# KNOWLEDGE OF THE USE OF KNEE BRACES IN THE MANAGEMENT OF KNEE OSTEOARTHRITIS AMONG PATIENTS AGED 36 YEARS AND ABOVE IN MULAGO NATIONAL REFERRAL HOSPITAL. A CROSS-SECTIONAL STUDY.

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#### Abstract Background

Background

Patient education is an important first-line OA treatment necessary for enhancing the understanding and changing the attitude about OA and its optimal management. This study aims to assess the knowledge of knee braces use in managing knee osteoarthritis among patients aged 36 years and above in Mulago National Referral Hospital.

#### Methodology

The study was descriptive, and cross-sectional employing a quantitative data collection approach from 45 respondents. It included all male and female patients diagnosed with knee osteoarthritis in the orthopedic workshop.

#### Results

The majority 35(78%) were not familiar with knee braces as a treatment option for knee OA and only 10 (22) knew about knee braces as a treatment option for knee OA. 36(80%) could confirm that knee braces were safer than other treatment options for knee arthritis and 9 (20%) could not. 42(93.3%) did not get to discuss the outcomes of knee braces with their healthcare provider and 3(6.7%) always discussed with their healthcare provider. 39(86.7%) of the respondents would like to learn more about knee braces in managing knee OA while 6(13.3%) would not. By level of education, 15(33.3%) held certificates, 10(22.2%) had diplomas, 10(22.2%) possessed degrees, and 3(6.7%) had master's degrees and 7(15.6%) had no certification. 3(6.6%).

# Conclusion

There is a wide knowledge gap among Osteoarthritis patients concerning using knee braces as a treatment option for knee OA and its possible outcomes.

#### Recommendation

The public should be sensitized by health care providers and other health promotion agencies on the different treatment options for orthopedic conditions like knee OA to improve the uptake of the different available orthopedic services.

Keywords: Patient education, knee braces, management of knee osteoarthritis.

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# Background of the study

Patient education is an important first line of OA treatment necessary for enhancing the understanding and changing the attitude toward OA and its optimal management (Bannuru *et al*, 2019). Education interventions are extremely important tools able to improve patient's ability to self-management their chronic diseases like KOA thereby improving their quality of life (Vitaloni *et al*, 2020). Lack of adequate knowledge of OA treatment, short consultation time, and lack of resources were the major limitations among CGPs in osteoarthritis management (**S**. Ferreira et *al*, 2016).

Due to the absence of health professionals' input, patients with Knee OA lack confidence in navigating non-surgical interventions like the use of knee braces (Hurley *et al*, 2018). Knee braces are an underutilized mode of therapy in the management of knee OA in Africa, and this may be attributed to the low knowledge levels of health professionals and patients suggesting that providing education to patients on the benefits of knee braces in the management of knee OA could improve their uptake and adherence. This study aims to assess the knowledge of the use of knee braces in the management of knee osteoarthritis among patients aged 36 years and above in Mulago National Referral Hospital.

# Methodology

# Study Design

The study was descriptive and crosssectional employing a quantitative data collection approach. The quantitative study design was selected because of its flexibility in collecting data for the study in the shortest time possible.

# **Study Area**

The study was conducted in Mulago National Referral Hospital at the Orthopedic Workshop, Kampala district. The hospital serves a large population of the entire country of Uganda. The study setting was selected because it is one of the biggest orthopedic referral health facilities in Uganda with a total of 40 orthopedic health workers.

# **Study population**

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The study included all male and female patients who were diagnosed with knee osteoarthritis aged 36 years and above and were present at the Mulago orthopedic workshop. This population was used because of the increasing cases of knee osteoarthritis among these patients at the orthopedic workshop and only those that were willing got involved in the study.

