning populace, foremost knee torment is an extremely normal issue.

Numerous patients with front knee torment need moderate treatment before they can get back to sports or everyday exercises. Then again, because of the great commonness of front knee torment, forestalling this pathology has for some time been really important for some games medication experts.<sup>7</sup> There are a ton of elements that have been connected to front knee torment previously. Nonetheless, there is an absence of planned information to learn which of these factors will bring about front knee torment. This study's goal was to recognize the innate gamble factors for the beginning of front knee torment in a games populace more than a two-year time span.<sup>8</sup> Previously, front knee torment in youths was believed to be a harmless, self-restricting condition with no drawn out impacts. The regular history of idiopathic foremost knee torment has just been reported in a couple of studies, yet Nimon et al. a 20-year follow-up investigation discovered that one out of four patients kept on encountering critical side effects.<sup>9</sup> Even though anyone can get anterior knee pain, especially athletes, women who aren't athletic are clearly more likely to get it than men who aren't athletic.

The goal of this study is to learn more about how anterior knee pain affects women and why women are more likely to get it than men. Psychologic, anatomic, hormonal, postural, and sociologic variables will be thought of.<sup>10</sup> The motivation behind this study was to decide the gamble factors for cerebral paralysis patients experiencing anterior knee pain. These gamble factors were analyzed extensively regarding socioeconomics, actual assessment discoveries, and radiographic estimations; Additionally, walking pain, resting pain, and provocative pain were evaluated for anterior knee pain.<sup>11</sup> Even though it is debatable whether or not cartilage lesions, particularly chondral ones, are directly related to pain, these lesions may be the cause of early osteoarthritis and can determine an athlete's prognosis. The patellofemoral joint has a complicated anatomy

and biomechanics, and symptoms are frequently vague.<sup>12</sup> Ongoing foremost knee torment is a typical clinical condition, particularly in dynamic individuals. Nonetheless, the occurrence and take a chance with factors have not been explored.

We investigated the connection between the commonness of constant foremost knee torment in military staff and word related risk factors.<sup>13</sup> AKP can adversely affect a patient's personal satisfaction and, from a more extensive perspective, fundamentally troubles the economy by driving up the expense of medical care. Structures in and around the knee as well as variables outside the knee, for example, appendage misalignment, shortcoming specifically hip muscle gatherings, and center and ligamentous laxity, are possible supporters of AKP.<sup>14</sup> According to Taunton and Ryan (2002), patellofemoral or anterior knee pain (AKP) accounts for nearly 25% of knee injuries. The knee is one of the most common places where athletes and recruits sustain injuries.

Military personnel have a high prevalence of AKP. 12–15% of army recruits worldwide reported experiencing AKP-related complaints, according to studies.<sup>15</sup> Anterior knee pain has been linked to improper patellar alignment and tracking within the femoral trochlear groove in both natural and prosthetic knees. The patella can increase the quadriceps muscle's moment arm force by acting as a fulcrum, making the muscle more effective at extending the knee.<sup>16</sup> In the youthful grown-up populace, front knee torment is a typical outer muscle condition. Lower uttermost point hidden components, as extended femoral anteversion and even tibial turn, may add to patellofemoral malalignment and principal knee torture.<sup>17</sup>

## 2.0 METHODOLOGY

Selection and description of participants: An analytical cross-sectional study was conducted in Gujranwala city. This study was completed in 4 months after approval of synopsis. Non probability convenient sampling technique was used. And total 237 females were evaluated. Females with age between 20-40 years were included in this study. Females with bones cancer, Total Knee Replacement, pregnant females and females with medical conditions of knee such as (arthritis, gout, and infections) were excluded from this study. In this study, female participants were asked a variety of questions regarding their functional limits of the knee, such as limping, walking up and down stairs, using a support, squatting, jogging, and leaping, pain, swelling, aberrant uncomfortable kneecap movement, atrophy of the thigh, and a lack of flexibility.

The total scores of the questionnaire were 100. Participants with score less than 84 were positive anterior knee pain and those who had score more than 84 were negative anterior knee pain results. A Kujala scores (anterior knee pain scale) was used for data collection. A validated method for assessing PFP or AKP is the Kujala Anterior Knee Pain Scale (AKPS), commonly known as the Anterior Knee Pain Scale. It was initially reported in English, and it has now been verified in Finnish, Persian, Chinese, and Turkish. There is currently no validated Dutch patient reported outcome measure (PROM) for AKP, and it has not been validated in patients following knee joint replacement surgery.<sup>18</sup> The questionnaire consisted of total 13 questions. Each question had its own scores that show the functional condition of the participant. The anterior knee pain scale (AKPS) is a 13-item, self-report questionnaire developed to assess subjective reactions to particular activities and symptoms. A score on the AKPS ranges from zero to one hundred, with lower values indicating greater pain and impairment.<sup>19</sup>

## 3.0 FINDINGS

An analytical cross-sectional study was conducted in the district Gujranwala. The sample size was 237. General female population of age 20 to 40 was included in this study. Convenient sampling technique was used. A Kujala scores (anterior knee pain scale) was used for data collection.

