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CORRELATION BETWEEN WESTERN ONTARIO AND MCMASTER UNIVERSITIES OSTEOARTHRITIS INDEX (WOMAC) AND ACTIVITIES – SPECIFIC BALANCE CONFIDENCE (ABC) SCALE IN OLDER ADULTS WITH OSTEOARTHRITIS OF KNEE JOINT

Physiotherapy

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ABSTRACT

Background: Knee osteoarthritis (OA) is more important not only for its high prevalence rate compared with other types of osteoarthritis (OA) but also for its presentation at earlier age groups particularly in younger age groups of obese women. The incidence increases by age and further increase with longer lifetime. Pain and other symptoms of osteoarthritis (OA) may have a profound effect on quality of life affecting both physical function and psychological parameters. This can result in self-imposed limitation of activity and hence decreasing functional ability and confidence level of the individual. Hence, it's important to assess the degree of pain, stiffness and functional limitation and the confidence level of the individual. WOMAC was used to assess the severity of pain, stiffness and functional limitation and ABC was used to assess the individual's confidence level. This study was aimed to find if there exists any correlation in both the outcome measures.

Objective: Correlation of WOMAC and ABC Scale in community dwelling older adults.

Methodology: 100 participants with age group of 60-80 years was recruited. Both WOMAC and ABC Scale was assessed on each individual for one time and further scores was noted down and correlated.

Result: The correlation coefficient between both the scale was r = -0.3063 and the P value was < 0.0019, according to this correlation is negative which means as the score of WOMAC increases the score of ABC scale decreases and also vice versa. Hence there exists inverse correlation between both the outcomes i.e. lesser the symptoms, better is the confidence.

Conclusion: This study proved that there is inverse correlation between WOMAC and ABC scale which is statistically significant. Thus it is concluded that pain, stiffness and functional limitation is correlated to confidence of the individual while performing specific activities.

KEYWORDS

Osteoarthritis, older adults, WOMAC, ABC

INTRODUCTION

Ageing is defined as process that is genetically determined and environmentally modulated or it is simply getting old.[1] It is associated with a loss in muscle strength and loss of peripheral motor and sensory nerves, loss of both vision and control of eye through the vestibular and visual cortex. These disabilities, secondary to the normal aging process, can lead to loss of balance and poor gait in older population.[2] Aging changes in the musculoskeletal system increase the propensity to osteoarthritis (OA) but the joints affected and the severity of disease are most closely related to other osteoarthritis (OA) risk factors such as joint injury, obesity, genetics, and anatomical factors that affect joint mechanics.[3]

Osteoarthritis (OA) is one of the most prevalent conditions resulting to disability particularly in elderly population. It is the most common articular disease of the developed world and a leading cause of chronic disability, mostly as a consequence of the knee osteoarthritis (OA) and/or hip osteoarthritis (OA).[4] The economic costs of osteoarthritis (OA) are high, including those related to treatment, for those individuals and their families who must adapt their lives and homes to the disease, and those due to lost work productivity.[5] The incidence of knee osteoarthritis (OA) increases by age and further increase with longer lifetime and higher average weight of the population.[6]

Knee osteoarthritis (OA) is not a localized disease of cartilage alone but is considered as a chronic disease of the whole joint, including articular cartilage, meniscus, ligament, and peri-articular muscle that may result from multiple pathophysiological mechanisms,[7] however most patients with knee osteoarthritis (OA) can be managed in the community and primary care. [8] Individuals with osteoarthritis (OA) knee suffer progressive loss of function, displaying increasing dependency in walking, stair climbing and other lower extremity tasks. Osteoarthritis of the knee is known to be a risk factor for fall injuries[9]

The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) is a widely used, proprietary set of standardized questionnaires used by health professionals to evaluate physical functioning by assessing the condition of patients with osteoarthritis of the knee including pain, stiffness, and physical functioning and functional limitations.[10 11,12]

Activities-specific balance confidence (ABC) scale is a subjective measure of confidence in performing various ambulatory activities without falling or experiencing a sense of unsteadiness. A researcher reported that this scale is able to distinguish between older adults at various levels of functional mobility and was accurate in identifying individuals with risk of multiple falls. [Beninato et al[18]]. Hence this study aimed at correlating both the scale i.e. Activity specific Balance confidence Scale and The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

