MERIT RESEARCH JOURNALS
www.meritresearchjournals.org

Merit Research Journal of Medicine and Medical Sciences (ISSN: 2354-3238) Vol. 2(7) pp. 146-151, July, 2014
Available online http://www.meritresearchjournals.org/mms/index.htm

Original Research Article

Gender differences in pain perception and coping strategies among patients with knee and or hip osteoarthritis

Olarogba Olalekan Bolaji[1*], Idowu Opeyemi Ayodiipo[1], Adegun Joel Adekunle[2] and Ajayi-Vincent O[2]

[1]Department of Medical Rehabilitation, Federal Medical Centre, Ido-Ekiti, Nigeria.

[2]Department of Human Kinetics and Health Education, Ekiti State University, Ado-Ekiti, Nigeria.

***Corresponding Author's Email: rogba_lekan@yahoo.com**
Tel: 07030301714.

Abstract

Osteoarthritis (OA) is a common cause of functional disability, reduced quality of life and economic burden worldwide. However published works on gender differences in the pain coping strategies engaged in by patients who experience pain as a result of hip and/or knee osteoarthritis are scarce. This study therefore aimed to explore this. Two hundred and fifteen patients receiving treatment at Federal Medical Centre, Ido Ekiti, Ekiti state, Nigeria were surveyed. Socio-demographic data, BMI, pain intensity and joint affected were garnered from participants. Active and Passive Coping strategies were measured using the Pain Coping Inventory. Inferential statistics of t test and Man Whitney U test were used to determine significant differences between genders. Significance level was set at p<0.05. Out of the 215 patients (38.1% males vs. 61.9 % females) that were surveyed, 61(28.4%) had hip OA, 83(38.6%) had knee OA and 71(33%) had combined presentations. There was a statistical significant correlation between gender and each of BMI (p= 0.000) and perceived pain (p= 0.012). Overall, the use of passive coping strategies by men were significantly higher (U= 4022.5, p= 0.001) than women with the use of resting as a coping strategy higher among males (U=4459.0, p= 0.023) than females. The results obtained from the study shows that passive pain coping strategies were used by patients with hip and or knee osteoarthritis. A consistent finding emerging from research is that the frequent use of passive coping strategies is related to negative outcomes such as increased pain, depression, and physical disability.

Keywords: Coping, Osteoarthritis, Pain, Disability, Patients

INTRODUCTION

Background

Osteoarthritis (OA) also known as degenerative arthritis is caused by the breakdown and eventual loss of the cartilage of one or more joints (Bhatia et al., 2013). Osteoarthritis is a common cause of pain, functional disability and reduced quality of life (Altman, 2010; Dreinho¨fer et al., 2004; Hunter et al., 2008). Features of OA includes pain, reduced range of motion, joint stiffness, joint instability, synovial effusion, and pain-related psychological distress and decreased muscle strength (van Baar et al., 1998; van Dijk et al., 2010).

Several factors which have been associated with the development of OA include increase in age, risk factor of obesity, due to progressive sedentary behaviour, diet routine, work environment conditions among adult population (Bhatia et al., 2013). OA can occur in all joints, but most frequently in the knee and hip joints (Dreinho¨fer et al., 2004).

The burden of knee and hip OA are increasing worldwide (Bhatia et al., 2013). (Perrot et al., 2008) reported a global knee and hip prevalence estimate of 58.9% and 32.9% respectively. The financial burden on society involves both direct (physician visits, medications, joint replacement, rehabilitation) and indirect costs (time lost from work). It is estimated that by 2020, the cost to society of lost productivity will approach 1% of the gross national product (Bohsali, 2007).

Systematic reviews have reported higher prevalence of OA in developing countries compared to developed countries. They have documented that it is a pointer therefore that developing nations may suffer more from OA when compared to the western world (Bennell and Hinman, 2011) due to the fact that population ageing and rising obesity rates. The knees, followed by the hips, are the most commonly affected weight-bearing joints.

