

Research Article

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The effectiveness of supervised physiotherapy VS unsupervised home exercise in the management of OA (osteoarthritis) related knee pain

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Abstract

Knee joint osteoarthritis is a chronic musculoskeletal disorder that affects the functionality of cartilage thereby degenerating them. This results into inflammation and excruciating pain in the affected joint.

This study was a cross-sectional study that targeted the osteoarthritic patients. A population of 300 patients were sampled using snowballing techniques to find adequate number of patients. Structured questionnaires were then administered to the patients, the questionnaires had Likert scale and the performance were recorded in tables. The specific objectives were to evaluate knowledge, attitude and practices taken by patients in both supervised and non-supervised physiotherapy and finally to evaluate the most appropriate physiotherapeutic intervention between the two. The results indicated in knowledge, attitude and practices, supervised physiotherapy registered performance as 94, 86 and 96 respectively while for non-supervised it was 52, 51 and 46 respectively.

The results indicate that supervised physiotherapy yields better results and quicker recovery time. It is therefore recommended that the knee joint osteoarthritic patients should adopt a supervised physiotherapeutic intervention to which shall positively impact their lives.

Keywords

osteoarthritis,
physiotherapy,
Coronary,
knee pain

Background

Osteoarthritis is essentially a musculoskeletal disorder that mostly occurs at the cartilaginous portions of the joints in the body. Cartilage refers to a group of slippery connective tissues covering the ends of bones at a joint, they absorb shock during movement and necessitate gliding of bones during movement. Osteoarthritis results into degeneration of the cartilage thereby impairing the cushioning of the bones. As the bones rub over each other, pain, inflammation and motion loss occur at the affected joint. Without treatment, long term detrimental effects such as bone and cartilage break may result and cause more excruciating pain (Malfait et al, 2016). Such patients experience joint pain and impaired motion. Osteoarthritis is the most common form of arthritis and only affects the joints.

Non-pharmacological interventions such as physiotherapy have proved to be useful. However, physiotherapeutic activities if not supervised by experts may bring further complications. This study therefore aims to research on a comparative study to establish the most effective physiotherapeutic management of osteoarthritis on the knee joint between supervised physiotherapy and unsupervised home exercise management (Egerton et al,2016).

No permanent cure for osteoarthritis has so far been found and the disorder has been devastating a large population especially geriatrics. Many interventions including surgery, pharmacological and non-pharmacological approaches have provided remarkable relief to the disorder and circumvention of paralysis in the joints. Manual therapies and rehabilitation have greatly been used in provision of promoting functions in the knee joints. Previous studies on management of knee joint osteoarthritis have compared supervised physiotherapy and an at-home based exercise not supervised by experts and have indicated a lot of disparity.

One such study indicated that non-supervised patients are susceptible to escalated injuries that may cripple them permanently. The changes in patients with osteoarthritis can be measured using the scores in WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index scores).

According to WOMAC index, supervised physiotherapy showed better improvement compared to in-home exercise care (Cappelleri et al,2016). From this study, it could be implicated that unsupervised in-home exercise could not be addressing some factors that could be preventing the patients from maximizing on the beneficial exercises to manage the disorder. Such factors may include; passive laxity in the knee joint, obesity, failure of activation and inhibition of quadriceps muscles, self-efficacy and fear of taking part in physical activities. In more current studies, supervised physiotherapy has been implicated in to bring a significant improvement not only to the knee strength but also to functionality of the knee joint. Proprioception functions in the knees usually decrease as one ages, therefore supervised physiotherapy targets exercise which aim to improve it. (Vitacca et al,2016) This work will therefore extensively cover the effectiveness of both supervised and nonsupervised physiotherapeutic interventions in management of osteoarthritis in the knee joints. It will cover the physiotherapeutic exercises and effects of supervision as management care plan in treatment of knee joint osteoarthritis.

Objectives

To evaluate the performance parameters of patients on the effectiveness of both supervised and non-supervised physiotherapy in knee joint osteoarthritis& To determine the most effective physiotherapeutic approach on managing knee joint osteoarthritis between supervised and non-supervised interventions.

