



UNIVERSITI PUTRA MALAYSIA

***KNOWLEDGE AND ATTITUDE TOWARDS TREATMENT OF
OSTEOARTHRITIS OF KNEE AMONG PATIENTS 35 YEARS OLD
AND ABOVE ATTENDING ORTHOPAEDIC CLINIC IN HOSPITAL
SERDANG***

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**KNOWLEDGE AND ATTITUDE TOWARDS TREATMENT OF
OSTEOARTHRITIS OF KNEES AMONG PATIENTS AGE 35 YEARS OLD
AND ABOVE ATTENDING ORTHOPAEDIC CLINIC IN HOSPITAL
SERDANG**

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ABSTRACT

Background: Osteoarthritis (OA) is a chronic degenerative joint disease, and the joint that is commonly affected is the knee. For osteoarthritis of knees, total knee replacement (TKR) or total knee arthroplasty (TKA) is the surgical and major advance in the treatment for this degenerative joint disease.

Objective: To assess the knowledge and attitude towards treatment of osteoarthritis of knees among patients age 35 years old and above attending Orthopaedic Clinic in Hospital Serdang.

Methodology: The questionnaires were distributed among 300 patients who attended Orthopaedic Clinic from Monday until Friday in July 2013 excluding public holidays, and who were available during data collection process. The questionnaire consisted of three sections; section A on socio-demographic information, section B to assess knowledge on knee OA, and section C to assess attitude towards TKR as treatment for knee OA. Score were given for both sections B and C, and the data analysis was performed using SPSS version 20.0.

Results: 300 respondents were distributed according to socio-demographic characteristics (age, gender, ethnicities, education levels and monthly income), score of knowledge on knee OA, and score of attitude towards TKR. 45.14% of respondents with poor knowledge had negative attitude while 63.6% respondents with good knowledge showed positive attitude towards TKR. The results showed ethnicities ($p=0.012$), education levels ($p=0.003$), and monthly income ($p=0.012$) had significant association with level of knowledge on knee OA. Meanwhile ethnicities ($p=0.005$) and education levels ($p=0.002$) had significant association with attitude towards TKR as treatment for knee OA. The results also showed the level of knowledge on knee OA was not significantly associated with attitude towards TKR as treatment for knee OA.

Conclusion: This study revealed that respondents' knowledge on knee OA had no significant association with their attitude towards TKR as treatment for knee OA.

Key Words: Knee osteoarthritis, total knee replacement, knowledge, attitude

**PENGETAHUAN DAN SIKAP TERHADAP RAWATAN OSTEOARTRITIS
LUTUT DALAM KALANGAN PESAKIT BERUMUR 35 TAHUN DAN KE
ATAS YANG MENGHADIRI KLINIK ORTOPEDIK HOSPITAL SERDANG**

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ABSTRAK

Latar Belakang: Osteoarthritis adalah penyakit degeneratif sendi yang kronik, dan sendi yang selalu terlibat ialah sendi lutut. Untuk osteoarthritis lutut, pembedahan gantian sendi lutut merupakan rawatan pembedahan yang utama bagi penyakit ini.

Objektif : Untuk menilai pengetahuan serta sikap terhadap rawatan osteoarthritis lutut di kalangan pesakit berumur 35 dan ke atas yang menghadiri Klinik Ortopedik Hospital Serdang Julai 2013.

Kaedah: Soalan kaji selidik diedarkan dalam kalangan 300 pesakit yang menghadiri Klinik Ortopedik dari Isnin hingga Jumaat kecuali cuti umum, dan hadir sewaktu proses pengambilan data dijalankan. Soalan kaji selidik mengandungi 3 seksyen; seksyen A ialah maklumat sosio-demografi, seksyen B untuk menilai pengetahuan tentang osteoarthritis lutut, dan seksyen C untuk menilai sikap terhadap pembedahan gantian sendi lutut sebagai rawatan osteoarthritis lutut. Markah diberi untuk kedua-dua seksyen B dan C, dan semua data dianalisis menggunakan SPSS version 20.0.

Keputusan: 300 pesakit diasing mengikut ciri-ciri sosio-demografi (umur, jantina, etnik, taraf pendidikan, dan pendapatan bulanan), markah pengetahuan tentang osteoarthritis, dan markah sikap terhadap pembedahan gantian sendi lutut sebagai rawatan untuk osteoarthritis lutut. 45.14% responden yang berpengetahuan lemah

bersikap negatif sementara 63.6% responden berpengetahuan baik bersikap positif terhadap pembedahan gantikan sendi lutut. Keputusan menunjukkan etnik ($p=0.012$), taraf pendidikan ($p=0.003$), dan pendapatan bulanan ($p=0.012$) mempunyai hubungan yang signifikan dengan pengetahuan tentang osteoarthritis lutut. Sementara itu, etnik ($p= 0.005$) dan taraf pendidikan ($p= 0.002$) menunjukkan hubungan yang signifikan dengan sikap terhadap pembedahan gantikan sendi lutut sebagai rawatan untuk osteoarthritis lutut. Keputusan juga menunjukkan pengetahuan tentang osteoarthritis lutut menunjukkan tiada hubungan yang signifikan dengan sikap terhadap pembedahan gantikan sendi lutut sebagai rawatan osteoarthritis lutut.

Konklusi: Kajian ini menunjukkan pengetahuan responden tentang osteoarthritis lutut tiada hubungan yang signifikan dengan sikap mereka terhadap pembedahan gantikan sendi lutut sebagai rawatan osteoarthritis lutut.

Kata Kunci: Osteoarthritis lutut, pembedahan gantikan sendi lutut, pengetahuan, sikap

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LIST OF ABBREVIATIONS

TKA: Total Knee Replacement

OA: Osteoarthritis

SPSS: Statistical Package for Social Sciences Programme





INTRODUCTION

CHAPTER 1: INTRODUCTION

1.1 Introduction

Osteoarthritis (OA) is a chronic degenerative joint disease and a leading cause of disability which affects 60-70% of the population older than 60 years old (Akinpelu et al., 2009, Fransen et al., 2011, Suarez-Almazor et al., 2005, Zakaria et al., 2009, Zhang et al., 2010). The joint that commonly is affected is the knee compared to the joint of the hand, and women have 1.7 times the incidence of knee osteoarthritis compared to men (Akinpelu et al., 2009, Blagojevic et al., 2009, Chang et al., 2004, Haq et al., 2011, Felson et al., 2005). The risk factors for knee OA are old women, obesity, and people who are exposed to occupations and sports requiring high physical workload along with repetitive knee bending and twisting (Akinpelu et al., 2009, Fransen et al., 2011, Haq et al., 2011).

Occupations such as farming, mining, foundry work, soccer players and runners had high prevalence of OA (Turner et al., 2007). Knee OA can be primary, which appears insidiously with age and is idiopathic. Secondary OA is usually caused by some predisposing factor such as previous traumatic injury and obesity (Kumar et al., 2007). Symptomatic patients of knee OA usually presented with pain, swelling, morning stiffness, crepitus or noise from knee, and experiences difficulties in walking and climbing the stairs (Fransen et al., 2011, Kumar et al., 2007). Treatment for this disease can be surgical and non-surgical. For non-surgical treatment, medication and nutritional supplements are the options.

Conventional medication such as non-steroidal anti-inflammatory drugs (NSAIDs) can be administered to relieve the pain, but it can cause stomach irritation and ulcer (Brandt, 2013). The nutritional supplements such as glucosamine sulphate and chondroitin sulphate are of the options for osteoarthritis treatment, and they have

less significant side effects compare to NSAIDs (Bradt, 2013, Naquin et al., 2003, Weaver et al., 2003). Total knee replacement (TKR) or total knee arthroplasty (TKA) is the surgical and major advance in treatment for knee OA.

However, this treatment is usually recommended after the patients experience years or severe of pain and disability due to failure of medical treatment (Bradt, 2013, Suarez-Almazor et al., 2005). Based on the study done by Ahmad Hafiz et al in 2011, TKR it showed good results and positive improvements in pain, stability, range of motion as well as functional and knee scores. Among patients that undergo TKR, Chinese females comprised the largest group (Ahmad Hafiz et al., 2011). However, the excellent restoration of function and pain relief that are provided by this treatment still can't convince most of knee OA patients to accept this treatment although they are recommended by their physicians.

Socio-demographic factors such as gender and educational status may have effect on patients' knowledge and attitude towards TKR as treatment of knee OA. Based on the previous research done by Suarez-Almazor et al in 2005, the factors that may influence the decision making in patients are related with their familiarities with TKR, their perception on efficacy and risk of TKR. Therefore, we wanted to determine the patients' knowledge on knee OA and their attitude towards TKR as its treatment.

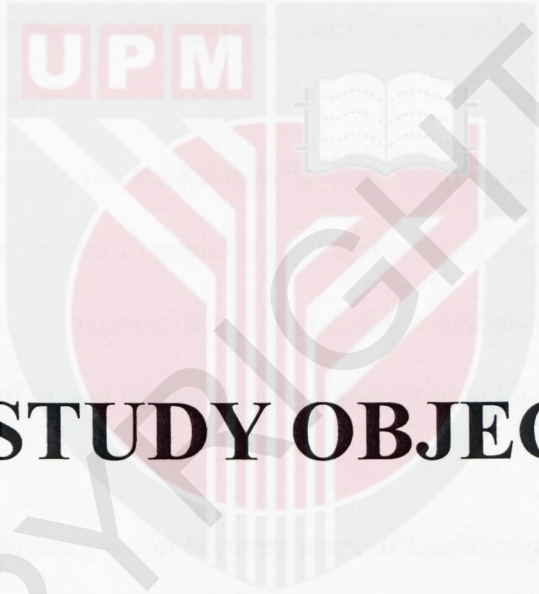
1.1 Problem statement

Knee OA can be treated pharmacologically and surgically, but some patients did not seek treatment because they believed it is only natural sign of ageing (Akinpelu et al., 2009, Turner et al., 2007). Total knee replacement (TKR) is a surgical treatment that can provide pain relief but from previous study that had been conducted among different ethnicities, it appeared 72% of ethnic minorities were less likely to consider TKR because less familiar with the procedure (Ahmad Hafiz et al., 2011, Brandt, 2013, Suarez-Almazor et al., 2005).