# **Sample Size Determination**

The sample size was determined by the Yamane formula (1967) as follows. The respondents included.

```
n = N

1+N (e)2

Where;

n = sample size

N = population size =45

e = precision level (0.01)

Therefore sample size, n= 45

1+45(0.01)2

n = 44.7

n ~ 45 respondents
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# Sampling Technique

A non-probability convenient sampling technique was used to select respondents that were available at the time of data collection at Mulago Workshop, for quick and easy data collection, easy access to participants, and its effectiveness.

# **Sampling Procedure**

The respondents were sampled on a first come first serve basis.

# **Data Collection Method**

Data was collected using self-administered questionnaires.

# **Data collection tools**

Tools included; pencils, pencils, and self-administered questionnaires

# Data collection procedure

Α research assistant was trained on data collection, and reading questions to the respondents. The principal researcher and research assistant explained the purpose of the study to the respondents who later had to fill out the consent form before giving them the questionnaires. The researcher assured the respondents of privacy and confidentiality. The researcher collected data by administering questionnaires to the respondents who were present at the time of data collection. After finishing filling out the questionnaires, the researcher corrected them and cross-checked them for completeness and correctness before leaving the study area.

# Definition of Variables Independent variables

The independent variable for the study was the presumed cause of the dependent variable and it was the severity of knee osteoarthritis amongst patients aged 36 years and above.

# **Dependent variables**

The dependent variable was the presumed effects of the independent variable. It was adherence to knee braces in the management of knee osteoarthritis amongst patients aged 36 years and above.

# Quality control Reliability and validity of research instruments

The researcher pre-tested the questionnaires among patients with knee osteoarthritis at Kirudi Hospital before data collection because the facility had similar settings and handled cases like the Mulago orthopedic workshop. Data was analyzed and adjusted accordingly, and questionnaires were checked for data accuracy, consistency, adequacy, quality, and completeness, and any identified mistakes were corrected.

# **Inclusion criteria**

All Patients aged 36 years and above with knee osteoarthritis who had used knee braces for over one month and were present in Mulago National Referral Hospital at the Orthopaedic workshop at the time of data collection and consented to participate in the study were included in the study.

# **Exclusion criteria**

All Patients aged 36 years and above with knee osteoarthritis who had used knee braces for over one month were present in Mulago National Referral at Orthopaedic workshop at the time of data collection and did not consent were excluded from the study.

# Data analysis and presentation

Data management was done by data editing before leaving the study area to ensure that no mistakes or areas were left blank and if any were found, they were corrected. The questionnaires were counted to ensure that all were returned and kept in a safe place. Data collected was analyzed using Statistical Package for Social Science (SPSS) version 20 and Microsoft Excel. Quantitative data was analyzed using univalent, multivalent, and bivalent such as frequency, percentage distribution figures, and bar graphs.

# **Ethical considerations**

An introductory letter seeking permission to carry out research was delivered to the MNRH Research and Ethics Committee. The purpose of the study was explained to the respondents and consent was obtained before giving out questionnaires and interview schedules. Each respondent was assured of privacy and confidentiality since no names were written on the interview schedule and questionnaire. Sensitive issues were explored before and a good relationship was established with the respondents.

# Page | 3 Results

Variable	Frequency(n=45)	Percentage%
Age		
36- 40	3	6.6
41- 45	5	11.1
46- 50	17	37.7
51 and above	20	44.4
Gender		
Female	30	66.7
Male	15	33.3
Highest Education Lev	el	
None	7	15.6
Certificate	15	33.3
Diploma	10	22.2
Degree	10	22.2
Masters	3	6.7
Marital status		
Married	10	22.2
Single	5	11.1
Widowed	25	55.6
Divorced	5	11.1
Religion		
Christian	15	33.3
Muslim	25	55.6
Others	5	11.1
Language spoken fluer	ntly	
English	12	26.7
Luganda	15	33.3
Lusoga	6	13.3
Lunyankole	6	13.3
Other	6	13.3

Source: Field data (2023)

According to the findings in Table 1, out of 45 respondents who participated in the study, 30(66.7%) of the respondents were female while 15(33.3%) were male, demonstrating a female majority. The age of respondents was assessed and it was found that 3(6.6%) were aged 36-45 years, 5(11.1%) were aged 41-45years, 17 (37.7%) were aged 46-50years and most respondents were 20(44.4%) aged 51 years and above. The marital status of the respondents was determined 10(22.2%) were married, 5(11.1%) were single, 25(55.6%) were widowed and 3(11.1%) were divorced. In terms of the highest level of education, 15(33.3%) held certificates, 10(22.2%) had