Cognitive and behavioral reactions to chronic pain may affect pain, functional capacity, and psychological functioning in patients with OA. These reactions to pain are commonly referred to as pain coping strategies (Perrot et al., 2008). By 'coping', researchers generally mean both conscious and unconscious efforts made by individuals to manage stress and negative feelings that are perceived as a drain on one's resources (Franco et al., 2004). Hansson (Hansson, 2011), further divided pain coping into active strategies, where you overcome, handle and take control of your pain and passive strategies, which include withdrawal, avoidance and negative self-confidence. (McKnight et al., 2010) posited that all interventions aim to either reduce a negative target or enhance a positive target (McKnight et al., 2010). They further emphasized that Psychology embraces this two factor approach with a surging interest in preventing the occurrence of OA (McKnight et al., 2010).

Although medical treatment can alter the degree of inflammatory joint disease, it is not curative and only occasionally induces remission (Sawyer et al., 2003). Studies have shown that patients using passive coping strategies have higher levels of pain and disability (Covic et al., 2000). Many people do not readily seek medical care because of their belief that OA is an inevitable condition of the old for which little can be done and had resulted to several form of practices unknown to them in coping with the challenges of living with OA. It has also been seen that in people with osteoarthritis active and passive strategies differs significantly as a function of age, body mass index, osteoarthritis involvement, professional and marital status, sport activities and osteoarthritis duration, with pain intensity having weaker effect (Perrot et al., 2008).

Therefore Pain Coping Inventory (PCI) designed by Kraaimaat and Ewers (Kraaimaat and Evers, 2003), was developed to assess specific cognitive and behavioural pain coping, active or passive, to be applicable to all types of chronic pain patients. Hence the aim of this study is to assess the use of different pain coping strategies, active or passive among patients with osteoarthritis and to determine the association between perceived pain and coping strategies in persons with knee and/or hip osteoarthritis as well as analyze the differences between gender and other background factors.

METHODOLOGY

Delimitation

The study was delimited to patients diagnosed of hip and/or knee OA at Federal Medical Centre Ido-Ekiti between the age of 25 and 85 years with more than three (3) months duration and have not taken part in ongoing Physiotherapy or undergone knee joint replacement.

Research design

This study was a descriptive correlation study which was intended to compare the different coping strategies employed either active or passive among male and female patients.

Population

The population shall be a representation of patients with osteoarthritis seen at Federal Medical Centre Ido Ekiti, Ido-Osi Local Government Area, Ekiti state.

Sample and sampling technique

Patients shall be recruited using convenience sampling technique. All patients presenting to the clinic shall be screened for a history of knee pain by the Physiotherapists. Eligible Patients who met the inclusion criteria shall be asked to self-evaluate their average pain score using the Visual Analogue Scale (VAS). Also to determine the patients´ knee pain coping strategies, patients shall be asked to fill the Pain Coping Inventory (PCI) questionnaire.

Research instruments

Visual Analogue Scale (VAS): The visual analogue scale

Table 1. Background data for the study population (n=52). X: mean, SD: standard deviation, BMI: Body Mass Index (kg/m2)

	Male (n=82) X (SD)	Female (n=133) X (SD)	Total (n=215) X (SD)
Age	54.77(10.78)	52.78(14.58)	53.54(13.27)
Body Mass Index	26.42(2.64)	28.82(3.15)	27.91(3.18)
Pain Scale	6.35(1.32)	6.81(1.43)	6.64(1.40)
	n (%)	n (%)	n (%)
Site of pain			
-hip	32(14.9%)		61(28.4%)
-knee	27(12.6%)	29(13.5%)	83(38.6%)
Both	23(10.7%)	56(26.0%)	71(33.0%)
Marital status		48(22.3%)	
-married	60(29.7%)		134(62.3%)
-single	6(2.8%)		31(14.4%)
-widow	16(7.4%)	74(34.4%)	50(23.3%)
Profession	58(27.0%)	25(11.6%)	121(56.3%)
-working	24(11.2%)	34(15.8)	94(43.7%)
-retired		63(29.3%)	
		70(32.6%)	

measures the amount of pain that a patient feels. Operationally a VAS is usually a horizontal line, 100 mm in length, anchored by word descriptors “no pain at all” at one end and “worst imaginable pain “at the other end. The patient marks the line on the point they feel represents their perception of their current state (Gould, 2001). The VAS has reliable translated anchors in the Nigerian major languages: Yoruba (0.63), Igbo (0.93) and Hausa (0.98) and it is therefore recommended for use in Nigeria (Odole and Akinpelu, 2009).

