UNIVERSITI PUTRA MALAYSIA

SOCIO-DEMOGRAPHIC PROFILES, KNOWLEDGE, ATTITUDES AND PRACTICES OF HOSPITAL MALNUTRITION AMONG HEALTHCARE WORKERS IN UNIVERSITI PUTRA MALAYSIA TEACHING HOSPITAL

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(Final Thesis)

BY

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ABSTRACT

SOCIO-DEMOGRAPHIC PROFILES, KNOWLEDGE, ATTITUDES AND PRACTICES OF HOSPITAL MALNUTRITION AMONG HEALTHCARE WORKERS IN UNIVERSITI PUTRA MALAYSIA TEACHING HOSPITAL

NABIHAH HANNAN BINTI RAZALEIGH

Identification and diagnosis of malnutrition in the hospital setting is difficult due to a consistent lack of nutrition education and training received by healthcare providers. For a successful practice of hospital malnutrition based on the recommended guidelines, a multidisciplinary approach from different healthcare workers is needed. Therefore, the study aims to identify the association of socio-demographic profiles, knowledge and attitude with practice of hospital malnutrition among healthcare workers in Hospital Pengajar Universiti Putra Malaysia (HPUPM). This study was a cross-sectional study involving 47 clinical healthcare workers in Hospital Pengajar Universiti Putra Malaysia (HPUPM). A pretested self-administered online questionnaire was sent via email to assess knowledge and attitude with hospital malnutrition practice. The socio-demographic profiles were obtained from a self-administered questionnaire. The findings showed that socio-demographic profiles of respondents were majority female healthcare workers with mean age of 31.57 ± 8.25 years. The respondents obtained high score for knowledge (60.38±6.30, max score = 75), attitudes (20.79±3.32, max score = 25) and practice (19.15±4.69, max score = 28). There was no association of gender ($t = 0.156$, $p = 0.267$), age ($F = 0.306$, $p = 0.738$), designation at hospital ($F = 2.850$, $p = 0.069$) and years of working experience ($t = 0.062$, $p = 0.386$) with practice on malnutrition. Meanwhile, attitudes on malnutrition ($r = 0.313$, $p = 0.032$) was positively associated with practice on malnutrition. Achieving good hospital malnutrition practice should be linked to a set of efforts that include knowledge and training and focus on behaviour and attitudes.

ABSTRAK

PROFIL SOSIODEMOGRAFI, PENGETAHUAN, SIKAP DAN AMALAN TENTANG MALPEMAKANAN DI HOSPITAL DALAM KALANGAN STAF KESIHATAN KLINIKAL DI HOSPITAL PENGAJAR UNIVERSITI PUTRA MALAYSIA

NABIHAH HANNAN BINTI RAZALEIGH

Identifikasi dan diagnosis malpemakanan di hospital menjadi satu cabaran disebabkan oleh kurang pendidikan dan latihan pemakanan yang berterusan diterima oleh staf kesiharan klinikal. Untuk memastikan amalan hospital malpemakanan yang bagus berdasarkan garis panduan yang ditetapkan, pendekatan oleh staf kesihatan dari pelbagai disiplin diperlukan. Oleh itu, tujuan penyelidikan ini dijalankan adalah untuk mengkaji kaitan antara sosiodemografi profil, pengetahuan, sikap dan amalan tentang hospital malpemakanan antara staf kesihatan klinikal di Hospital Pengajar Universiti Putra Malaysia (HPUPM). Satu kajian keratan rentas yang melibatkan 47 staf kesihatan klinikal di HPUPM telah terlibat dalam kajian ini. Sosiodemografi profil telah diperoleh daripada borang kendiri kaji selidik. Tahap pengetahuan, sikap dan amalan tentang hospital malpemakanan telah dinilai menggunakan "*The Knowledge, Attitudes and perceived Practices (M-KAP) Questionnaire*". Kajian ini telah dijalankan secara dalam talian dan dihantar pada setiap individu melalu e-mel persendirian. Kajian mendapati bahawa profil sosiodemografi responden majoriti di kalangan staf kesihatan perempuan yang mempunyai min umur 31.57 ± 8.25. Responden mempunyai skor pengetahun (60.38 ± 6.30, markah maksimum = 75), sikap (20.79 ± 3.32, markah maksimum = 25) and amalan (19.15 ± 4.69, markah maksimum = 28) yang tinggi. Selain intu, kajian mendapati bahawa tiada kaitan antara sosiodemografi profil, jantina ($t = 0.156$, $p= 0.267$), umur ($F = 0.306$, $p = 0.738$), profesion di hospital ($F = 2.850$, $p = 0.069$) dan tahun pengalaman bekerja ($t = 0.062$, $p = 0.386$) dengan amalan tentang malpemakanan. Walau bagaimanapun, terdapat kaitan positif antara sikap tentang hospital malpemakanan ($r = 0.313$, $p = 0.032$) dengan amalan