Apparently there is no study have been conducted to assess knowledge and attitude towards treatment of knee OA in Malaysia. So we do not know whether knowledge on knee OA had effect on patients' attitude towards TKR as its treatment. If the study is carry out and it appears knowledge has significant association with attitude, then the relevant actions can be taken to nurture positive attitude towards TKR as treatment for knee OA.

1.2 Significance of study

The significance of study is we can assess the respondents' knowledge and their attitude towards TKR as treatment of knee OA. Lack of knowledge about OA and TKR, distrust in physicians and false beliefs on knee OA are some factors that contribute to negative result in preference of TKR among patients. If knowledge appears to be significantly associated with attitude towards TKR, hence we can improve respondents' knowledge on knee OA to nurture the positive attitude towards TKR. For example, we can improve patients' knowledge on knee OA and TKR by conducting an awareness programme regarding OA.



STUDY OBJECTIVES

1.4 Objectives

1.4.1 General objective

To assess the knowledge and attitude towards treatment of knee OA among respondents of age 35 years old and above attending Orthopaedic Clinic in Hospital Serdang.

1.4.2 Specific objectives

1. To determine the socio-demographic status (age, gender, ethnicity, education and financial status).
2. To determine association between socio-demographic status (age, gender, ethnicity, education and financial status) and level of knowledge on knee OA.
3. To determine the association between socio-demographic status (age, gender, ethnicity, education and financial status) and attitude towards TKR as treatment for knee OA.
4. To determine the association between level of knowledge on knee OA and attitude towards TKR as treatment for knee OA.

1.5 Null hypotheses

1. There is **no association** between socio-demographic status (age, gender, ethnicity, education and financial status) and level of knowledge on knee OA.
2. There is **no association** between socio-demographic status (age, gender, ethnicity, education and financial status) and attitude towards TKR as treatment for knee OA.
3. There is **no association between** level of knowledge on knee OA and attitude towards TKR as treatment for knee OA.

LITERATURE REVIEW

CHAPTER 2: LITERATURE REVIEW

2.1 Total Knee Replacement (TKR)

Total knee replacement (TKR) is the surgical procedure to replace the damaged part of knee with artificial parts. It represents a major advance treatment for degenerative joint disorder, where it mostly to restore the joint function and improve pain relief (Ahmad et al., 2011, Brandt, 2013). Knee and functional scores of primary TKA are performed pre and post-operatively, so any improvement in patients can be observed. The knee score consist of pain, range of motion and stability domains whereas the functional score is used to assess the ability of patient to walk, climb the stairs and whether aids are required for walking (Ahmad et al., 2011).

However in OA patients, knee scores improved but the functional score remained poor for cultural reasons (Ahmad et al., 2011). The factors that reduce the functional scores are sedentary way of life. After TKA, pain, stability, range of motion are improved as well functional and knee scores. For the complications of TKA, they included superficial infections, deep infections, pulmonary embolism, peripheral nerve injury, and instability (Ahmad et al., 2011).

Although TKR is seemed beneficial for the patients, but there are factors that can influence patients' preference for TKR (Chang et al., 2004, Suarez-Almazor et al., 2005). From the study done by Suarez-Almazor et al in 2005, perceptions of efficacy and risk of (TKR) influenced the patients' decision-making. For example, in the efficacy of TKR, how this treatment will benefit the patients and can improve their ability function? Acceptance of TKR is seen in patients who think that this treatment is beneficial for them (Suarez-Almazor et al., 2005).

For the risk of the surgery, patients tended to think about the risk during surgery, the complications from surgery and potential complications from surgery if they have worsened osteoarthritis (Suarez-Almazor et al., 2005). In conclusion, although the complications might happen after postoperative, from the study, TKA showed good results in patients and improved the quality of life (Ahmad et al., 2011, Suarez-Almazor et al., 2005).

2.2 Gender, ethnicity and concerns for total knee replacement.

A study regarding the concerns of patients on TKR among races and gender had been done in United States by Chang et al in 2004. The 37 participants were all actively considered TKR; 12 men, 25 women, and 20 from them are white Americans while the rest are African Americans. From the study, they found out the different concerns between men and women that associated with surgery procedures, which it could be categorized into 3 phases; pre-operative, intra-operative, and post-operative. Pre-operative phase is the issues that clarify patient understanding of the procedure up to surgery (Chang et al., 2004). Intra-operative phase is about the surgery itself plus the immediate postoperative recovery period in anaesthesia recovery room while postoperative phase is about period after the patients leave the anaesthesia recovery room (Chang et al., 2004).

From the finding, questions about both preoperative and postoperative phases were mostly asked by women, and they also frequently broached about financial issues (Chang et al., 2004). If they were categorized into ethnicities, white American women were most concerned about preoperative phase and rising the questions that covering widest topics such as knee anatomy, devices and device technology, employment issues and pain after medication while for African Americans women, they were more concerned about postoperative phase such as addressing recuperation period,

functional recovery and limitations, and pain control (Chang et al., 2004).

For men, they raised fewer issues than women and concerned practical aspects of TKR in all phases. Categorizing men into their respective ethnics, white American men were more concerned about techniques used in surgery while for African American men, they concerned the most about preoperative phase such as finance and alternative treatments for osteoarthritis (Chang et al., 2004). However, there were few raising issues that could affect the decision making on having TKR. For example, acceptances of TKR are contributed by the knowledge of patients concerning the treatment.

Based on the study by Chang et al, white American men contributed to a greater proportion to this group because their knowledge and familiarity with TKR. Based on other similar study that had been done by Suarez-Almazor et al, they found that more White than minorities (African Americans and Hispanics combined) has considered TKR because their familiarity with it, whether they had heard about the procedure or have close relatives or friends who had gone the procedure .

On the other hand, African Americans were less likely to consider TKR because they expected postsurgical pain and functional difficulties after the surgery since they were less likely to have close relatives that have undergo TKR (Suarez-Almazor et al., 2005). Hence, this kind of beliefs and perceptions had effect on their willingness to have TKR.

In these both studies, the issue about trust the physicians was brought up, and it could influence the acceptances of TKR among patients. In Chang et al study, both African American men and women raised the issue distrust in their physicians because they doubt whether they had been given all the available options and alternatives to TKR. In other study, although Whites were more likely to consider TKR compared to African Americans and Hispanics, but ethnic variations did not appear to be related to

physician recommendations. This is because ethnic differences in recommendations become non-significant after controlling for clinical status (Suarez-Almazor et al., 2005).

Patients' beliefs about the efficacy of the procedure and have knowledge about TKR are major determinants for them to consider this treatment (Suarez-Almazor et al., 2005). The utilization of TKR can be improved by changing the patients' beliefs through interventions in health communication. It is also can be achieved by improving physician-patient interaction (Suarez-Almazor et al., 2005). Building trust in physicians appeared to play an important role, which at least the minority patients (African Americans and Hispanics) will have initial considerations about the surgery. Physician-patient communication has become important determinant of adherence to medical recommendations and major determinant of ethnic disparities in health (Suarez-Almazor et al., 2005).

2.3 Patients' knowledge on osteoarthritis of knee and total knee replacement.

The knowledge about etiology of OA and its management are important for the patients, so they can seek for medical help to treat this disease. The study showed that OA is common in women and old age people, in obese people and people who expose to occupations and sports that requiring high physical workload along with repetitive knee bending and twisting (Akinpelu et al., 2009, Blegojevic et al., 2009, Fransen et al., 2011, Haq et al., 2011). Because OA commonly occur in old age people and the incidence increase with increasing age, some patients believe that it is natural sign of ageing rather than disease (Akinpelu et al., 2009, Turner et al., 2007). Although knee OA have negative impact on physical function and role performance such as limitation to walk, the fact that it is not life-threatening disease and the belief that it is natural sign of ageing may be the reason why patients not seeking or refuse for medical help

(Akinpelu et al., 2009, Turner et al., 2007).

Twisting, turning, persistent awkward postures, heavy lifting, frequent bending, walking long distance over uneven ground, work requiring a lot of force at early age are occupational risk factors for knee OA (Akinpelu et al., 2009, Fransen et al., 2011, Haq et al., 2011). Patients who have knowledge or believe that heavy physical activity is one of the risk factors of knee OA will not surprise if they are diagnosed with this disease in the future. TKR is recommended treatment when the disease become severe and failure of medical management for this disease (Brandt., 2013).

This surgical treatment can provide excellent restoration of joint function and relieve the pain (Ahmad et al., 2011). Based on the study done by Suarez-Almazor et al in 2005, 66 (100%) had heard about TKR procedure and 58 (88%) of them had close friends and relatives who have undergone TKR. It also stated that white American men were contributed to a greater proportion to the group that considering TKR because their knowledge and familiarity with TKR. African American (50, 76%) were less likely to consider because lack of knowledge about the procedure and benefits of TKR, and they less likely to have other relatives that had undergone this surgery. This showed that knowledge on TKR can influence patients in making the decision to consider for this surgery.

Patients might have knowledge about procedure of TKR, but there are other factors that can influence the patients to accept this treatment such as concerns for the cost of surgery, pain medication and its possible addiction, and also lack of trust in physician (Chang et al., 2004, Suarez-Almazor et al., 2005). Although it can improve the majority of associated disability and quality of life (QOL), but this treatment still have a lot of concerns among patients such as the cost for treatment, pain medication and its possible addiction (Chang et al., 2004).