METHODOLOGY

After receiving the approval from the ethical committee, the study was conducted in Dr. A.P.J Abdul Kalam College of Physiotherapy, Loni Bk. A total of 100 male and female participants between the age group of 60-80 years having osteoarthritis of knee were included in the study**.** Individuals with recent surgery and Cognitive impairment that might impair the ability to understand the instructions and communicate were excluded from the study. Data was collected primarily by the principal investigator. The total duration of the study was 4 months and data was collected by the convenient sampling method. Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale and Activities-specific balance confidence (ABC) scale was used as an outcome measures. Both Western Ontario McMaster Osteoarthritis Index and Activity-specific Balance Confidence Scale was assessed on each individual for one time and further scores was noted down and correlated.

Procedure

Prior to introduction of the study, all participants were informed about the research protocol. The detailed information regarding the nature of study was given to the participants before participation. Written consents forms were taken from the participants and screening was done. Those fulfilling the inclusion criteria were requested to participate in study. All participants completed a general characteristics questionnaire documenting their gender, age, and fall frequency. The participants were assessed to investigate their physical functioning and mobility and to measure an individual's confidence in his/her ability to perform daily activities without falling, using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Activities-specific balance confidence (ABC) scale. At a time both the scales were taken from each participant and further the correlation of the scores were done.

DATA ANALYSIS AND RESULT

In this study, the total number of participants selected was 100

(n=100). The mean age of the participants was 69.11 (SD-6.15) out of them 50 participants were males and 50 were females. Demographic details of the participants are given in table 1. Correlation of the following scores was done by using Pearson correlation test and results were obtained.

Table 1: Demographics:

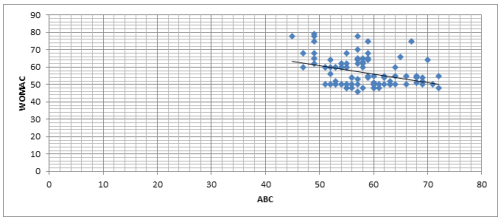
Participants	Age(60-80)years		BMI	
	Mean	SD	Mean	SD
Male	68.42	6.12	28.79	3.33
Female	69.8	6.14	27.58	3.53

Table 2: Mean Scores of participants on WOMAC and ABC scale

Outcome measures	Male	Female
WOMAC	58.18	58.06
ABC	54.22	59.56

Table 3: Correlation between the Scores of participants

Outcome measures	Mean	Standard Deviation	Correlation(r)	P value
WOMAC	58.12	6.059	-0.3063	<0.0019
ABC	56.89	8.223	-0.3063	<0.0019



Graph 3: Correlation Between Western Ontario McMaster Osteoarthritis Index and Activity –Specific Balance Confidence Scale.

RESULT

The data is analyzed using Pearson correlation test which shows that there was negative correlation between both the scales and the correlation coefficient was r = -0.3063 and P value was <0.00019, which means as the score of Western Ontario and McMaster Universities Osteoarthritis Index increases the score of Activity-specific Balance Confidence scale decreases and also vice versa. This means that both the scales are inversely related. Hence above data predicts, the study is very significant by using Spearman correlation test. This study was performed to show that pain, stiffness and functional limitation is related to individual's confidence level while performing specific activities.

DISCUSSION

The aim of this study was to determine the correlation between the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale and Activities-specific balance confidence (ABC) scale. In this study, 100 elderly individuals between the age group of 60 to 80 years were assessed.

The WOMAC Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) measures pain, stiffness and functional limitations in everyday activities. The test questions are scored on a scale. Higher scores on the WOMAC indicate worse pain, stiffness, and functional limitations. Activity- specific Balance Confidence scale (ABC) measures an individual's confidence in his/her ability to perform daily activities without falling. Higher the score, higher is the level of confidence.

In present study the data analysis showed that the correlation between both the scale was r = -0.3063 [P <0.0001], according to this the correlation is negative which means as the score of WOMAC scale increases the score of ABC test decreases and also vice versa. Hence, both the scales are inversely related.

Severe pain, is the very first symptom of knee Osteoarthritis, is also a major factor for increased fall risk.[24,25,26] Functionally, pain may negatively influence muscle strength, coordination, postural sway, proprioception and balance contributing to an increased risk of falling in this population with knee OA and decrease individuals confidence level.[27,28,29,30] It is one of the leading causes of disability in the elderly. Therefore, the result of the present study was supported by the accumulated data from the previous researches.

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