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Original Article

Clinical audit on outcome measures used in examination of knee osteoarthritis in selected hospitals and clinics in the Philippines

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Abstract

Background: Knee osteoarthritis is a degenerative joint disease affecting the aging Filipino population. Outcome measure tools are used to assess a patient's health status for the quality of care improvement. With the increasing prevalence of knee osteoarthritis, it warrants the need to conduct a clinical audit to identify the most common outcome measure tools used by Filipino Physical Therapists. **Objectives**: To determine the outcome measure tools used by Filipino Physical Therapists in assessing knee osteoarthritis in hospitals and clinics and compare it to the current global standard of assessment. **Methods:** A retrospective record audit study design was used to determine the current assessment tool compared with standards of assessment. **Results:** Of the 45 of 285 charts reviewed, 80% were females and 73.33%, aged older than 60 years. The following were examination tools used by Physical Therapists: In Subjective; a. pain score (97.77%), b Functional status (80%), and c. stiffness (4.44%). In Objective; a. ocular inspection and palpation(97.77%), b. range of motion and manual muscle testing (93.33%), c. posture (48.89%), d. special tests (33.33%), e. gait analysis (71.11%), and f. Functional assessment (91.11%). Physical Therapists did not use Western Ontario and McMaster Universities Osteoarthritis (WOMAC), Visual Analog Scale (VAS), Short Form-36 (SF-36), and Knee Injury and Osteoarthritis Outcome Score (KOOS) outcome measures for assessing knee osteoarthritis. **Conclusion:** Physical Therapists did not use standardized outcome measure tools in the assessment for knee osteoarthritis. Thus, the study shows the gap in the assessment for knee osteoarthritis in the Philippines and global standards.

Keywords: *degenerative joint disease, standardized outcome measure tool, clinical audit*

INTRODUCTION

Osteoarthritis (OA), moreover known as degenerative joint disease (DJD), is the foremost predominant chronic rheumatic disease and is a leading cause of pain and disability in most countries worldwide.[1] Most of OA affects the hips and knees.[2] It has been evaluated that the percentage of people aged >65 years old in Asia will twofold from 6.8% in 2008 to 16.2% in 2040.[3] In the Philippines, its prevalence is 0.5% in individuals aged 20 years and above and increases to 11% in the population aged 60 years and above. According to an international database from the US Census Bureau, a summary demographic data for the Philippines estimated that there are around 10 million Filipinos with OA which is expected to double in the next 25 years.[1]

Knee OA is the most common form of arthritis resulting in pain, mobility limitation, decrease independence and quality of life in millions of people.[3] Knee OA involves the three compartments of the knee joint (medial, lateral, and patellofemoral joint).[4] It implicates most adults aged >65 years old, with a prevalence in the US of 33.6 %.[2] Women have a greater prevalence (42.1%) than do men (31.2%).[4]

The American Academy of Orthopaedic Surgeons (AAOS) published a clinical practice guideline recommending several interventions for the management of knee osteoarthritis by orthopedic surgeons. In the assessment of treatments of knee OA, the domains of pain, function, and stiffness were assessed with greater frequency. Among the more common domains assessed were pain and function, and the more common outcome measure tools (OMTs) used were the Western Ontario and McMaster (WOMAC), McMaster Toronto Arthritis Patient Preference Disability Questionnaire (MACTAR), and the Lequesne Index.[5]

Another Clinical Practice Guideline (CPG)used by the researchers garnered a 12/14 score or 86% using the iCAHE Guideline Quality Checklist, assigned as excellent by the authors for garnering 75-100% of the total appraisal score possible. Brosseau et al. considered functional status, physical function, self-efficacy, endurance, stiffness, strength, torque, body composition, mental health, psychological well-being, and mobility as a result of vital interest. The Lequesne Index and the WOMAC were outcome measure tools used for functional status, while the Medical Outcomes Study 36-Item Short-Form Health Survey questionnaire (SF-36) was used to measure physical function. Subdomains of respective outcome measure tools were also specifically used to measure particular outcomes of interest. The WOMAC stiffness score was considered for stiffness while mental health was also measured using the SF-36 mental health score.[6]