2.4 The effect of education and income on need and willingness to undergo total joint arthroplasty.

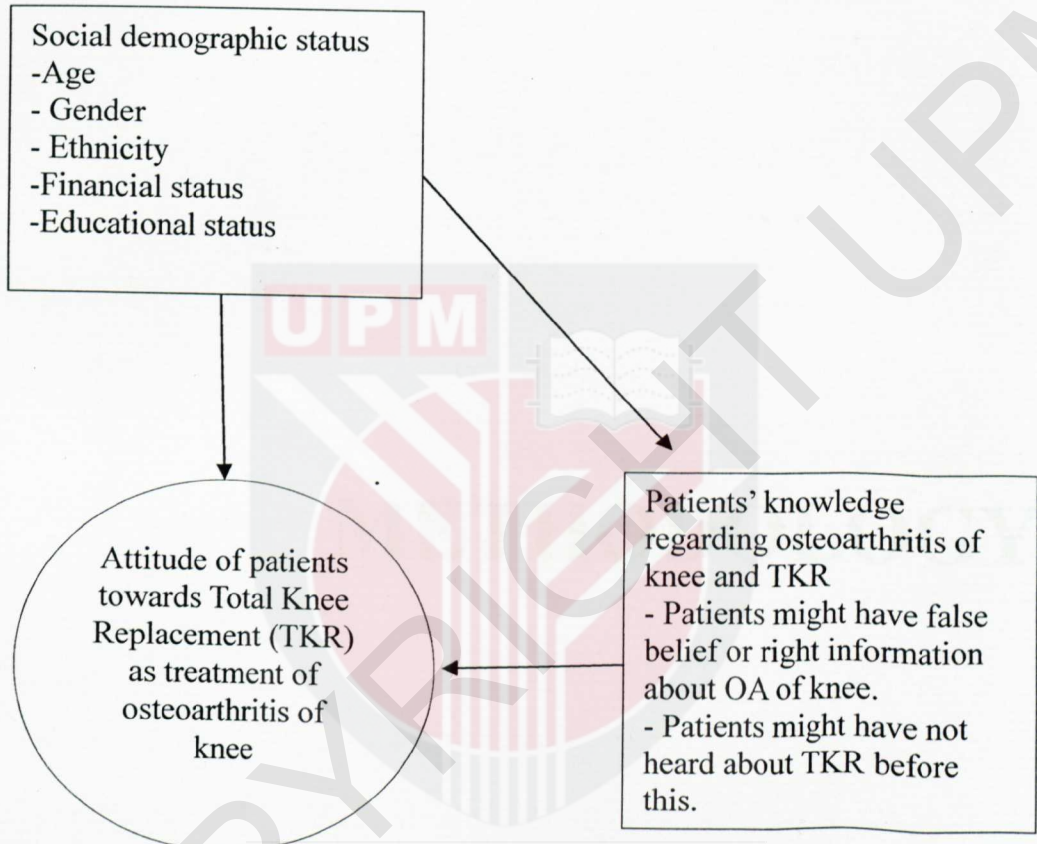
From the study that had been done by Hawker et al in 2002, among patients with moderate-to-severe hip/knee problems, individuals with lower socioeconomic status (SES) received less arthritis care, including joint arthroplasty. The study was conducted by distributing the questionnaires to assess education, income, arthritis severity, and comorbidity, and some of them were interviewed to evaluate the willingness to consider arthroplasty. It also suggested that individuals with lower SES are less able to negotiate health care systems, which thereby impacts their access to care.

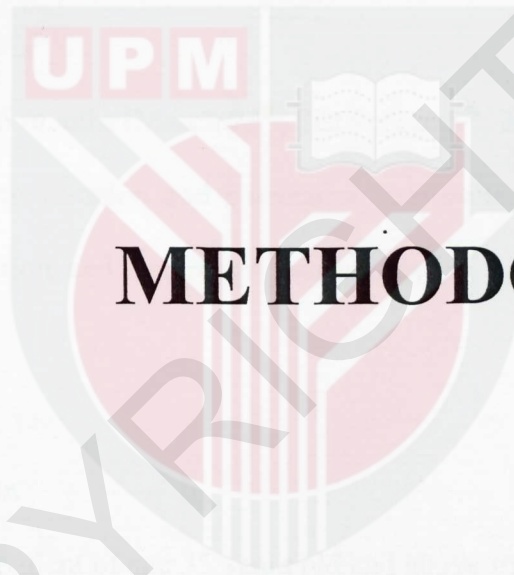
In this study, the level of education were categorized as low (less than high school) and high (high school and higher) while annual income were split into several categories. The result showed in low-utilization area for arthroplasty, 4.4% with less than high education (no formal and elementary school), 10.4% with a high school education, 9.1% with more than a high school education were “definitely willing” to consider arthroplasty. By income 8.0% in low-rate region and 15.3% in high-rate region with less than \$20,000 annual income, 10.8% and 8.1% respectively, with income between \$20,001 and \$40,000, and 21.4% and 18.2% respectively, with more than \$40,000 annual income were “definitely willing” to consider arthroplasty (Hawker et al., 2002)

From this study, it stated that “definite willingness” to consider arthroplasty was associated independently with having spoken with a physician about arthroplasty. The study suggested that arthritis severity, and thus the potential need for arthroplasty, may be greater among those with less education or lower income due to high prevalence of exposure to the risk factors for osteoarthritis. Individual with low education and/or low income were significantly likely to be female, were older and

heavier. The result also stated neither education nor income was statistically significantly associated with definite willingness to consider arthroplasty.

2.5 Conceptual framework





METHODOLOGY

CHAPTER 3: METHODOLOGY

3.1 Study Location

The study was conducted at Orthopaedic Clinic in Hospital Serdang.

3.2 Study Design

The study design was prospective cross sectional study.

3.3 Study duration

The overall study was 6 months (March 25th, 2013- Sept 5th, 2013) including proposal preparation, proposal presentation and correction, data collection and analysis, data presentation and correction, and final report presentation.

3.4 Sampling

3.4.1. Study Population

Target population was patient of age 35 years old and above that attended Orthopaedic Clinic in Hospital Serdang during data collection process.

3.4.2. Sampling population

3.4.2.1. Inclusion criteria

- i) General patients and not specific to patients with knee OA.
- ii) Patients aged 35 years old and above attending Orthopaedic Clinic in Hospital Serdang.
- ii) Patients who were available during data collection.

3.4.2.2. Exclusion criteria

- i) Patients that had undergone total knee replacement surgery.
- ii) Patients who were illiterate and could not answer the questionnaire.

3.4.3. Sampling frame

All patients of age 35 years old and above who attended Orthopaedic Clinic in Hospital Serdang.

3.4.4. Sampling unit

Patient that attended Orthopaedic Clinic and meet the requirement of inclusion criteria.

3.4.5. Sampling methods

Sequential sampling method was used. It is the non-probability sampling technique in which the subjects that are available in a given time interval are chosen as the respondents.

3.4.6 Sample size

The formula that was used to calculate sample size estimation:

$$n = \frac{z_{1-\alpha/2}^2 P(1-P)}{d^2}$$

$z_{1-\alpha/2}$ = standard errors associated with confidence interval. We take 1.96 with 95 % confidence interval.

p = estimated proportion of [preference total knee replacement] from study done by Suarez et al in 2005.

d = desired precision

$$n = \frac{(1.96)^2 0.86 (1-0.86)}{(0.06)^2}$$

$$= 128.48$$

Adjusting for 20% non-response

$$n = 128.48 + 25.70 = 154.18$$

$$= 154$$

Since we also study association, we use this for group comparison

$$n = \frac{z_{1-\alpha/2}^2 [P_1(1-P_1) + P_2(1-P_2)]}{d^2}$$

Where

P_1 = estimated proportion (larger)

$$= 0.91 \text{ (Suarez-Almazer et al, 2005)}$$

P_2 = estimated proportion (smaller)

$$= 0.83 \text{ (Suarez-Almazer et al, 2005)}$$

d = desired proportion

$$z_{1-\alpha/2}^2 = 1.96 \text{ with 95\% confidence interval}$$

$$n = \frac{(1.96^2)[0.91(1-0.91) + 0.83(1-0.83)]}{(0.06)^2}$$

$$= 237.97$$

Adjusting for 20% non-response

$$n = 237.97 + 47.59$$

$$= 285.56$$

$$= 286$$

The final sample size estimation is **286**

3.5 Instruments and data collection.

3.5.1. Instruments / Questionnaire

The back-to-back translations questionnaires were used for this study. This questionnaire consisted of 3 sections. Section A was about respondent's socio-demographic information, section B to assess respondent's knowledge regarding knee OA, while section C to assess respondent's attitude towards TKR as the treatment for this disease. For section B, 25 true or false questions were asked. 14 out of 25 questions have true answers and the remaining questions have false answers. For section C, Likert-scale questionnaire was used and the options provided were strongly disagree, disagree, unsure, agree and strongly agree.

3.5.2. Data Collection Technique

For the patients attending Orthopaedic Clinic, the estimation of them is about 200 but depending on certain days. We could obtain the respondents in clinic from Monday until Friday and for respondents that were available during data collection, we would briefly explain to them regarding our project and what they had to do. After fill in the consent form, the data collected through questionnaires. The respondents had to answer the simple questionnaires, where those questions were basically to assess their knowledge and attitude towards treatments of knee OA. For the knowledge and attitude assessment, marks were given to both sections.

3.5.3. Quality Control

The questions were set up by discussing with supervisors and back-to-back translations had been done. Face validity was carried out on 20 random participants on target population. Modifications were then made to the items which appeared less reproducible or which respondents found difficult. The process of entering data had been done carefully to avoid the errors from occurring.

3.6. Data Analysis.

Data were analysed by using SPSS version 20. Descriptive statistics was used to analyse the distribution of respondents according to socio-demographic status, score of knowledge and attitude towards treatment of knee OA. The association between the variables were tested using Chi square. All significant levels were set at standard p value of <0.05 and null hypotheses were rejected. Since the questionnaire was not adopted from any previous similar studies, so the normality test for score of knowledge and attitude was carried out. The results showed the distributions of both scores were not normal, so we used median score to split the knowledge and attitude into two groups. We also referred to previous studies on knowledge, attitude, and practice that used median score to split the knowledge and attitude into two groups (Study done by Nganwai et al., 2007, Askarian et al., 2007).

For knowledge median score, scores below 60 were categorized into poor knowledge while 60 and above were categorized into good knowledge. For attitude scoring, score below 33 were grouped into negative attitude while scores 33 and above were grouped into positive attitude. Before we did the test for association, some variables were combined into one group. In this study, ethnicities other than Malay were combined in the category “non-Malay”. The level of education was defined as “no formal education”, “primary education”, “secondary education”, “university”, and

“others”. Because relatively few individuals had received no formal education or only primary education, these categories were combined in the category “less than secondary education”. Since tertiary education is educational level following the completion of secondary education, so “university” and “others” were combined in the category “tertiary education”

For monthly income, it was defined as “no income”, “less than and equal to RM1000”, “RM1001-RM2000”, “RM2001-RM3000”, “RM3001-RM4000”, “RM4001-RM5000”, and “Equal to and more than RM5000”. Individual with no income and less than and equal to RM1000 were combined in the category “low income”, while individuals with income RM4001 and above were categorized into “high income”. The income not those categories were combined in the category of “moderate income”.