Pain Coping Inventory (PCI): PCI was designed by (Kraaimaat and Evers, 2003), and contains 33 claims which can be pooled into two major dimensions of cognitive and behavioral strategies for dealing with chronic pain. These dimensions include active pain-coping dimensions with a maximum of 48 points (pain transformation, distraction, reducing demands) and passive pain-coping dimensions with a maximum of 84 points(retreating, worrying and resting. The frequency with each claim, when feeling pain, is marked on a 4-point Likert scale ranging from 1 (hardly ever) to 4 (very often). The higher the score the more a certain strategy was used. Data on participants’ age, gender, height, weight, how long they have had hip and/or knee disability, affected joint, occupation, will be taken too.

Administration of instruments

The researcher approached patients who were identified as eligible for inclusion to discuss the study and given standard information. Those who agreed to participate were asked for their written consent and for patients who were unable to give informed written consent, assent was sought from the patients' relatives. To determine the patients´ knee pain and their coping strategies, at the first meeting before treatment is administered, the patients were asked to fill in the two instruments, PCI and VAS and also an individual background form.

Data analysis

SPSS version 16 (Illinois, USA) shall be used for data analysis. Descriptive statistics of frequency and mean shall be used to describe to compare gender difference in clinical characteristics (pain, BMI and joint affected) parametric statistics of Unpaired t-test shall be used. Mann-Whitney U-test shall be used to compare gender differences in PCI and VAS scores. To evaluate if there were correlations between pain coping strategies and background factors, spearman rank correlation shall be used.

RESULTS

The study comprised 215 participants (38.1% males vs. 60.9% females) with mean ages of 53.54 SD 13.27 years. Majority of the respondents (62.3%) were married and more than half of the respondents (56.3%) were employed. Majority of the participants were overweight (59.5%) with 22.3% being men and 37.2% being women. Percentages of those who had knee OA, hip OA and both knee and hip OA were 38.6%, 28.4% and 33% respectively. Characteristics of patients are presented in Table 1.

There was a statistical significant correlation between

Table 2. Spearman's correlation between gender and each of body mass index, pain scale and sex

			Body Mass Index	Pain scale	Sex
Spearman's rho	body mass index	Correlation Coefficient	1.000	.094	.436**
		Sig. (2-tailed)	.	.171	.000
		N	215	215	215
	pain scale	Correlation Coefficient	.094	1.000	.171*
		Sig. (2-tailed)	.171	.	.012
		N	215	215	215
	Sex	Correlation Coefficient	.436**	.171*	1.000
		Sig. (2-tailed)	.000	.012	.
		N	215	215	215

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 3. Test Statistics[a]

	Pain Transformation	Distraction	Reduced demand	Retreating	Worrying	Resting	Active	Passive
Mann-Whitney U	5176.500	5427.500	4390.000	4632.000	4965.500	4459.000	5100.500	4022.500
Asymp. Sig. (2-tailed)	.528	.953	.014	.061	.265	.023	.425	.001

a. Grouping Variable: sex

Table 4. Mann-Whitney Test Ranks

	Sex	N	Mean Rank	Sum of Ranks
Pain transform	Male	82	104.63	8579.50
	Female	133	110.08	14640.50
	Total	215		
Distraction	Male	82	108.31	8881.50
	Female	133	107.81	14338.50
	Total	215		
Reduce demand	Male	82	95.04	7793.00
	Female	133	115.99	15427.00
	Total	215		
Retreating	Male	82	118.01	9677.00
	Female	133	101.83	13543.00
	Total	215		
Worrying	Male	82	113.95	9343.50
	Female	133	104.33	13876.50
	Total	215		
Resting	Male	82	120.12	9850.00
	Female	133	100.53	13370.00
	Total	215		
Active	Male	82	103.70	8503.50
	Female	133	110.65	14716.50
	Total	215		
Passive	Male	82	125.45	10286.50
	Female	133	97.24	12933.50
	Total	215		

gender and each of BMI (p= 0.000) and perceived pain intensity (p= 0.012). There was however no correlation between BMI and perceived pain intensity (p= 0.171). Non parametric statistics of Man Whitney U showed a statistically significant difference in the use of passive (p= 0.001) but not active (0.425) coping strategies between gender. However, in each of the sub-domains of the coping strategies, significant statistical differences were found in each of resting (p=0.023) and reduced demand (p=0.014) between gender.