Outcome measure tools (OMTs) assess the health status of patients. OMTs determine changes in patients' status after a series of treatments by comparing scores collected at baseline and succeeding periodic evaluation/s. Results from OMTs can be used for patient care decisions, research, and quality assurance.[7] OMTs minimize miscommunication between allied health professionals, facilitates the process of clinical reasoning,[8] classify patients who are at risk for adverse outcome, promote continuity of care for patients transitioning from one health care setting to another, identifies the most cost-effective settings for patients to receive rehabilitation services, appraise practitioner and organizational performance, and determines the most-effective treatment for particular conditions.[9] The USA and Netherlands standardized use of OMTs in healthcare practice. Specifically, in the USA, an effort to promote and standardize the use of OMTs was made by including its instruction in their academic curriculum.[9,10]

This study determined the OMTs used by Filipino Physical Therapists in assessing knee OA among patients in affiliated University of Santo Tomas – College of Rehabilitation Sciences (UST-CRS) hospitals and clinics. This study compared the OMTs used by Filipino physical therapists with those recommended in published clinical practice guidelines.

METHODOLOGY

Ethics Approval. Ethical approval was sought from the University of Santo Tomas-College of Rehabilitation Sciences, Ethics Review Committee, and the University of Santo Tomas Hospital– Institutional Review Board.

Study Design. A retrospective study of clinical audit was used to determine the current assessment tool for knee osteoarthritis compared with standards of assessment.

Study Setting. A list of University of Santo Tomas– College of Rehabilitation Sciences (UST-CRS) affiliated hospitals and clinics was provided by the Internship Supervisor of the Department of Physical Therapy of UST-CRS. Senior investigators sent invitation letters to medical directors and physical therapy heads of all health institutions included in the list from June 1, 2016 to July 31, 2016. The researchers sought approval from the hospitals and clinics in accessing medical records of patients with knee osteoarthritis.

Data Gathering Procedure. This research study consisted of inter-linked phases. Figure 1 summarizes these phases and are subsequently explained in the preceding paragraphs.

Phase 1: Review of Literature and Development of Data extraction tool. A literature search was done in different databases such as Science Direct, Cochrane Library, Cinahl, Pubmed, and Medline to look for systematic reviews and clinical

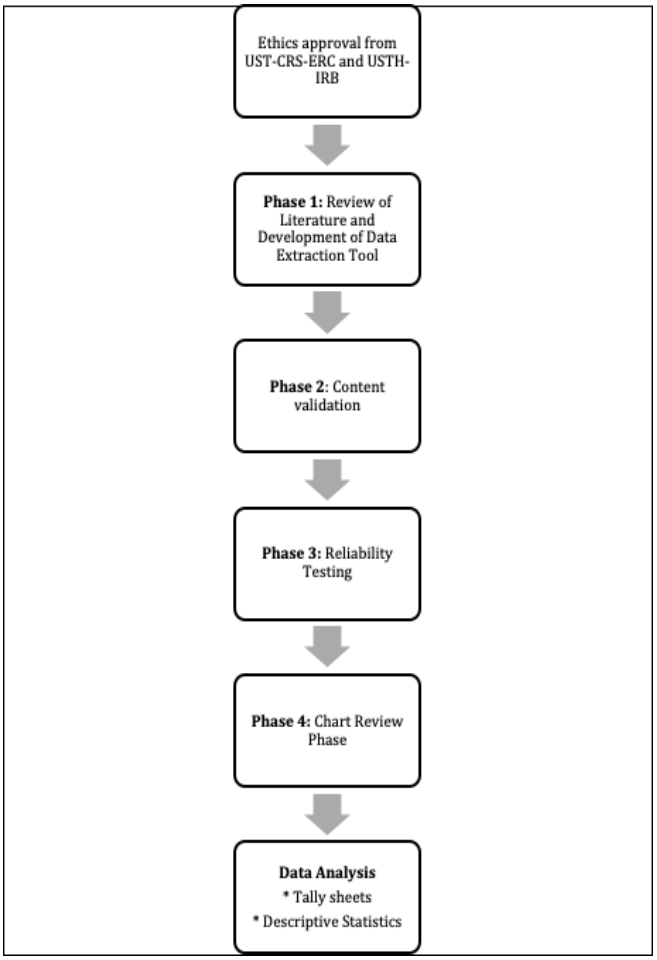

Figure 1. Flowchart indicating Phases 1-4 of the research.

guidelines on the outcome measure tools in the examination for knee osteoarthritis. The data extraction tool was developed on Microsoft Excel ver. 16. (see Supplement File A).