tentang hospital malpemakanan. Dalam menambah baik amalan antara pekerja-pekerja kesihatan di hospital, bukan sahaja pengetahuan memainkan peranan yang penting, namun pengubahan sikap pekerja-pekerja kesihatan perlu sejajar bersama untuk memastikan amalan malpemakanan yang bagus.

1 INTRODUCTION

1.1 Background of Study

Malnutrition can be defined as a state due to lack of intake or nutrition uptake that leads to changes in body composition, leading to physical and psychological changes and impaired clinical outcomes from disease (Cederholm et al., 2017). Disease-related malnutrition is a health issue arising and affecting both developed and developing countries worldwide (Correia et al., 2017). In a hospital setting, malnutrition practice prioritizes the importance of a quick and simple nutritional screening method using a validated tool to assess malnutrition risk prior to patient admission by all healthcare workers (Cederholm et al., 2017). Those at risk of or suffering from malnutrition should have an immediate referral to the nutrition and dietetic service (Lamb et al., 2009)

Hospital malnutrition is increasing in prevalence and yet still under-noticed and under-managed (Correia et al., 2017). The prevalence of hospital malnutrition depends on various factors of the study population, process and procedure for screening and assessment, and hospital settings. In general, it is predicted that 20 – 50% of patients in hospitals are malnourished during admission, and also around 33.3% (one third) of nourished hospitalised patients during admission could be at risk of malnutrition during the hospital stay (Inciong et al., 2020a). For example, in Malaysia, approximately 61.9% and 43.5% of the patients were malnourished upon hospital admission based on the Malnutrition Screening Tool (MST) and Subjective Global Assessment (SGA) scores for cancer patients (Norshariza et al., 2017). In the hospital setting, malnutrition can progress due to an effect of inadequate nutrient intake, a decline in absorption or loss of nutrients due to disease state or trauma, or increasing metabolic needs during illness occurrence (Correia et al., 2017).

Malnutrition is associated with a high risk of morbidity and mortality, increasing the hospital stay period, increasing frequency of re-admission, and increasing hospital and treatment costs (Inciong et al., 2020a). In addition, poor nutritional conditions due to malnutrition led to higher costs of hospital bills and brought a substantial burden to the healthcare system's economy (Inciong et al., 2020b). Furthermore, aside from prolonged hospitalisation period, additional follow-up regimens and tests, artificial feeding and drugs in treating complications due to malnutrition in patients needed to be considered; therefore, doubles the burden on medical cost and the healthcare system budget (León-Sanz et al., 2015).

Guidelines have been studied and proposed for malnutrition practice in the hospital to guide healthcare workers in dealing with this issue among inpatients. Therefore, for successful practice of hospital malnutrition, a multidisciplinary approach from different healthcare workers is needed. In the hospital setting, identification and diagnosis of malnutrition in hospitals become a challenge due to the continuous lack of nutrition education and training received by healthcare providers despite the affirmation that malnutrition is high in prevalence and affects the health status of patients and healthcare costs (Silver et al., 2018). The Council of Europe claimed that healthcare professionals require better education on malnutrition as insufficient knowledge and adverse interest and attitudes towards nutrition are common barriers to good practice (Bauer et al., 2015). In the concept of quality care, healthcare providers require an intentionally more comprehensive and interdisciplinary process to help tackle malnutrition issues (Tappenden et al., 2013). Based on the Integrated Nutrition Pathway for Acute Care (INPAC), different roles from staff are required to help prevent, detect, and treat malnutrition (Laur et al., 2016). Multidisciplinary approach to assessing the nutritional status of a patient is shown to reduce delay in nutritional support by 47% and length of hospital stay by two days for malnourished patients and three days for severely malnourished patients (Wolf et al., 2020). Therefore, the study aims to assess the association between socio-