3.7 Study Ethics

- i) The ethical forms were submitted to the Ethical Committee of Faculty of Medicine and Health Sciences, UPM.
- ii) Registration for National Medical Research Registry (NMRR) had been done to allow us to get permission letter to do research from the Hospital Serdang.
- iii) Letter for permission approval was sent to the Director of Hospital Serdang.

3.8 Variables

3.8.1. Dependent variables

Knowledge and attitude of patients towards TKR as the treatment for knee OA.

3.8.2. Independent variables

1. Socio-demographic status (Age, gender, ethnicity, educational and financial status)
2. The patients' knowledge regarding knee OA.

3.9 Definition of terms.

3.9.1 Attitude

In this study, preference is define as the state of mind. This study was conducted among patients who attended Orthopedic Clinic, which some of them might have knee OA. The aim of this study was to determine the subjects' knowledge and attitude towards treatment of OA, especially TKR. There are many opinions about this treatment, so we want to assess the attitude or state of mind toward total knee replacement, whether they have positive or negative attitude toward it. Although some of them that experience knee OAs may have been recommended by their physicians for this treatment, but it doesn't mean that they are willing to have the surgery. It depend on their attitude whether to have or refuse to have the TKR surgery.

3.9.2 Patients' knowledge on osteoarthritis of knee and total knee replacement

Although the respondents for this study are general patients which they might or might not have osteoarthritis of knees. Some of them might not know well or do not know at all about this disease. They might have myth beliefs and not the fact about this disease, such as osteoarthritis of knee is a natural sign of ageing and not a disease. Some of them also might heard or have not heard about total knee replacement, which this may influence their preference to have the surgery.

Patients' knowledge on these two matters can be described on how much they know about the cause, risk factors or treatment for knee OA and how familiar they are with TKR. For example, the procedure and outcome of the surgery. If they have good knowledge regarding these disease and treatment, it may have positive influence in patients' attitude towards TKR as treatment for knee OA.

3.10. Limitation

1. The duration of the project was short, so we only able to carry out face validity test for the questionnaires since there was limited time given to finish this study.
2. The sampling technique used was sequential sampling method. The disadvantages of this technique caused the results obtained could not be used to create conclusions and interpretations pertaining to entire population.
3. This study did not assess the factors that contributed to the respondents' knowledge on this disease and the factors that contributed to their attitude toward TKR.
4. This study unable to assess the knowledge and attitude between OA of knee patients with non-OA of knee patients.

3.10.1 Bias

In conducting the study, the bias may also occur.

i) Non-response bias

- This bias occurred when respondents refused to participate in the study, cannot be located or could not participate due to problem such as illness and deaf. To overcome this bias, we used self-administrated questionnaire and assure them the confidentiality, so they felt more comfortable and safe to participate in this study.

ii) Interviewer bias

- This bias occurred when we explained about the purpose of the study and the instruction to the respondents. To minimize this bias, use scripted explanation and instruction when explain to the respondents.

Chapter 4 Results

4.1

4.1.1 Introduction

The results of the analysis of the data are presented in this chapter. The first part of the chapter is devoted to the description of the data and the second part to the results of the analysis.

4.1.2 Description of the data

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RESULTS

Chapter 4: Result

4.1: Response Rate

The sample size estimation of this study was 286 but since we managed to obtain 300 respondents, so we took all the respondents as the study subjects. The respondents that eligible during data collection were 400. So the response rate was 75.0%.

4.2: Descriptive analysis

The respondents were distributed according to socio-demographic status, score on knowledge on knee OA and attitude towards TKR as treatment of knee OA.

4.2.1: Distribution of respondents according to socio-demographic status

Table 4.2.1 below showed among 300 respondents attended Orthopaedic Clinic in Hospital Serdang that had been selected as study subjects, 109 (36.3%) of them came from 35- 44 age group while only 10 (3.3%) aged 65-74. The total respondents consisted of 146 males (48.7%) and 154 females (51.3%). Ethnic makeup was; 192 (64.0%) Malay, 48 (16.0%) Chinese, 57 (19.0%) Indian, and 3 (1.0%) patients from other ethnicities.

For education level, 180 (60.0%) of respondents received education up to secondary level, following by university and others. From table 4.2.1, only 3 (1.0%) respondents received no formal education. The results of this study also showed 68 (22.7%) respondents earned monthly income range between RM1001-RM2000. Only 17 (5.7%) of them earned RM 5000 and above while 65 (21.7%) had no income.

Table 4.2.1: Distribution of respondents according to socio-demographic status

Variables	Frequency (n)	Percent (%)
Age groups		
35-44	109	36.3%
45-54	94	31.3%
55-64	87	29.0%
65-74	10	3.3%
Gender		
Male	146	48.7%
Female	154	51.3%
Ethnicities		
Malay	192	64.0%
Chinese	48	16.0%
Indian	57	19.0%
Others	3	1.0%
Educational levels		
No formal education	3	1.0%
Primary Education	9	3.0%
Secondary Education	180	60.0%
University	97	32.3%
Others	11	3.7%
Monthly Income		
No income	65	21.7%
Less than and equal to RM1000	34	11.3%
RM1001-RM2000	68	22.7%
RM2001-RM3000	66	22.0%
RM3001-RM4000	31	10.3%
RM4001-RM5000	19	6.3%
Equal to and more than RM5000	17	5.7%

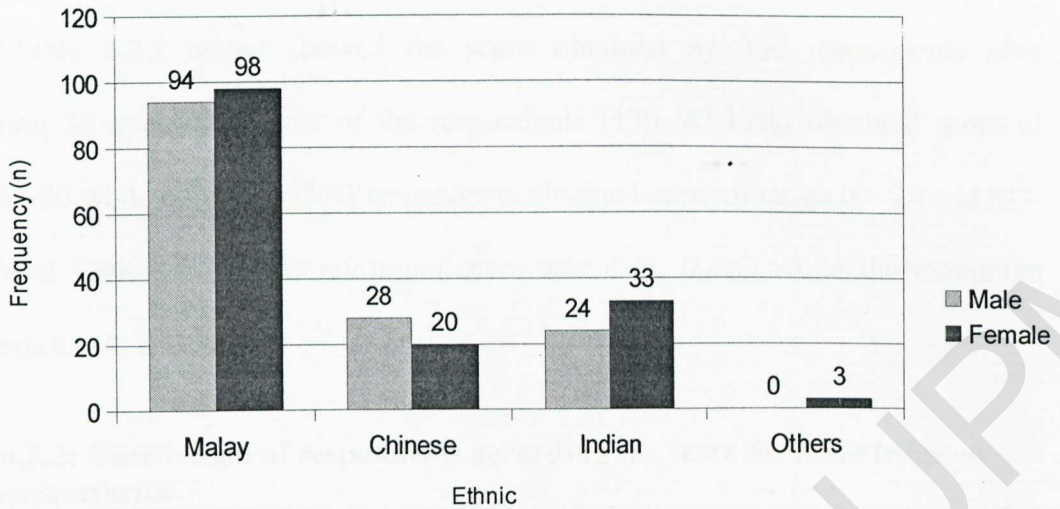


Figure 1: Distribution of ethnicities according to gender

Figure 1 showed more females from each ethnic group attended Orthopaedic Clinic, except for Chinese. It also showed most of the respondents were from Malay ethnic (n=192). When the respondents were categorized into their respective ethnicity and gender, the result showed that 98 (32.7%) of them were Malay females. There was no male representative from “other” ethnicities in this study.

4.2.2 Distribution of respondents according the score for knowledge

Table 4.2.2 below showed the score obtained by 300 respondents after answering 25 questions. Most of the respondents (130, 43.33%) obtained score of range 61-80 while only 4 (1.33%) respondents obtained score of range 0 – 20 and 81 – 100. From Table 4.2.2.1, the minimum score was 4 (1, 0.3%) while the maximum score was 84 (4, 1.33%).

Table 4.2.2: Distribution of respondents according the score for knowledge on knee osteoarthritis

Score for knowledge	Frequency (n)	Percentage (%)
0 – 20	4	1.33
21 - 40	41	13.67
41- 60	121	40.33
61 – 80	130	43.33
81 – 100	4	1.33
Total	300	100

Figure 4.2.2.1: Minimum, maximum, and mode of score on knowledge on knee osteoarthritis

Category	Score on knowledge	Frequency (n)	Percentage (%)
Minimum score	4	1	0.3
Maximum score	84	4	1.3
Mode	72	34	11.3

4.2.3: Distribution of respondents according to score on attitude towards TKR as treatment for knee OA

There were 10 questions for this section and the score from 1 until 5 were given for each question. So the minimum score was 10, and the maximum score was 50. From table 4.2.3, 234 (78.0%) respondents obtained score of range 31-40 and only 3 (1.0%) respondents obtained score of range 10-20. From table 4.2.3.1, the minimum score obtained by only 1 (0.3%) respondent was 19 while 50 was the maximum score obtained by 2 (0.7%) respondents of this study. The mode of score was 32.

Table 4.2.3: Distribution of respondents according to score for attitude towards total knee replacement as treatment for knee osteoarthritis

Score on attitude	Frequency (n)	Percentage (%)
10 - 20	3	1.0%
21 - 30	53	17.7%
31 - 40	234	78.0%
41 -50	10	3.3%
Total	300	100.0%

Table 4.2.3.1: Minimum, maximum, and mode of score on attitude towards total knee replacement as treatment for knee osteoarthritis

Category	Score on attitude	Frequency (n)	Percentage (%)
Minimum score	19	1	0.3
Maximum score	50	2	0.7
Mode	32	43	14.3

4.2.4: Mean, median, mode of score for respondents' knowledge on knee OA and attitude towards TKR as its treatment

From table 4.2.4, the median score for knowledge and attitude were 60 and 33 respectively. For knowledge median score, scores below 60 were categorized into poor level of knowledge while 60 and above were categorized into good level of knowledge. For attitude scoring, score below than 33 were grouped into negative attitude while scores 33 and above were grouped into positive attitude.