diplomas, 10(22.2%) possessed degrees, and 3(6.7%) had master's degrees and 7(15.6%) had no certification. In the context of religion, the majority of the respondents were Muslims constituting 25(55.6%), followed by Christians with 15(33.3%) and the others with 5(11.1%). The study also pointed out that the most frequently spoken language at 15(33.3%) was Luganda while 12(26.7%) spoke English, 6(13.3%) spoke Lusoga, 6(13.3%) spoke Lunyankole, and 6(13.3%) spoke other languages. Knowledge of the use of knee braces in the Management of knee OA in MNRH.

Variable	Frequency(n=45)	Percentage (%)
Are you familiar with knee braces as a treatment option for knee OA?		
Yes	10	22
No	35	78
Have you used any other types of treatment for knee arthritis?		
Yes	39	86.7
No	6	13.3
Do you confirm that knee braces are safer than other treatment options, such as pain medications?		
Yes	36	80
No	9	20
Do you always discuss the outcomes of knee braces as a treatment option with healthcare providers?		
Always	3	6.7
Not at all	42	93.3
Would feel free to learn more about knee braces in knee arthritis management		
Yes	39	86.7
No	6	13.3

# Table 2: showing parameters involved in knowledge towards the use of knee brace in management of knee OA.

Results in Table 2 show that, more than half of the respondents 35(78%) were not familiar with knee braces as a treatment option for knee OA and only 10 (22) knew about knee braces as a treatment option for knee OA. 39(86.7%) of the respondents had used other types of treatment for knee arthritis and only 6(13.3%) had not tried any other forms of treatment.

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An overwhelming number of respondents 36(80%) could confirm that knee braces were safer than other treatment options for knee arthritis and 9 (20%) could not.

More than half of respondents 42(93.3%) did not get to discuss the outcomes of knee braces with their healthcare provider and 3(6.7%) always discussed it with their healthcare provider.

And 39(86.7%) of the respondents would like to learn more about knee braces in the management of knee OA while 6(13.3%) would not.



# Figure 1: A pie chart showing different types of treatment for knee Osteoarthritis used.

Results in Figure 1 show that out of 36 respondents who have used other types of treatment, more than half 20(55%) used drugs, 6(17%) used physiotherapy, 9(25%) used a walking stick and only 1(3%) used a wheelchair.

# Discussion

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More than half of the respondents 38(78%) were not with knee braces as a treatment familiar option. This suggests that the majority of the patients surveyed were unaware of knee braces as a potential treatment option and this could have been due to various factors such as inadequate information provided by healthcare professionals, and limited awareness campaigns. The results slightly differed from a study by Vitaloni WHICH reported that only 58.3% of patients had explain adequately doctors their their OA diagnosis and only 53.3% understood their OA treatment option (Vitaloni et al, 2020). Out of 45 respondents, almost 39(86.7%) of the respondents had used other types of treatment for knee arthritis only 6(13.3%) had not tried any other forms of treatment, and out of 36 respondents who had used other types of treatment, more than half 20(55%) used drugs, 6(17%) used physiotherapy, 9(25%) used a walking stick and only 1(3%) used a wheelchair. This may have been because they were not aware of the benefits of knee braces, and also because some patients may have tried knee braces in the past but discontinued their use due to discomfort or other personal reasons. This finding agrees with the finding obtained from a study conducted by Hurley which showed that due to the absence of health professionals' input, patients with Knee OA lack confidence in navigating non-surgical interventions like the use of knee braces (Hurley et al, 2018).

#### Conclusion

There is a wide knowledge gap among Osteoarthritis patients concerning using knee braces as a treatment option for knee OA and its possible outcomes.

# Recommendation

The public should be sensitized by health care providers and other health promotion agencies on the different treatment options for orthopedic conditions like knee OA to improve the uptake of the different available orthopedic services.

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# List of Abbreviations

ADL:	Activities of Daily Living.	
KAM	: Knee adduction moment	
KOA:	Knee Osteoarthritis	
MNRH:	Mulago National Referral Hospital	
MOH:	Ministry of Health.	
NSAIDs:	Non-Steroidal Anti –Inflammatory Drugs	
OA:	Osteoarthritis	
OPD:	Outpatient department	
QoL:	Quality of life.	
UAHEB:	Uganda Allied Health Examination Board	
UIAHMS:	Uganda Institute of Allied Health and	
Management Sciences.		
WHO:	World Health Organization	

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## **Conflict of interest**

No conflict of interest.

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# Author Biography

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