DISCUSSION

This study provides data that was got from 215 patients attending Physiotherapy treatment at the Federal Medical Centre, Ido Ekiti. Pain coping strategies in patients with lower extremity OA (hip and/or knee) was analyzed with the perceived pain intensity. Pain coping scores for all domains were higher for men with the exception of pain transformation and reduced demands. This suggests that men use a more diverse range of strategies than women when faced with pain due to OA and the reason why men employ the use of passive coping strategies more over women. The pain generated by OA leads to a decrease in physical function, disability, and poor quality of life, and has a major impact on functioning (Perrot et al., 2008). The population of OA patients studied demonstrated lower active pain coping strategies and much higher passive pain coping scores as described in the article by (Kraaimaat and Evers, 2003).

The site of OA was found to have a significant effect on coping strategies. Score for passive coping strategies were significantly higher in patients with OA affecting both knees and hips than in patients in whom only one of these sites was affected. It was also found that passive pain coping score was significantly higher in patients with knee OA than in patients with hip OA following adjustment for sex and BMI. These differences in pain coping strategies may be associated with differences in functional consequences, consistent with the results reported by Allen, Golightly and Olsen (Allen et al., 2006). Other studies have found differences in pain coping strategies between patients with hip and knee OA. For instance (Steultjens et al., 2001) demonstrated that the use of passive coping strategies predicted a higher level of disability in patients with knee OA and that active coping style predicted a high level of pain intensity. They also showed that resting was a prospective determinant of disability for knee OA, but not for hip OA.

CONCLUSION

The results showed men tend to make wider use of all types of pain coping strategies. Demographic and clinical factors may influence pain coping strategies. Furthermore, certain personal characteristics, such as professional status, marital status, and sports activities, may also influence pain coping strategies. Hence, knowledge of the methods by which patients cope with OA use may make it possible to improve OA management, thus integrating pain coping strategies specifically adapted to age, sex, BMI, site of OA, and functional impairment.

REFERENCES

Akinpelu AO, Alonge TO, Adekanla BA, Odole AC (2009). Prevalence and pattern of symptomatic knee osteoarthritis in Nigeria: *A community based study. The Internet Journal of Allied Health Sciences and Practice*, 7(3), 1-7

Allen KD, Golightly YM, Olsen MK (2006). Pilot study of pain and coping among patient with osteoarthritis: a daily diary analysis. *Journal of Clinical Rheumatology*; 12:118–23.

Altman RD (2010). Early management of osteoarthritis. *American Journal of Managed Care*. 16: 41-47.

Bennell KL, Hinman RS (2011). A review of the clinical evidence for exercise in

Bhatia D, Bejarano T, Novo M (2013). Current interventions in the management of knee osteoarthritis. J. Pharm. Bioallied Sci. 5(1): 30-38 doi: 104103/0975-7406.106561

Bijlsma JW (2002). Analgesia and the patient with osteoarthritis. *American Journal Therapy,* 9, 189-197

Bohsali KI (2007). Contemporary Medical and Surgical Management of Osteoarthritis. *Northeast Florida Medicine;* 58(2): 45-48. *www .DCMS online.org*

Brand C, Elkadi S, Amatya B (2005). A Literature review of public health interventions for Rheumatoid Arthritis, Osteoarthritis and Osteoporosis. *Clinical Epidemiology & Health Service Evaluation Unit,* Melbourne.

Covic T, Adamson B, Hough M. (2000). The impact of passive coping on rheumatoid arthritis pain. J. Rheumatol. 39:1027-30.

Dreinho¨fer K, Stucki G, Ewert T, Huber E, Ebenbichler G, Gutenbrunner C, Kostanjsek N, Cieza A (2004). ICF core sets for osteoarthritis. *Journal of Rehabilitation Medicine;* Suppl. 44: 75–80

Franco RL, Garcia CF, Picabia BA (2004). Assessment of chronic pain coping strategies. *Actas Esp Psiquiatr* 32(2): 82-91

Gignac M (2008). Coping and Adaptation of Older Adults with Osteoarthritis. *Arthritis Community Research and Evaluation Unit,* Toronto.