demographic profiles, knowledge and attitude on malnutrition with the practice of hospital malnutrition among healthcare workers in Hospital Pengajar Universiti Putra Malaysia (HPUPM).

1.2 Problem Statement

Hospital malnutrition is increasing in prevalence and yet still under-noticed and under-managed (Correia et al., 2017). As early identification and treatment of malnutrition generally improves patient outcomes and appears to be cost-effective, and this requires collaboration among multiple clinical disciplines (Kruizenga et al., 2003). Ensuring quality practice requires a multifactorial approach. These include providing education and training and also behavioural changes (Laur et al., 2016). The International Clinical Practice Guidelines (CPG) have provided recommendations on ways to assess and screen the nutritional status and ways to treat and prevent malnutrition in hospitals (Bauer et al., 2015). However, with current guidelines implemented in hospital settings, an important factor for attachment towards the CPG recommendations is appropriate and adequate knowledge of and positive attitudes towards malnutrition among healthcare workers (Bauer et al., 2015). A Dutch prospective study in a general medical ward of a teaching hospital analyses the practice of diagnosing and treating malnutrition among inpatients by doctors, medical students and nurses before, during and after hospitalisation (Vanderwee et al., 2011). Results have shown that only 15.3% of inpatients had a nutritional assessment during the first 72 hours after admissions by doctors, nurses did 29.9% of inpatients and 52.8% inpatients were done by medical students. Thus, nutritional interventions were conducted less than 40% of all malnourished patients in the teaching hospitals (Vanderwee et al., 2011).

According to Donabedian's model, structures (e.g. knowledge and attitudes of the staff) can have an impact on processes (e.g. routine screening and subsequent interventions), which

in return influences the outcomes of residents or patients (e.g. prevalence or incidence of a problem) in an institution (Donabedian, 1966). Based on past studies, knowledge and perceptions of malnutrition by medical, allied health and nursing staff are not well understood and this includes the responsibility for identifying and managing malnutrition (Swan et al., 2020). Aside from that, a study by Powell-Tuck et al., (2012) also assessed nutrition knowledge in malnutrition practice done among healthcare workers in the United Kingdom and found that they have poor nutrition knowledge. This is due to basic nutrition knowledge being moderately achieved among clinical healthcare workers and greater emphasis on nutrition training should be considered in recognition and treatment of malnutrition (Powell-Tuck et.al, 2012).

Furthermore, this study is primarily concerned with the relationship between knowledge and attitude and malnutrition practice in hospital settings. Despite the availability of research studies, much research and literature has been conducted in Malaysia on knowledge, attitude, and practice (KAP) on malnutrition prevention for a specific group of people, mainly mothers, children, and the elderly (Charles Shapu et al., 2020; Mirsanjari et al., 2016). What's more, there are no current or updated published studies on the practice of hospital malnutrition among Malaysian healthcare workers. It is critical to first understand the environment through a potential knowledge, attitudes, and self-reported practise questionnaire. This is to assist in better understanding of commonly known information, attitudes, and factors that may have a significant impact on a specific behaviour. There is no published research on this study in Malaysia, based on previous literature; thus, there is a need and importance in assessing healthcare workers' knowledge and attitudes on malnutrition practice in Malaysian hospital settings. The results obtained will help better understand the understanding and practice of malnutrition among healthcare workers to ensure better quality care and service is provided to patients.

1.3 Research questions

1. What are the socio-demographic profiles, knowledge, attitude and practice of malnutrition among healthcare workers?

2. What is the association between socio-demographic profiles, knowledge, and attitude with practice of hospital malnutrition among healthcare workers?