Table 4.2.4: Mean, median, mode of score for respondents' knowledge on knee osteoarthritis and attitude towards total knee replacement as its treatment

	Score for knowledge	Score for attitude
Mean	58.08	33.54
Standard deviation	14.77751	3.78101
Median	60	33
Mode	72	32
Interquatile range	20.0	5.00

4.2.5: Distribution of respondents according to their knowledge on knee OA and attitude towards TKR as its treatment

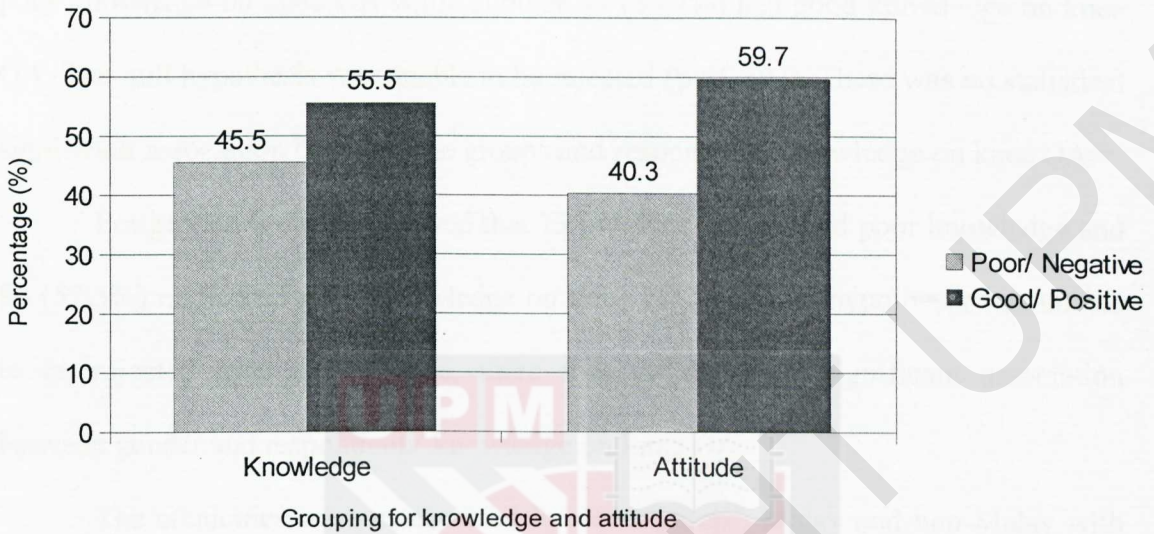


Figure 2: Distribution of 300 respondents according to their knowledge on OA of knees and attitude toward TKR as its treatment

From figure 2, 135 (45.5%) from 300 respondents had poor knowledge on knee OA while 165 (55.5%) of them had good knowledge on knee OA. On attitude towards TKR as treatment for knee OA, only 121 (40.3%) showed negative attitude towards the treatment.

4.3: Analytical analysis

This analysis was to determine the association between socio-demographic status with respondents' knowledge on knee OA and attitude towards TKR as its treatment.

4.3.1: The association between socio-demographic status with respondents' knowledge knee OA

From the table 4.3.1, 51 (46.8%) of respondents from 35-44 age group had poor knowledge on knee OA while another 58 (53.2%) had good knowledge on knee OA. The null hypothesis was unable to be rejected ($p= 0.594$). There was no statistical significant association between age groups and respondents' knowledge on knee OA.

For gender, it clearly showed that 73 (47.4%) females had poor knowledge and 84 (57.5%) males had good knowledge on knee OA. The null hypothesis was unable to be rejected ($p=0.390$). Hence, there was no statistical significant association between gender and respondents' knowledge on knee OA.

The ethnicities were categorized into two groups; Malay and non-Malay with 192 (64.0%) and 108 (36.0%) respondents in the respective group. For Malay respondents, 116 (60.4%) of them had good knowledge while 59 (54.6%) non-Malay had poor knowledge on knee OA. The null hypothesis was rejected ($p= 0.012$). Hence, there was statistical significant association between ethnicity and respondents' knowledge on knee OA.

For education level, 7 (58.3%) respondents with less than secondary education and 73 (67.6%) respondents with tertiary education had good knowledge on knee OA. For respondents with secondary education, 95 (52.8%) of them had poor knowledge on knee OA. The null hypothesis was rejected ($p= 0.003$). Hence, there was statistical significant association between educational and level of respondents' knowledge on knee OA.

From table 4.3.1, 73 (44.2%) respondents with moderate monthly income, followed by low and high monthly income had poor knowledge on knee OA. The results also showed 27 (75.0%) respondents with high monthly income had good knowledge on knee OA. The null hypothesis was rejected ($p= 0.012$). Hence, there

was statistical significant association between monthly income and respondents' knowledge on knee OA.

Table 4.3.1: The association between socio-demographic status with respondents' knowledge on knee osteoarthritis

Variables	Level of Knowledge		x ² value	df	Statistical significant
	Poor	Good			
Age groups					
35-44	51 (46.8%)	58 (53.2%)	1.895	3	0.594
45-54	39 (41.5%)	55 (58.5%)			
55-64	42 (48.3%)	45 (51.7%)			
65-74	3 (30.0%)	7 (70.0%)			
Gender					
Male	62 (42.5%)	84 (57.5%)	0.738	1	0.390
Female	73 (47.4%)	81 (52.6%)			
Ethnicities					
Malay	76 (39.6%)	116 (60.4%)	6.322	1	*0.012
Non-Malay	59 (54.6%)	49 (45.4%)			
Education Levels					
Less than secondary	5 (41.7%)	7 (58.3%)	11.373	2	*0.003
Secondary education	95 (52.8%)	85 (47.2%)			
Tertiary education	35 (32.4%)	73 (67.6%)			
Monthly Income					
Low	53(53.5%)	46(46.5%)	8.771	2	*0.012
Moderate	73(44.2%)	92(55.8%)			
High	9(25%)	27(75%)			

*P-value less than 0.05 showed significant association between variables

4.3.2: The association between socio-demographic status with respondents' attitude towards TKR as treatment for knee OA

From the table 4.3.2, more than 50.0% of respondents from each age group showed positive attitude towards TKR as treatment for knee OA. The null hypothesis was unable to be rejected ($p = 0.615$). There was no statistical significant association between age groups and respondents' attitude towards TKR as treatment for knee OA.

For gender, 86 (58.9%) males and 93 (60.4%) females showed positive attitude towards TKR. The null hypothesis was unable to be rejected ($p = 0.793$). There was no statistical significant association between gender and respondents' attitude towards TKR as treatment for knee OA.

Table 4.3.2 also showed 126 (65.6%) of Malays and 53 (49.1%) of non-Malays showed positive attitude towards TKR. The null hypothesis was rejected ($p = 0.005$). There was statistical significant association between ethnicity and respondents' attitude towards TKR as treatment for knee OA.

For education levels, 9 (75.0%) respondents with less than secondary education showed negative attitude towards TKR while 100 (55.6%) respondents with secondary and 76 (70.4%) with tertiary education showed positive attitude towards TKR. The null hypothesis was rejected ($p = 0.002$). There was statistical significant association between educational levels and respondents' attitude towards TKR as treatment for knee OA.

From the table 4.3.2, 102 (61.8%) respondents with moderate monthly income showed positive attitude towards TKR. The results showed less than 50.0% respondents from each group showed negative attitude towards TKR. The null hypothesis was unable to be rejected ($p = 0.593$). Hence, there was no statistical significant association between monthly income and respondents' attitude towards TKR as treatment for knee OA.

Table 4.3.2: The association between socio-demographic status with respondents' attitude towards total knee replacement as treatment for knee osteoarthritis

Variables	Attitude groups		x ² value	df	Statistical significant
	Negative	Positive			
Age groups					
35-44	40 (36.7%)	69 (63.3%)	1.800	3	0.615
45-54	43 (45.7%)	51 (54.3%)			
55-64	34 (39.1%)	53 (60.9%)			
65-74	4 (40.0%)	6 (60.0%)			
Gender					
Male	60 (41.1%)	86 (58.9%)	0.069	1	0.793
Female	61 (39.6%)	93 (60.4%)			
Ethnicities					
Malay	66 (34.4%)	126 (65.6%)	7.868	1	*0.005
Non-Malay	55 (50.9%)	53 (49.1%)			
Educational Levels					
Less than secondary	9 (75.0%)	3 (25.0%)	12.398	2	*0.002
Secondary education	80 (44.4%)	100 (55.6%)			
Tertiary education	32 (29.6%)	76 (70.4%)			
Monthly Income					
Low	44(44.4%)	55(55.6%)	1.044	2	0.593
Moderate	63(38.2%)	102(61.8%)			
High	14(38.9%)	22(61.1%)			

*P-value less than 0.05 showed significant association between variables

4.3.3: Association between level of knowledge on knee OA and attitude towards TKR as its treatment

From table 4.3.3, 74 (54.81%) respondents with poor knowledge and 105 (63.6%) respondents with good knowledge on knee OA showed positive attitude towards TKR. The null hypothesis was unable to be rejected ($p= 0.121$). There was no statistical significant association between level of knowledge on knee OA and attitude towards TKR as treatment for knee OA.

Table 4.3.3: Association between level of knowledge on knee osteoarthritis and attitude towards total knee replacement as its treatment

Variables	Attitude		x ² value	df	Statistical significant
	Negative	Positive			
Level of knowledge					
Poor	61 (45.14%)	74 (54.81%)	2.4	1	0.121
Good	60 (36.4%)	105 (63.6%)			

*P-value less than 0.05 showed significant association between variables

Chapter 5: Discussion

DISCUSSION

Chapter 5: Discussion

Previous studies had been done to determine effect of socio-demographic such as education on willingness to consider total knee replacement (TKR) treatment, but there was no study to assess knowledge on knee OA and its treatments. Therefore, the purpose of this study was to assess knowledge and attitude towards treatment of knee OA among patients age 35 years old and above attending the Orthopaedic Clinic in Hospital Serdang. To my knowledge, there is no previous similar study done in Malaysia.