Phase 2: Content Validation. Content validity of the data extraction tool was tested by three physical therapists who were graduates of Master of Science in Physical Therapy and with clinical practice in evaluating and treating arthritis for at least three years. A requirement of 100% CVI (content validity index) per item agreed among three physical therapists that served as an expert panel in evaluating the content validity of the data extraction tool. Content validity was evaluated since this type of validity would know the extent to which the items on the tool follow what the tool was devised to measure.[11] A letter of invitation was sent to this expert panel before the formulation of the data extraction tool, wherein they could either decline or accept.

Phase 3: Reliability Study. The senior investigator of this study trained four researchers on the use of the validated data extraction form. Inter-rater reliability of four researchers on the use of data extraction form was determined. The four researchers independently extracted data from the Subjective, Objective, Assessment, Plan (SOAP) notes written by a physical therapist on the PT chart of a patient who underwent physical therapy treatment. Inter-rater reliability was computed using the Kappa Coefficient, specifically Fleiss Kappa. A range from -1 to +1, where 0 represents the amount of agreement expected from random chance, and 1 represented a perfect agreement between the raters.[12]

Phase 4: Clinical Audit. Sample size calculation was done using a formula for the descriptive study of Open Epi©. Using the prevalence of osteoarthritis in the urban area– Manila in particular[11] and proportion of patients with osteoarthritis who underwent physical therapy management in the country, a minimum of 102 records needs to be included in the study to achieve a beta power of 0.80 per of study with an alpha value of 0.05.

Medical records were included in the study if these were: 1) medical records are written in the Philippines; 2) medical records of patients medically diagnosed with knee osteoarthritis referred for physical therapy evaluation and treatment; 3) medical records are written between June 2015 to June 2016 (i.e. active, inactive files)[13]; 4) medical records of patients aged 40 years old and above.[5] Medical records without initial evaluation notes were excluded from the study.

During the clinical audit, three researchers coded the medical records. The codes ensured that the assessors were blinded to the personal information of the patients. Four researchers extracted data from the medical records.

The last phase of the study consisted of the actual chart review wherein one to two visits were conducted to the UST-CRS affiliated hospitals or clinics for data gathering. Three members of the research team segregated the PT charts by assigning codes. The four members who are part of the research team and were involved in the inter-rater reliability testing were

the ones who conducted the actual data gathering. The coding system ensured the blinding of assessors. For data analysis, the researchers utilized descriptive statistics to include information on the distribution of data, the mean, or average in phase four of the study

RESULTS

Phase I– A: Data Extraction Tool. The American Academy of Orthopedic Surgeons (AAOS) published a CPG recommending several interventions for the treatment of knee osteoarthritis by orthopedic surgeons. Table 1 summarizes the domains including the outcome measure tools that are most commonly used in the assessment of knee OA.[14,15] Objective evaluation such as ocular inspection, palpation, range of motion, manual muscle testing, special tests, postural assessment, gait analysis, and functional assessment were also included in the data extraction tool.[16]

Phase I– B: Content Validity. Analysis of the replies of the three expert panelist showed that , of the 7 items, 7 proved relevant (Item level content validity , I-CVI= 1). The scale–level content validity index, universal agreement method (S-CVI /UA) for the entire 7 item developed extraction tool was 1.

Phase II: Inter-rater Reliability. Analysis of the inter-rater reliability using the Kappa statistic was determined among four members for the data extraction tool, which have resulted to 1.00 (100%) or a perfect agreement for each items on the extraction tool. Data were statistically significant as ($p < .01$, alpha = 0.05)

Phase III: Clinical Audit

Chart Review. Seven hospitals and clinics affiliated with UST-CRS participated in the study. Of the 285 charts of knee OA patients assessed by Filipino Physical Therapists from June 2015 – June 2016 in seven hospitals/clinics, only 45 charts had an initial evaluation notes, while 240 charts had no initial evaluation.

Demographics. Of the 45 of 285 charts assessed in this study, 80% were females. 73.33% of patients with knee OA were aged >60 years old, whereas 26.67%) were aged 40-60 years old.

Percentage of use on evaluation techniques by Filipino physical therapists. Pain (97.75%), functional status (80%), and stiffness (4.44%) were reported in the subjective part of the SOAP notes of patients with knee OA. Ocular inspection and palpation were the most commonly used evaluation techniques by Filipino physical therapists in the objective part of SOAP notes. None of the reviewed SOAP notes utilized outcome measure tools such as WOMAC, VAS, SF-36, and KOOS.

Based on the results seen in Table 2, out of 45 charts, 44 charts, or 97.77%, included ocular inspection and palpation in the initial evaluation, while 93.33%, or 42 charts, assessed for range of motion and manual muscle testing. There were 41 charts that included functional assessment and 32 charts that assessed for gait, which were represented by 91.1% and 71.1%, respectively. There were 22 charts that reported postural assessment and only 15 charts reported the use of special tests in the evaluation, which were equivalent to 48.89% and 33.3% of the charts reviewed.