1.4 Significance of Study

This study is important to be conducted to assess the level of knowledge and attitude of health care workers in the hospital regarding the practice of hospital malnutrition. Specifically, the malnutrition issue assessed in the study correlates with the delivery of malnutrition care in hospitalised patients. To ensure efficient care regarding malnutrition practice issues in hospitals, the healthcare workers involved should work efficiently and in a multidisciplinary manner. In addition, the assessment of hospital malnutrition practices is included in the data, this will help provide better training and education towards the hospital workers. The training would improve inpatients' understanding of malnutrition issues and how treatment and management should be delivered to reduce malnutrition morbidity and mortality rates. Therefore, this opportunity will help increase the knowledge and awareness of healthcare workers to provide quality care and practice towards malnutrition patients.

Furthermore, from the data obtained, this will help fill in research gaps regarding the assessment of knowledge, attitude, and malnutrition practice in the hospital among healthcare workers in the country. Assessing KAP on hospital malnutrition aids in gaining a better understanding of knowledge gaps, beliefs, and behavioural patterns that may be useful in identifying the need and problems that must be addressed to implement a better intervention in malnutrition management. Furthermore, the KAP survey assists programme managers in establishing programme priorities based on highlighted issues and problems identified in health

workers' malnutrition assessment and management. The KAP data will provide programme managers and their staff with the fundamental information needed to make a strategic intervention plan to improve the quality of hospital malnutrition practice. Aside from that, no notable research has been conducted to assess health workers' knowledge and attitudes toward malnutrition practise in Malaysia. The majority of research is conducted in various countries, with most assessments focusing on malnutrition issues among various study populations. As a result, this study will serve as a baseline for future researchers researching the same field.

1.5 Objectives

General objective: To determine practice of hospital malnutrition and its association with socio-demographic profiles, knowledge and attitude on malnutrition among healthcare workers in Hospital Pengajar Universiti Putra Malaysia (HPUPM).

Specific objective:

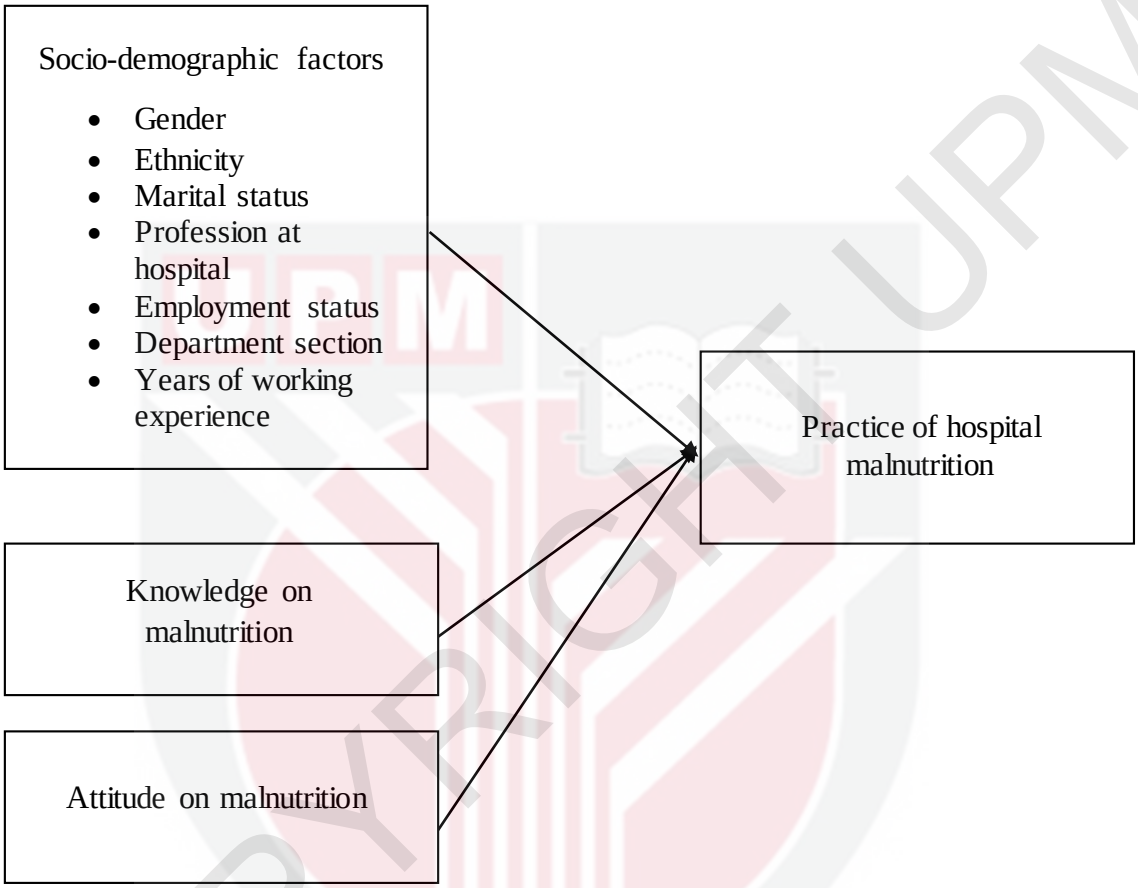
1. To determine the socio-demographic profiles, knowledge, attitude and practice of hospital malnutrition
2. To determine the mean differences between socio-demographic profiles (age group, gender, duration of working experience and designation at hospital) with practice of hospital malnutrition
3. To determine the associations between knowledge and attitude in malnutrition with practice of hospital malnutrition