For this study that had been conducted among respondents of age 35 years old and above, it showed individuals from age 35 until 44 represented 36.3% of total respondents while only 3.3% respondents from age 65 until 74. Akinpelu and Alonge documented that the prevalence of OA was high in population older than 60 years old (Akinpelu et al., 2009), but this study did not reflect the population since it was conducted among general patients and was not specific to patients with OA. Plus more respondents below than 65 years old willing to participate in this study and caused the number of respondents was not equally distributed among age groups.

This study population consisted of 146 (48.7%) males and 154 (51.3%) females. During data collection process, it appeared that females were more easily to approach and willing to participate in the study compared to males. This was the reason why there were more females than males in this study. Fransen (Fransen et al., 2011) and other previous studies documented that women more prone to get knee OA, but this study did not reflect the population although more females visited the Orthopaedic Clinic compared to males.

Since this study was conducted in Malaysia where Malay represents major ethnic in this country, 64.0% from total respondents represented this ethnic. Plus more Malay lived in Serdang or close to Serdang area. This might be one of the possible reasons why more Malay visited the Orthopaedic Clinic in Hospital Serdang.

For education levels, the result showed only 12 (4.0%) respondents received less than secondary education while 180 (60.0%) respondents with secondary education. According to Ministry of Education Malaysia, only primary school is compulsory to attend but most students proceed to secondary school. Since pursuing higher education is not compulsory and depend on people choices, only 108 (36.0%) of total respondents received education up to tertiary level.

For the distribution of respondents according to monthly income, 21.7% and 56.0% of them had no income and income less than RM 3001 respectively. In our study, we found that 97.9% of respondents that received education less than tertiary level had low and moderate income. Since 64.0% of total respondents received education less than tertiary level, 97.9% of them earned low and moderate monthly income.

According to Arthritis Foundation Malaysia, the most common form of OA in Malaysia is knee OA. In our study, for the distribution of respondents according to age and level of knowledge on knee OA, more than 50% of them from each of age group had good knowledge on knee OA. Although our study population did not reflect the population with knee OA, but since prevalence of OA was high in population older than 60 years old, our study showed 27 from 42 respondents of age 60 years old and above had good knowledge on knee OA. It may because they were in group of high risk of getting OA, so they were familiar with this disease. However, there was no previous studies show how age related to knowledge on knee OA but from our study, the result showed there was no association between respondents' age and their level of

knowledge on knee OA.

For gender, more than 50% of males and females had good knowledge on knee OA but between these two groups, our result showed females had poor knowledge compared to males. The results also showed gender had no significant association with respondents' knowledge. Because the study population did not reflect population of knee OA and we didn't study the factors that contributed to the knowledge on knee OA, we couldn't justify why females had poor knowledge than males. Although previous studies stated women more prone to get knee OA, but there was no study on how gender related to the knowledge of knee OA.

As mentioned previously, Malay represents the major ethnic in Malaysia. For knee OA, there was no previous studies show which ethnic in Malaysia was prone to have this disease. From our study, the result showed ethnicities had significant association with level of knowledge, whereby more non-Malays had poor knowledge compared to Malays. Our findings also showed that most of non-Malay aged below than 55, received education up to secondary and had moderate income. There was no similar previous studies done in Malaysia but from the previous study that had been conducted among African American, Whites and Hispanic by Suarez- Almazor, it stated that ethnic minorities were younger, were less educated, and had lower income than Whites (Suarez-Almazor et al., 2005). We assumed that different results were obtained from our study might due to the difference of ethnicities between two countries. Moreover, Chinese and Indian do not represent the ethnic minorities in Malaysia.

For education levels, the number of respondents who received less than secondary education was relatively small but 7 (58.3%) of them had good knowledge on knee OA. 52.8% of respondents that received up to secondary education had poor knowledge compared than those with tertiary education. This study showed significant

association between education levels and level of knowledge on knee OA, but there were no previous similar studies to compare the result. However, Hawker et al stated the need for athroplasty may be greater among those with less educated or lower income due to higher prevalence of exposure to risk factors of OA (Hawker et al, 2002). From our study, we found that 10 (83.3%) of respondents with education less than secondary school had low income. This may suggest the possible reason why in our study, more than half of respondents with education less than secondary school had good knowledge about this disease.

In our study, it appeared that monthly income had significant association with level of knowledge on knee OA. The results showed that 53 (53.5%) of respondents with low income appeared to have poor knowledge on knee OA. As we mentioned previously, 10 (83.3%) of respondents with education less than secondary school had low income. From the study done by Hawker in Ontario, Canada, the results also showed people with lower income appeared to be less educated (Hawker et al., 2002). However the study did not mention how income related to people's knowledge on knee OA. Since we didn't study the factors that contributed to respondents' knowledge on knee OA, so we couldn't justify why monthly income had significant association with level of knowledge on knee OA.

Throughout this study, we found that some of respondents with good knowledge on knee OA appeared to have relatives and friends with this disease. Some of their relatives also had undergone TKR surgery, which might be one of the possible factors that contributed to their knowledge on knee OA and the treatment available for this disease. Besides that, some of female respondents appeared to visit the clinic because of knee problems and had few symptoms similar to knee OA.

For the respondents' attitude towards TKR as treatment for knee OA, the results revealed that more than 50.0% of respondents from each age group had positive

attitude towards TKR. However the results from our study showed ages had no significant association with attitude towards TKR as treatment for knee OA. There was also no similar study to compare the result but based on the study done by Chang and Metha to examine differences in patients' concerns regarding TKR, it appeared that age group did not reveal significant finding (Chang et al, 2004). We assume this might be one of the possible reasons why our study showed no significant association between these two variables.

For gender, 86 (58.9%) of males and 93 (60.4%) of females showed positive attitude towards TKR but between these two gender, more females than males had positive attitude towards TKR. From our study, it showed gender had no significant association with attitude towards TKR. Previous study that had been done by Chang suggested that gender were important in patients' perceptions of costs and benefits of TKR but did not mention whether it was significantly associated with patients' attitude or not.

In our study, ethnicities showed significant association with attitude towards TKR as treatment for knee OA, whereby more Malays had positive attitude towards TKR compared to non-Malays. Although there was no previous study done in Malaysia, but Suarez-Almazor et al and Chang et al had done the studies that showed ethnicity had relation with preference for TKR. In those studies, Whites appeared as the major ethnic and more likely to have positive attitude by being willing to consider the treatment (Chang et al, 2004, Suarez-Almazor et al, 2005). It appeared that major ethnic was more familiar with TKR as they more likely to have relatives or close friends who had undergone the procedure. Meanwhile, minor ethnics such as African American and Hispanic showed negative attitude by less likely to consider treatment because they were less familiar with the treatment and procedure.

The studies also stated that there was no significant difference in physician

recommendations of TKR across ethnic groups. Positive answer on willingness to consider TKR if recommended by their physicians was significantly associated with the benefit and familiarity with TKR (Suarez-Almazor et al., 2005). Although the ethnicities in those studies did not reflect the ethnicities in Malaysia, but since Malay is major ethnic and had positive attitude toward TKR, we might assume the possibility that they also had relatives or close friends who had undergone the TKR procedure. Further study need to be done to confirm it.

In our study, for education levels, it appeared that 75.0% of respondents that received less than secondary education showed negative attitude toward TKR, while more than 50.0% of respondents with secondary and tertiary education had positive attitude toward TKR. The result showed significant association between these two variables, but Hawker et al documented that level of education had no association with individuals' willingness to undergo surgery (Hawker et al., 2002). We might assume these different results might be due to other factors related to education level that could affect respondents' attitude towards TKR as treatment for knee OA.

For the income, most of respondents with negative and positive attitude had moderate monthly income, and the result showed no significant association between these two variables. There was limited literature on financial effect on attitude towards TKR. A study done by Hawker et al also showed that income had no significant association with patients' willingness to have TKR. Study done by Chang and Metha stated that minorities were concerned about finances, but it did not state whether this was one of the reasons for not considering TKR (Chang et al., 2004).

One of the purposes of conducting this study was to determine the association between level of knowledge on knee OA and attitude towards TKR as its treatment. The result showed there was no significant association between these two variables. There was no previous other studies that enabled us to compare the result. We assumed

there were other factors than knowledge on knee OA that might have effect on respondents' attitude, yet was unable to be discovered in this study.

Limitation of the study

First limitation, we were only able to carry out face validity test for the questionnaires since there was limited time given to finish this study. We were unable to carry out other tests to ensure the distributed questionnaires were practical, reliable and valid enough for respondents to answer. Secondly, the study was carried out using sequential sampling method which was hardly represented the entire population. The sampling technique was also hardly randomized, which contributed to the very little degree representativeness of the sampling technique. Because of those disadvantages, the results obtained could not be used to create conclusions and interpretations pertaining to entire population.

Thirdly, we did not study the factors that contributed to the patients' knowledge on this disease and its treatment, and the factors that influenced their attitude towards TKR. Plus this study did not focus on patients with osteoarthritis of knees and the methods used was sequential sampling method, so we might have missed most of the OA of knees which might contribute to better result of this study. Fourthly, we were also unable to assess the knowledge and attitude between patients with and without knee OA. Because of this we couldn't compare which group had good knowledge on knee OA and showed positive attitude towards TKR as its treatment.

Conclusion

Ethnicity, education levels and monthly income showed significant association with respondent's knowledge on osteoarthritis of knees. Variables such as ethnicity and educational levels had significant association with respondent's attitude towards TKR as treatment for knee OA. However, there was no significant association between level of knowledge on knee OA and attitude towards TKR as treatment of for knee OA.

Recommendations

Further study should be done to determine the factors that could contribute to respondents' knowledge on knee OA and factors which influence their attitude towards TKR. In future, we recommended to use simple random sampling method, so bias can be avoided in choosing the participants for the study. For the questionnaire, the proper pre-test should be carried out first to ensure the validity and reliability since the questionnaire was not adopted from any previous study. Any improvement of questionnaires should be done before distributing to the respondents. For the study population, the better results might be obtained if the future study is conducted among patients knee OA that had been recommended to undergo TKR.