Subjects and Methodology

The research was designed by carrying out cross sectional study where osteoarthritic knee joint patient patients cross examined. Cross examination entailed use of structured questionnaires. Snowballing sample technique was used to obtain the clients both undergoing supervised non-supervised physiotherapy. The study was carried out in the Armed Forces Hospital, Southern region, Saudi Arabia. It was conducted between 1st June to 31st July 2017. The sample size was about 300 subjects. Structured questionnaire was translated into local dialect and administered to 300 respondents sampled from both supervised and non-supervised entities. Main points

included in the questionnaires were the sociodemographic information and the patients' perception on knowledge attitudes and practices employed in physiotherapy. The questionnaires were administered by an expert in physiotherapy who explained all the details in the questionnaires to the patients. All errors in the questionnaires were reviewed and corrected appropriately.

The questionnaires were designed and supervised by experts in physiotherapy and reviewed before carrying out pilot test. The questionnaires were also designed in

a manner that maintains confidentiality and respect to the patients.

Statistical analysis: SPSS version 22 and Microsoft excel packages were used to carry out univariate analysis of frequency distribution and percentages. Qualitative data focus group discussion was conducted using 2 groups of physiotherapeutic patients; the supervised and non-supervised analytical methods of data analysis and results presented in tables. A P-value of less than 0.05 was considered to be significant.

Results

Table 1: Sociodemographic characters of studied group

Variables	category	percentage
Age	15- 24 y	5 %
	25- 34 y	8 %
	35- 44 y	16 %
	45- 54 y	21 %
	55- 54 y	17 %
	Above 64 y	33 %
Residence	Urban	78 %
	Rural	22 %
Gender	Male	48 %
	Female	52 %
Education	Primary	41 %
	Secondary	27 %
	Diploma	15 %
	Degree	9.5 %
	Postgraduate	7.5 %
Occupation	Peasantry	18 %
	Self employed	34 %
	White collar	35 %
	Not employed	13 %

It is evident that frequency of patients suffering from osteoarthritis in the joint increases as they advance in age. The number of casualties rise with advance in age at 5%, 8%, 15%, 21%, and 33% respectively from the youngest age group to the eldest age group.

The results have indicated that most people suffering from knee joint osteoarthritis have an abode in the urban areas than on the countryside with percentages of 22 and 78 respectively. In terms of gender, more women were registered in this disorder compared to men, this implies that women are more prone to

injuries resulting into osteoarthritis in comparison to men. The individual occupations also contributed to acquiring the disorder. The unemployed registered the least number of casualties. Those taking white collar jobs registered the largest percentage (35%).

Level of education has been implicated to affect the rate of contracting this disorder. From the table, those attained the lowest level of education, primary, registered the highest frequency of the disorder at 41%.

Table 2: Practices performance by the patients both in supervised and non-supervised physiotherapy.

Parameter Supervised	physiotherapy (percentage performance)	Non-supervised physiotherapy (percentage performance)
Manual therapy	97	75
Physical therapy	95	53
Hydrotherapy	96	51
Massage	93	29
Aerobic exercises	90	31
Average	94	46

Portending to studies on the practices taken by the sampled patients, it was noted that when they were supervised, they scored better on the practices compared to poor performance witnessed in the non-supervised parameters with an average score of 94 percent in the supervised and 46 percent in non-supervised intervention. On manual therapy the scores in practices for supervised and on-supervised interventions were 97 and 75 respectively, this did not indicate a big margin. Physical therapy exercises however, indicated a big margin difference with scores of 95 and 53 percent respectively in supervised and non-supervised interventions. Hydrotherapy scores indicated 96 and 51 percent performance respectively for supervised against non-supervised physiotherapy. The performance for massage was 93 percent when supervised and 29 percent when not supervised while that for aerobics was 90 percent and 31 percent respectively under supervision and non-supervision.