1.6 Hypothesis

1. There are significant mean differences between socio-demographic background (age, gender, years of working experience and designation at hospital) with the practice of hospital malnutrition among healthcare workers

2. There are significant associations between knowledge and attitude of malnutrition with practice of malnutrition among healthcare workers

1.7 Conceptual Framework



2 LITERATURE REVIEW

2.1 Malnutrition Definition and Criteria

Malnutrition is a growing issue which has been linked to an increased risk of mortality, morbidity, length of stay, and readmission (Poulia et al., 2017). To ensure early detection and treatment of malnutrition, a simple and global definition of malnutrition that is easily understood and applied by all health professions in all health care settings is required (Rojer et al., 2016).In addition, the definition of malnutrition should be applicable and widely accepted to compare malnutrition prevalence and rates among health care settings in different countries globally (Rojer et al., 2016). Two malnutrition definitions and criteria widely used approaches are the American Society for Enteral and Parenteral Nutrition (ASPEN/AND) and European Society for Clinical Nutrition and Metabolism (ESPEN).

In 2012, the American Society for Enteral and Parenteral Nutrition (ASPEN/AND) published a set of six clinical criteria: reduced energy intake, unintentional weight loss, loss of subcutaneous fat, loss of muscle mass, fluid accumulation, and reduced grip strength (Sánchez-Rodríguez et al., 2019). ASPEN/AND diagnosis of malnutrition considers at least two from the six criteria proposed, a chronic illness, or social or environmental circumstances to determine if malnutrition presence is severe or non-severe (Sánchez-Rodríguez et al., 2019).

The Global Leadership Initiative on Malnutrition (GLIM) has recently proposed a new malnutrition definition in 2019 (Cederholm et al., 2019). The definition of malnutrition based on GLIM considers a four-step process whereby the first step is to screen for malnutrition risk (Cederholm et al., 2019). The screening includes the usage of validated screening tools appropriate to identify malnutrition risk of patients. Based on GLIM, some of the validated screening tools include Malnutrition Universal Screening Tool (MUST) and Subjective Global Assessment (SGA) (Cederholm et al., 2019). The second step is the diagnostic assessment

which is divided into two categories; phenotype and etiologic (Cederholm et al., 2019). The phenotype category includes weight loss (%), reduced body mass index (BMI)(kg/m^2), and reduced muscle mass (Cederholm et al., 2019). The etiologic category of diagnostic assessment includes reduced food intake/assimilation and disease burden/inflammatory condition (Cederholm et al., 2019). The third step is to diagnose malnutrition using phenotypic and etiologic criteria (Cederholm et al., 2019).The last step of the malnutrition GLIM diagnostic criteria is determining the severity of malnutrition (Cederholm et al., 2019). Severity is determined based on the phenotype criterion, where the suggested phenotypic metrics for grading severity based on GLIM are Stage 1 (moderate) and Stage 2 (severe) malnutrition (Cederholm et al., 2019). Therefore, correct screening using appropriate screening tools and proper assessment should be emphasised among patients based on the new GLIM guidelines provided to ensure an accurate diagnosis of malnutrition in hospital patients (Cederholm et al., 2019)