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APPENDICES

[illegible]

Research Team

Supervisor	Prof Dr Manohar Arumugam ; Dept. Of Orthopedic manohar.arumugam@gmail.com 03-89472635 019-3694014
Co-Supervisor	Prof Dato' Dr Lye Munn Sann ; Dept. Of Community Health lyems9@yahoo.com 03-89472410 012-3083186
Research Member	Syazlina Binti Abdul Shukor 162091 012-5913690

Budget planning

Item	Price
Photostating	RM 300
Printing	RM 150
Stationery	RM 200
TOTAL	RM650.00

**JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN
YANG MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA**

Research title	: Knowledge And Attitude Towards Treatments Of Knee Osteoarthritis Among Patients 35 Years Old And Above Attending Orthopedic Clinic In Hospital Serdang Between July And August
Study Site	: Hospital Serdang
JKEUPM Ref No.	: FPSK_Jun(13)09
Principal Investigator	: Syazlina Abdul Shukor & Ong Teik Siang
Supervisor	: Assoc. Prof. Dr. Manohar Arumugan

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, received on 1/7/2013.
2. Respondent Information Sheet, Version Malay and English.
3. Consent Form, Version Malay and English.
4. Proposal, Version English.
5. Questionnaire, Version English.

The University Research Ethics Committee, Universiti Putra Malaysia (JKEUPM) operates in accordance to the ICH-GCP Guidelines.

Decision by JKEUPM:

- ☒ Approved
- ☐ Conditionally Approved
- ☐ Disapproved

Please be informed that you are required to submit annual reports, completion reports and "all adverse events, both serious and unexpected" to the committee.

Date of Decision: 2/8/2013


PROFESSOR DR. NORLIJAH OTHMAN
Chairman
University Research Ethics Committee
(JKEUPM)
Universiti Putra Malaysia

JKEUPM Ref No. : FPSK_Jun(13)09

Members of the JKEUPM who reviewed the documents:

Prof. Dr. Lim Thiam Aun

Date of approval: 11/7/2013

Endorsed at JKEUPM Meeting on **2/8/2013**, attended by:

NAME	DESIGNATION	GENDER	TICK IF PRESENT
Prof. Dr. Norlijah Othman	Paediatrics& Dean, Faculty of Medicine and Health Sciences	Female	√
Prof. Dr Zamberi Sekawi	Medical Microbiologist & Deputy Dean of Research and Internationalization, Faculty of Medicine and Health Sciences	Male	√
Prof. Dato' Dr. Lye Munn Sann	Medical Statistician, Dept of Community Health, Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Tengku AizanAbd Hamid	Gerontologist & Director, Institute of Gerontology	Female	√
Prof. Dr. Lekhraj Rampal	Medical Statistician, Dept of Community Health, Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Elizabeth George	Pathologist, Dept of Pathology, Faculty of Medicine and Health Sciences	Female	√
Prof. Dr. Lim ThiamAun	Anesthesiologist, Dept of Surgery, Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Wan Omar Abdullah	Medical Parasitologist, Dept of Medical Microbiology and Parasitology, Faculty of Medicine and Health Sciences	Male	
Prof. Dr. Patimah Ismail	Professor of Biomedicine, Dept of Biomedical Sciences, Faculty of Medicine and Health Sciences	Female	√
Assoc. Prof. Dr. Johnson Stanslas	Pharmacologist, Dept of Medicine, Faculty of Medicine and Health Sciences	Male	√
Assoc. Prof Dr. Mansor Abu Talib	Assoc. Professor of Guidance and Counselling, Dept of Human Development and Family Studies, Faculty of Human Ecology	Male	
Assoc. Prof. Dr. Noritah Omar (Lay Person)	Assoc. Professor of English Language, Dept of English Language, Faculty of Communication and Modern Languages	Female	√
Dr. RojanahKahar (Lay Person)	Lecturer of Dept of Human Development and Family Studies, Faculty of Human Ecology	Female	√
Tan Sri Dato' Napsiah Omar (Lay Person)	Chairman, National Population and Family Development Board	Female	



RESPONDENT'S INFORMATION SHEET

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

STUDY TITLE

Knowledge and Attitude Towards Treatments of Knee Osteoarthritis among Patients 35 Years Old and Above Attending Orthopedic Clinic in Hospital Serdang.

INTRODUCTION

Osteoarthritis is a chronic degenerative joint disease and a leading cause of disability, which it affect 60-70% of the population older than 60 years old. The joint that commonly affected is knee compare to the joint of the hand, and women have 1.7 times the incidence of knee osteoarthritis compared than men. Total knee replacement (TKR) is the surgical and major advance in treatment for this degenerative joint disease. This treatment is usually recommended after the patients experience years or severe of pain and disability due to failure of medical treatment. However, the excellent restoration of function and pain relief that are provided by this treatment still can't convince most of osteoarthritis patients of knee to accept this treatment although they are recommended by their physicians. Therefore, we wanted to determine the patients' knowledge on osteoarthritis of knees and their attitude toward TKR as its treatment, so any actions might be taken in the future to improve the finding results.

WHAT WILL YOU HAVE TO DO?

Answer all the questions in the questionnaires form.

WHO SHOULD NOT ENTER THE STUDY?

Patients that had undergone Total Knee Replacement (TKR).
Patients who are illiterate and cannot answer the questionnaire.

WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

If most of the subjects have poor knowledge on osteoarthritis and the treatments available, we may conduct the programme that can expose the subjects more about this disease.

b) TO THE INVESTIGATOR

Investigators will able to assess knowledge and attitude towards treatments of knee osteoarthritis among subjects 35 years old and above attending Orthopedic Clinic in Hospital Serdang

The investigator will able to find out the association between subjects' sociodemographic status and attitude toward total knee replacement as treatment for knee osteoarthritis.

WHAT ARE THE POSSIBLE RISKS?

There is no risk since the respondents only need to answer the questionnaires.

WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

Yes. All the informations provided are strictly confidential. Information will only presented in a collective manner without mentioning of any individual identity.

WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

You can contact any one of us if you have further inquiries.

Supervisor : Dr.Manohar Arumugam
Co-Supervisor : Prof. Lye Munn Sann
Research Member: SyazlinaBintiAbdul Shukor

0193694014
0123083186
0125913690

HELAIAN PENERANGAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

TAJUK KAJIAN

Pengetahuan dan Sikap terhadap Rawatan Osteoarthritis Lutut di Kalangan Pesakit Berumur 35 dan ke atas yang Menghadiri Klinik Ortopedik Hospital Serdang.

PENGENALAN

Osteoarthritis adalah penyakit degeneratif sendi yang kronik yang selalu dihadapi hampir 60-70% orang yang berusia 60 tahun dan ke atas. Bahagian sendi yang sering terjejas ialah sendi lutut berbanding sendi tangan, dan insiden osteoarthritis lutut yang berlaku dalam kalangan wanita adalah 1.7 kali ganda berbanding lelaki. Pembedahan gantikan sendi lutut adalah pembedahan and rawatan utama untuk penyakit ini. Rawatan ini biasanya disyorkan kepada pesakit setelah rawatan perubatan gagal untuk melegakan kesakitan dan penyakit menjadi semakin teruk. Walau bagaimanapun, rawatan yang mampu mengembalikan fungsi normal lutut serta melegakan kesakitan masih tidak dapat menyakinkan pesakit osteoarthritis lutut untuk menerima rawatan ini walaupun rawatan ini telah disyorkan oleh pihak doktor. Oleh itu, kami ingin menilai pengetahuan pesakit tentang osteoarthritis lutut serta sikap terhadap rawatannya, supaya tindakan dapat diambil untuk meningkatkan keputusan kajian di masa hadapan.

APAKAH YANG PERLU ANDA LAKUKAN?

Menjawab semua soalan yang terdapat di dalam helaian soal selidik.

SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Pesakit yang telah menjalani rawatan pembedahan gantikan sendi lutut.
Pesakit yang buta huruf dan tidak boleh melengkapkan borang soal selidik.

APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PENYERTA?

Jika kebanyakan subjek mempunyai pengetahuan yang lemah tentang osteoarthritis lutut dan rawatannya, kami mungkin akan mengadakan satu program untuk mendedahkan subjek dengan lebih jelas tentang penyakit ini.

b) KEPADA PENYELIDIK?

Penyelidik dapat menilai pengetahuan dan sikap terhadap rawatan osteoarthritis lutut dalam kalangan subjek berumur 35 tahun dan ke atas yang menghadiri Ortopedik Klinik do Hospital Serdang.

Penyelidik boleh mengetahui hubung kait antara status sosiodemografi subjek dengan sikap terhadap pembedahan gantikan sendi lutut sebagai rawatan untuk osteoarthritis lutut.

ADAKAH IA BERISIKO?

Tiada sebarang risiko yang akan dihadapi kerana responde hanya perlu melenkapkan borang soal selidik.

ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Ya. Segala maklumat yang diberikan oleh responden adalah sulit. Segala data yang dibentangkan adalah secara berkumpulan dan identiti responden tidak akan didedahkan.

SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

Sila hubungi penyelidik jika terdapat sebarang pertanyaan.

Penyelia : Dr.Manohar Arumugam
Penyelia Bersama: Prof. Lye Munn Sann
Ahli Kajian : Syazlina Binti Abdul Shukor

0193694014
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CONSENT FORM (RESPONDENT)

**RESEARCH TITLE : Knowledge and Attitude Towards Treatment of
Osteoarthritis of Knee among Patients 35 Years Old and Above
Attending Orthopedic Clinic in Hospital Serdang.**

RESEARCHER : Syazlina Binti Abdul Shukor

162091

I Identity Card No.
address.....

.....hereby voluntarily agree to take part in the clinical
research *(questionnaire study) specified above.

I have been informed about the nature of the clinical research in terms of methodology, possible
adverse effects and complications (as written in the Respondent Information Sheet). I understand that
I have the right to withdraw from this clinical research at any time without assigning any reason
whatsoever. I also understand that this study is confidential and all information provided with regards
to my identity will remain private and confidential.

I* wish / do not wish to know the results of the tests performed on any samples taken from me.

* delete where necessary

Signature
(Respondent)

Signature
(Witness)

Date :

Name :

I/C No. :

I confirm that I have explained to the respondent the nature and purpose of the above –mentioned
clinical research.

Date

Signature
(Researcher)

BORANG PERSETUJUAN RESPONDEN

**TAJUK PENYELIDIKAN : Pengetahuan dan Sikap terhadap Rawatan
Osteoarthritis Lutut di Kalangan Pesakit Berumur 35 dan Ke Atas Yang
Menghadiri Klinik Ortopedik Hospital Serdang**

PENYELIDIK : Syazlina Binti Abdul Shukor

162091

Saya..... No Kad Pengenalan.
beralamat.....
.....dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam
menyertai penyelidikan klinikal *(pengajian soal selidik) seperti yang disebut di atas.