Discussion

It is evident that frequency of patients suffering from osteoarthritis in the joint increases as they advance in age. The number of casualties rise with advance in age at 5%, 8%, 15%, 21%, and 33% respectively from the youngest age group to the eldest age group. This could be attributed to the fact that older people are prone to injuries in the cartilages. With advancement in age, the muscles in the joint regions get atrophy making them to grow weaker.

Such people who experience muscle weakness in the joints are likely to succumb to more injuries when they

are subjected to simple chores such as fetching water. The rate of growth of cartilage also diminishes with increase in age, any injuries leading to tear of cartilages will easily result into osteoarthritis in the knee joint.

Regarding reside in the urban areas usually lead sedentary lifestyles, do not carry out body exercises, mostly stay indoors and prefer motor vehicles as the means of transport. They also do not practice appropriate dieting, depend on junk foods with a lot of carbohydrates and lipids. Such reckless lifestyles can easily lead to obesity. As was found in the literature, obesity was implicated to be a contributing factor to osteoarthritis, it increases the body weight exerting more pressure in the knee joints. The larger the body mass, the more the strain on the knee joint hence bringing the disorder.

The women are entitled to more duties in the house compared to their counterparts. Such chores assigned to them may result into succumbing to injuries in their knee joints. Activities such as carrying heavy load have been implicated in causing injuries to the women. Those past the menopause age are even at greater risk of knee joint osteoarthritis since they are unable to generate the estrogen hormone that had been previously cushioning them from experiencing osteoporosis. With the loss of the hormonal function, the bones tend to be weaker and may fracture thereby causing injuries in the joint which eventually cause osteoarthritis.

The individual occupations also contributed to acquiring the disorder. The unemployed registered the least number of casualties. This is because they are not exposed to risky activities that may cause injuries in their knee joints compared to those taking more manual jobs who are prone to injuries that give rise to osteoporosis. Those taking white collar jobs registered the largest percentage (35%). This is because they lead sedentary lifestyle, they just operate in the office and do not perform physical exercises, this leads to overweight and obesity which actively contribute to osteoarthritis. Those that secured self-employment has also registered a larger percentage since most of the manual works they do, may expose them to more injuries in their knee joints.

Level of education is attributed to the fact that without proper education, people may not know safety measures to undertake, they may therefore be exposing themselves to risk factors that cause osteoarthritis, these include poor lifestyles, not taking the most appropriate diet, and perhaps not seeking the best management intervention. As the level of education rises, the prevalence of the disorder reduces, this is because the learned people have been informed about the disorder, they therefore pay more attention on treatment and prevention of the disorder, contrary to the less educated people who wallow in ignorance.

The practice scores - manual therapy-by osteoarthritic patients implies that even without supervision, a good number of the patients would still perform the exercises effectively. If they are previously trained, then continuous supervision may not be necessary.

Physical therapy' score can be attributed to the fact that there are some skills that can only be reinforced by the supervisor during training, this necessitates the presence of the supervisor in order to partake on the exercises effectively.

Hydrotherapy scores indicated 96 and 51 percent performance respectively for supervised against non-supervised physiotherapy. This brings some assertions that the patients may not perform the exercises as the required standards and therefore warrant the presence of a supervisor.

The scores in massages and aerobic exercises in non-supervised interventions can be described as dismal compared to when the supervisor is available. These scores have indeed proved that presence of a physiotherapist when training osteoarthritic patients with knee joint disorders must at all times be implemented. In their absence, the patients may not perform the exercises as required, some may do themselves more harm than good. Physiotherapists are therefore important experts in the management of osteoarthritis and their services can never be overrun, for best treatment, their supervision is mandatory.

Conclusion

Knee joint osteoarthritis has been an escalating healthcare disorder as it has been documented that the cases are rising have been rising in the last few decades. The study has revealed that with supervised interventions, the patients are more advantaged and they are likely to recover from their disorders compared to non-supervised patients. The non-supervised clients have no skills in executing the practices and are likely to bring more harm than good to themselves. From this study, it is quite imperative that the patients to encouraged to pursue supervised physiotherapy which is highly recommended to them.

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