Gould D (2001). Visual Analogue Scale. *Journal of Clinical Nursing*

Hansson M (2011). Active or passive pain coping strategies among participants before hip school. Published Master's thesis, Linneaus University, Kalmar.

Hochberg MC, Altman RD, April KT, Benkhaltl M, Guyatt G, Mcgowan J,Towheed T, Welch V, Wells G Tugwell P (2012). American College of Rheumatology 2012 Recommendations for the Use of Nonpharmacologic and Pharmacologic Therapies in Osteoarthritis of the Hand, Hip, and Knee. *Arthritis Care and Research* 64(4), 465–474 DOI.10.1002/acr.21596

Hunter DJ, McDougall JJ, Keefe FJ (2008). The symptoms of osteoarthritis and the genesis of pain. *Rheumatic Disease Clinics of North America* 34: 623-643.

Kraaimaat FW, Evers AWM (2003). Pain-coping strategies in chronic pain patients: Psychometric characteristics of the pain-coping inventory (PCI). *International Journal of Behavorial Medicine* 10 (4):343-63

McKnight PE, Afram A, Kashdan TB, Kasle S, Zautra A (2010). Coping self-efficacy as a mediator between catastrophizing and physical functioning: treatment target selection in an osteoarthritis sample. J. Behavioral Med. DOI 10.1007/s10865-010-9252-1

Odole AC, Akinpelu AO (2009). Translation and alternate forms reliability of the visual analogue scale in the three major Nigerian

languages. The Int. J. Allied Health Sci. Practice.
osteoarthritis of the hip and knee. J. Sci. Med. Sport; 14: 4–9
Peat G, McCarney R, Croft P (2001). Knee pain and osteoarthritis in older adults: a review of community burden and current use of primary health care. *Annals of Rheumatic Diseases* 60: 91-97
Peat G, Thomas E, Duncan R (2006). Clinical classification criteria for knee osteoarthritis: performance in the general population and primary care. *Annals of the Rheumatic Diseases* 65: 1363–7.
Perrot S, Poirraudeau S, Kabir M, Bertin P, Sichere P, Serrie P, Rannou F (2008). Active or passive pain coping strategies in hip and knee osteoarthritis. *Arthritis Care Research*; 59(11):1555–62
Picavet HS, Hazes JM (2003). Prevalence of self reported musculoskeletal diseases is high. *Annals of the Rheumatic Diseases, 62,* 644-650
Sawyer MG, Whitham JN, Roberton DM, Taplin JE, Varni JW, Baghurst PA (2003). The relationship between health-related quality of life, pain and coping strategies in juvenile idiopathic arthritis. *British Society of Rheumatology*, 43:325–330. doi:10.1093/rheumatology/keh030
Steultjens MP, Dekker J, Bijlsma JW (2001). Coping, pain, and disability in osteoarthritis: a longitudinal study. J. Clin. Rheumatol. 28: 1068–72.
Symmons D, Mathers C and Pfleger B (2000). Global burden of osteoarthritis in the year 2000. *Global burden of disease. http://www.who.int/healthinfo/statistics/bod_osteoarthritis.pd*
van Baar ME, Dekker J, Lemmens JA, Oostendorp RA, Bijlsma JW (1998). Pain and disability in patients with osteoarthritis of hip or knee: the relationship with articular, kinesiological, and psychological characteristics. *Journal of Rheumatology*; 25:125-33.
van Dijk GM, Veenhof C, Spreeuwenberg P, Coene N, Burger B.J, van Schaardenburg D, van den Ende CH, Lankhorst GJ, Dekker J (2010). Prognosis of limitations in activities in osteoarthritis of the hip or knee: a 3-year cohort study. *Archives of Physical Medicine and Rehabilitation*; 91:58-66.
Woolf A, Pfleger B (2003). Burden of major musculoskeletal conditions. *Bull of the World Health Organization*; 81(9):646-56.