**Table 1: Flexion Deficiency**

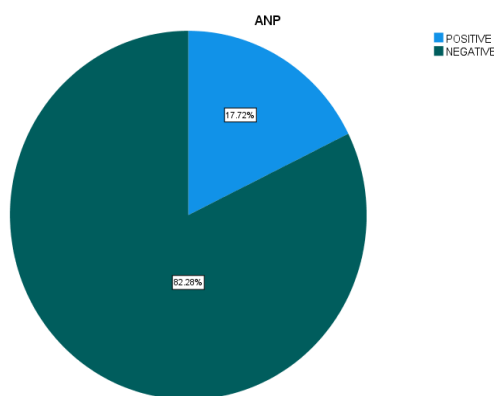
Flexion Deficiency	N	%
Slight	61	25.7%
None	176	74.3%

**Table 2: Prolonged Sitting with Knee Flexed**

Prolonged Sitting with Knee Flexed	N	%
Pain forces to extend knee temporarily	20	8.4%
Constant pain	1	0.4%
Pain after exercise	64	27.0%
No difficulty	152	64.1%

**Table 3: Overall Frequency**

Overall Results	N	%
Positive	42	17.7%
Negative	195	82.3%



*Figure 1: Frequency of Anterior Knee Pain*

Results shows that out of 237 participants 42 female with percentage 17.7% having positive results of ANP (anterior knee pain) and 195 females with percentage 82.3% have negative results of ANP.

### Discussion

Anterior knee pain begins when the kneecap does not move freely and bumps into the bottom portion of the thigh bone. One of the most typical causes of anterior knee discomfort in the outpatient environment is patellofemoral pain.<sup>20</sup> A frequent musculoskeletal symptom among people of all ages and activity levels is

anterior knee discomfort.<sup>21</sup> Front knee torment (AKP) as a vague side effect and incorporates a wide scope of various side effects and different basic useful or potentially underlying irregularities.<sup>22</sup> A comprehension of the patellofemoral joint biomechanics is vital for grasping pathologic states of the knee.<sup>23</sup> This can be the result of the patellofemoral joint being out of alignment or the kneecap being in an abnormal position. The muscles on the front and back of your thigh are tight or weak. Numerous investigations have found no differences in the incidence of anterior knee discomfort, the functional results, or the range of motion (ROM) after patellar resurfacing.<sup>24</sup>

The predominance of PFPS is two times as high in ladies as in men, and this high commonness forces medical care and financial expenses on communities. Irritation, firmness, giving way, crepitation, and diffuse retro patellar torment during useful exercises, for example, step climbing, are pervasive among these patients.<sup>25</sup> The name given to a continuous knee condition that produces inconvenience at the front of the knee, around the patellofemoral joint, is patellofemoral torment disorder (PFPS). Here the patella (kneecap) meets the femur (thigh bone). Most often, torment is capable close or behind the kneecap. Quadriceps shortcoming, which influences your capacity to expand your knee, is the principal risk factor for creating patellofemoral joint agony.

Many elements might cause front knee torment and can at the same time influence a few designs. It is critical to recall that they go about as a one-of-a-kind biomechanical unit. A mix of imaging discoveries with patient's clinical side effects allows a precise finding. Nonetheless, another comprehension of pathophysiology and the elements of the patellofemoral joints is important to further develop treatment choices.<sup>12</sup> An analytical cross-sectional study was conducted in the district Gujranwala. The sample size was 237. General female population of age 20 to 40 was included in this study. Convenient sampling technique was used. A Kujala scores (anterior knee pain scale) was used for data collection. This study asked different questions from females about functional limitations of knee which include limp, walking, stairs, support, squatting, running, jumping, and prolonged sitting with knee flexed, pain, swelling, abnormal painful kneecap movement, atrophy of thigh, flexion deficiency.

Results show that out of 237 participants 42 female with percentage 17.7% having positive results of ANP (anterior knee pain) and 195 females with percentage 82.3% have negative results of ANP. The anterior knee pain was present in young female between the ages of 20 and 40. The daily physical activities are impacted by ANP. The majority of respondents who received positive scores struggled with knee flexion and experienced pain that affected their overall performance.

When treating individuals with ANP, it is wiser to have a helpful analysis, such as that provided by the anterior knee pain questionnaire, rather than a therapeutic diagnosis. In this study, the prevalence of PFPS or ANP was assessed using the ANPQ. ANPQ is more able to explain progress and dismiss symptoms in participants. The great majority of PFPS patients only need symptomatic relief from NSAIDs, hamstring stretching, and quadriceps strengthening exercises.

#### **4.0 CONCLUSION AND RECOMMENDATION**

This survey concluded that the 17.7% of the subjects were positive for ANP according to ANPQ. It was more common in young females. The daily physical activities are impacted by ANP. The majority of respondents who received positive scores struggled with knee flexion and experienced pain that affected their overall performance.

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