Saya telah diberi penjelasan secara menyeluruh mengenai dasar penyelidikan klinikal dari segi
metodologi, risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya
memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi
sebarang alasan. Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan
dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang dijalankan ke atas sampel
yang diambil dari saya.

*potong yang tidak berkenaan

Tandatangan
(Responden)

Tandatangan
(Saksi)

Tarikh :

Nama :

No. K/P:

Saya mengesahkan bahawa saya telah menerangkan kepada responden sifat dan tujuan penyelidikan
klinikal tersebut di atas.

Tarikh

Tandatangan
(Penyelidik)

6. Pekerjaan / *Occupation* : _____

☐

Tidak bekerja / *Not working*

7. Pendapatan sebulan / *Monthly income* :

☐

No income

☐

≤ RM 1000

☐

RM 1001 –RM 2000

☐

RM2001-RM3000

☐

RM 3001 –RM 4000

☐

RM 4001-RM 5000

☐

≥ RM5000

8. Apakah alasan anda mengunjungi Klinik Ortopedik? Sila nyatakan.

What is your reason for attending Orthopaedic Clinic? Please state.

9. Selain yang disebutkan diatas, adakah anda menghidap penyakit lain?

Beside what had mentioned above, do u have other diseases ?

☐

Darah tinggi / *High blood pressure*

☐

Kencing manis / *Diabetes*

☐

Penyakit jantung / *Heart diseases*

☐

Obesiti / *Obesity*

Lain-lain. Sila nyatakan /*Others. Please state*

SECTION B: Pengetahuan respondents tentang osteoarthritis lutut /Knowledge of respondents about osteoarthritis of knee.

Section ini adalah untuk mengetahui sejauh manakah pengetahuan serta pemahaman anda tentang penyakit in.

This section is to know how far your knowledge and understanding about this diseases.

Sila jawab semua **SEMUA** soalan di bawah serta tanda (√) pada **SEMUA** jawapan yang disediakan. Tandakan pada petak yang berkenaan.

*Please answer **ALL** of the following questions and tick (√) **ALL** the answers provided. Please put a tick on the related boxes.*

	Soalan /Questions	Betul True	Salah False
A	Etiologi Osteoarthritis Lutut <i>Etiology of Osteoarthritis of Knee</i>		
1.	Punca utama osteoarthritis lutut : <i>The main cause of osteoarthritis of knees are :</i>		
i.	Usia Tua. <i>Old Age.</i>		
ii.	Berlaku kecederaan di lutut. <i>Injury of knee</i>		
iii.	Penyakit yang menjejaskan osteoarthritis lutut. <i>Diseases affect the joint.</i>		
iv.	Kehilangan cecair di sendi lutut. <i>Loss of fluid production in joint.</i>		
v.	Obesiti. <i>Obesity.</i>		
vi.	Aktiviti pekerjaan yang berat. <i>Heavy occupational activity.</i>		
B	Antara tanda-tanda osteoarthritis lutut ialah : <i>The signs of osteoarthritis of knee are :</i>		
i.	Sakit lutut. <i>Pain on knee.</i>		
ii.	Sakit sendi lutut menjadi lebih teruk apabila menaiki dan menuruni tangga. <i>Pain on knee can be more severe when climbing up or down staircase.</i>		
iii.	Lutut membengkak. <i>Knee become swelling.</i>		
iv.	Osteoarthritis lutut menjadi lebih teruk jika menggunakan tandas mencangkung. <i>Osteoarthritis of knee can be more severe if use squatting toilet.</i>		
v.	Kesukaran untuk meluruskan lutut. <i>Difficulty to straighten a bend knee.</i>		
vi.	Lutut terasa hangat. <i>Knee become warm.</i>		

C	Berkenaan rawatan untuk osteoarthritis lutut : <i>Regarding treatments for osteoarthritis of knee :</i>		
i.	Fisioterapi boleh melegakan simptom osteoarthritis lutut. <i>Physiotherapy can relieve symptoms of osteoarthritis of knee.</i>		
ii.	Penggunaan ubat tahan sakit untuk satu tempoh yang panjang bagi melegakan kesakitan adalah tidak bagus dan akan mendatangkan kesan sampingan. <i>Use of pain killer for a long period of time to relieve pain is not good and can cause side effects.</i>		
iii.	Penggunaan tongkat sewaktu berjalan dapat membantu mengurangkan kesakitan. <i>Use of cane or walking sticks during walking can help in reducing the pain.</i>		
iv.	Suntikan ubat di lutut boleh menyembuh osteoarthritis lutut sepenuhnya. <i>Medicine injection to the knee can fully heal osteoarthritis of knee.</i>		
v.	Penggunaan herba boleh menyembuh osteoarthritis lutut sepenuhnya. <i>Use of herbs can fully heal osteoarthritis of knee.</i>		
vi.	Terapi Ayurveda boleh menyembuh osteoarthritis lutut secara sepenuhnya. <i>Ayurveda therapy can fully heal osteoarthritis of knee.</i>		
vii.	Rawatan acupuncture boleh menyembuh osteoarthritis lutut secara sepenuhnya. <i>Acupuncture therapy can fully heal osteoarthritis of knee.</i>		
viii.	Pembedahan gantian sendi lutut boleh membantu melegakan kesakitan. <i>Total knee replacement can help to relieve pain.</i>		
ix.	Selepas menjalani pembedahan gantian sakit lutut, pesakit tidak perlu menjalani sebarang pembedahan lagi. <i>After undergo total knee replacement, patients don't have to undergo further surgery anymore.</i>		
x.	Pesakit yang obesiti mempunyai kadar yang lebih cepat untuk gantian sendi lutut menjadi haus dan mungkin memerlukan pembedahan semula lebih awal. <i>Patients who are obese will have a faster rate of wear and tear of total knee replacement and may need earlier revision surgery.</i>		
xi.	Kehadiran logam di dalam lutut akan menyebabkan kesakitan yang lebih teruk ketika hujan dan cuaca sejuk. <i>Presence of metal in the knee can cause more pain during rain and cold weather.</i>		
xii.	Pembedahan gantian lutut tidak seharusnya dijalankan terhadap pesakit diabetes kerana jangkitan di lutut akan berlaku. <i>Total knee replacement should not be done on diabetes patients as they may get infected.</i>		
xiii.	Selepas pembedahan gantian sendi lutut, lutut tidak boleh dibengkokkan. <i>After total knee replacement, the knee cannot be bent.</i>		

Markah / Test score:

SECTION C: Pendapat terhadap pembedahan gantian sendi lutut sebagai rawatan osteoarthritis lutut / Attitude towards total knee replacement as treatment for knee osteoarthritis.

Bahagian ini adalah untuk mengetahui tentang pendapat anda terhadap pembedahan gantian sendi. Sila jawab **SEMUA** soalan di bawah. Tandakan (✓) di petak skala yang berkenaan.
*This section is to know your opinion regarding total knee replacement. Please answer **ALL** the following questions. Put a tick (✓) on the related scale boxes.*

1- Sangat tidak setuju/ *Strongly disagree*

2- Tidak setuju/ *Disagree*

3- Tidak pasti/ *Unsure*

4- Setuju/ *Agree*

5- Sangat setuju/ *Strongly agree*

No	Soalan / Questions	1	2	3	4	5
1	Saya akan menjalani pembedahan gantian sendi lutut jika dinasihati oleh doktor. <i>I would go for a total knee replacement if advised by the doctor.</i>					
2	Saya akan mendapatkan pandangan lain sebelum menjalani pembedahan gantian sendi lutut. <i>Before going for a total knee replacement, I would get a second opinion.</i>					
3	Jika dengan mengambil ubat tahan sakit setiap hari dapat melegakan kesakitan lutut yang berpanjangan disebabkan osteoarthritis lutut, saya tidak akan menjalani pembedahan gantian sendi lutut walaupun dinasihati doktor. <i>If I can get relief from chronic knee pain due to osteoarthritis by taking pain killers daily, I will not go for total knee replacement even if advised by my doctor to do so.</i>					
4	Jika saya mengalami osteoarthritis yang parah melibatkan kedua belah lutut, saya sanggup menjalani pembedahan ke atas dua belah lutut secara serentak dalam satu operasi pembedahan. <i>If I have severe osteoarthritis involving both knees, I would like to get both knees operated simultaneously in a single operation.</i>					
5	Saya akan mengelak untuk melakukan pembedahan gantian sendi lutut sebelum berumur 60 tahun walaupun saya mengalami sakit lutut yang parah. <i>I would avoid doing a total knee replacement before 60 years even if I had severe knee pain.</i>					
6	Saya tidak akan menjalani pembedahan gantian sendi lutut jika saya menghidap kencing manis. <i>If I have diabetes I would not go for total knee replacement.</i>					
7	Jika rakan atau ahli keluarga saya telah menjalani pembedahan gantian sendi lutut dengan jayanya, saya akan lebih yakin untuk menjalani pembedahan ini jika saya mengalami osteoarthritis lutut. <i>If my friend or family member has undergone a successful total knee replacement, I would be encouraged to do the same if I have pain osteoarthritis of the knees.</i>					

8	Saya tidak akan menjalani pembedahan gantian sendi lutut melainkan kesakitan ini mengganggu aktiviti seharian saya. <i>I will not go for a total knee replacement unless the knee pain restricts my activities.</i>					
9	Saya tidak akan menjalani pembedahan gantian sendi lutut jika berat badan saya berlebihan. <i>I will not do a total knee replacement if I am overweight.</i>					
10	Saya tetap akan menjalani pembedahan gantian sendi lutut walaupun saya telah diberitahu mengenai komplikasinya. <i>I would go ahead with total knee replacement even though I have been told about the complications.</i>					

Feedback

Soalan/ Questions	Lemah Poor	Sederhana Moderate	Baik Good
Arahan yang diberikan disetiap seksyen mudah difahami. <i>The instructions given for each section are easy to understand.</i>			
Soalan yang diberikan mudah difahami <i>The questions given are easy to understand.</i>			

Cadangan/ Suggestion