DISCUSSION

This study aims to determine the OMTs used by Filipino physical therapists in assessing knee OA. Based on the results, none of the 45 charts reviewed reported about the use of WOMAC, VAS, SF-36, and KOOS as an OMT for knee OA assessment. According to the systematic reviews of Fransen et al.[34] and Li et al.[35] from CPGs in assessing pain, functional status, and stiffness were WOMAC, VAS, SF-36, and KOOS as the most commonly used outcome measure tools.

According to the AAOS, the domains of pain, function, and stiffness were assessed with higher frequency in patients with knee OA.[14] Based on the results, assessment of pain in the subjective evaluation corresponded to 97.77% of the total charts reviewed. Moreover, 80% reported the patient's functional status, while only 4.44% assessed for stiffness. These results showed that the following domains were assessed during subjective evaluation with pain and functional status, having higher frequency compared to stiffness. However, assessment of stiffness in the charts reviewed was in contrast with the

findings of AAOS since the three domains should be present with higher frequency in assessing patients with knee OA.

According to Kettenbach, among the objective evaluation used in proper documentation of assessment of common musculoskeletal cases includes ocular inspection, palpation, range of motion, manual muscle testing, special test, postural assessment, gait analysis, and functional assessment.[17] Based on the results, ocular inspection, as well as palpation, was the most commonly used objective evaluation in the documentation of knee OA, representing 97.77% of the total charts reviewed. These were followed by ROM and MMT, which were documented in 93.33% of the charts reviewed. Functional assessment was documented in 91.1% of the charts, while gait analysis was only documented in 71.1% of the charts reviewed. Assessment of posture and the special test had the lowest frequency in documentation used in 48.89%, and 33.3% of the charts reviewed respectively. These results suggest that the 45 charts reviewed were able to comply with the proper documentation of musculoskeletal cases showing a high frequency of using objective evaluation.[17]

Lawrence et al.[36] found that osteoarthritis is more prevalent among those aged 40 and older. Klippel et al.[37] adds that it is prevalent among men before the age of 50 and becomes more common among women older than 50 years. This was further supported by our data, which yielded a result of 80% of the population being female and 73.33%, or 33 out of the 45 charts, were patients aged older than 60 years.

Limitation of the Study. Although the study was successful in determining the practice of knee OA assessment by Filipino physical therapists in UST-CRS affiliated hospitals and clinics concurrent with the global standard of assessing knee OA, there are still limitations in the study. There were only 45 charts reviewed from June 2015 to June 2016 that came from only seven hospitals and clinics. Sample size calculations identified that 102 case notes were required to achieve appropriate power. Due to the constrained number of charts reviewed, the findings may not be generalized to represent the whole population of physical therapists practicing in the Philippines but only those in the participating hospitals and clinics.

None of the 45 charts reviewed reported the utilization of outcome measure tools in the assessment of knee OA which may be due to several factors. According to Jette et al perceptions of barriers which include lack of time and inconvenience; limited knowledge and training; and lack of resources such as staffing and automation.[9] Attitudes and perceptions related to use of outcome measures among other health care providers, including mental health practitioners, oncologists, general practitioners, and nurses, also have been reported.[9] However, these factors were not recorded by the researchers. Only the documentation of the objective evaluation was included in the study.

CONCLUSION

This study found that the most common way of assessing knee OA is through subjective reports of pain and objectively through ocular inspection and palpation, closely followed by range of motion and manual muscle testing assessments. Filipino physical therapists did not utilize standardized outcome measure tools such WOMAC, VAS, SAF-36, and KOOS. Thus, this study clearly shows the gap between the assessment of knee OA in the Philippines and the global standard. However, the results of the study may be used as baseline data for improvement of the clinical audit in the practice of Filipino Physical Therapists in the quality of care for patients with knee osteoarthritis.

Individual Author's Contributions

J.R., CR. V., JK .C; Conceptualization, designed and methodology, data analysis and co-wrote the paper. J.R.; Supervised the data collection. EM.B., MR. DJ., O.H., G.P., JA.R., AR. T.; data collection and co-wrote the paper.

Disclosure Statement

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Conflicts of Interest

The authors of this paper declare no conflicting interest.

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Supplementary files

Supplementary File A. Developed Data Extraction Tool

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