2.2 Prevalence of Hospital Malnutrition

Hospital malnutrition or disease-related malnutrition has been associated with deterioration of nutritional status among inpatients in hospital settings. It can be seen from a study that concludes that the decrease in nutritional status during the period of hospitalization leads to malnutrition which happens in 20-60% of inpatients but also affects around a lower percentage of 7-16% of outpatients settings (Poulia et al., 2017).

Van Vliet et al. conducted a study in a Dutch hospital using Patient-Generated Subjective Global Assessment (PG-SGA) to assess the nutritional status of hospitalised patients (2020). The PG-SGA was used on 584 patients in four different wards during the study (van Vliet et al., 2020). According to the study's findings, the prevalence of PG-SGA was 31% at admission, 56% on day 5, 66% on day 10, and 79% on day 15. (van Vliet et al., 2020). As a result, the

study concludes that a high prevalence (31%) of malnutrition was observed during admission, and the prevalence of malnutrition is higher among patients who stay in the hospital for a longer period of time (van Vliet et al., 2020). According to the findings of the study, approximately 30% of well-nourished patients at the time of admission are malnourished prior to discharge (Van Vliet et al. in 2020).Consistent with these findings, Permsombut et al. (n.d.) assessed the nutritional status of patients using the Subjective Global Assessment (SGA) among general population of 145 hospitalised patients and reported that the prevalence of malnutrition during admission from 40% increased to 46.9% of malnourished patients at discharge in Thailand (Inciong et al., 2020a).

Aside from that, in Malaysia, the prevalence of hospital malnutrition among cancer patients was more at risk than other disease-related malnutrition. A study conducted by Norshariza et al. (2017) screened for malnutrition risk using Malnutrition Screening Tool (MST) and Subjective Global Assessment (SGA) and results showed approximately 61.9% and 43.5% of the patients were malnourished upon admission based on the MST and SGA scores, respectively. To add on, about 56.9% and 21.6% of the malnourished patients, according to MST, were at Stage 4 and Stage 3 cancer, respectively. Meanwhile, 69.7% of the malnourished respondents, based on SGA, were at Stage 4 cancer. In addition, (Fazimah, 2013) also screened malnutrition risk among geriatric hospitalised patients and found results revealing 35.4% of patients are malnourished, with women having a higher proportion (43.5%) compared to men (22.4%). Therefore, identifying risk for malnourished patients in hospitals enables healthcare workers to provide appropriate nutritional intervention to improve patients' overall condition (Fazimah, 2013).

2.3 Malnutrition Knowledge among Healthcare Workers

Assessing malnutrition in hospitals is essential for providing treatment and care in patients particularly those with disease-related malnutrition (Wolf et al., 2020). The ability of healthcare workers to be efficient in identifying malnutrition in adult patients is an important skill to practise; therefore, to aid in skill development, healthcare workers in the hospital should prioritise accurate and receptive knowledge of malnutrition (Wolf et al., 2020).

In confronting malnutrition issues, all healthcare workers should achieve a team of multidisciplinary approaches to ensure malnourished patients receive optimal care to improve their nutritional status. Results from a study by Powell-Tuck et al., (2012) when assessing malnutrition knowledge among healthcare workers in a tertiary hospital showed that dietitians' average score was significantly higher compared to other groups of pharmacists (42.6%), doctors (35.8%), nurses (25.4%) and the lowest among medical students in United Kingdom (25.4%). According to the study, half of the nurses and doctors surveyed did not know how to calculate patients' body mass index (BMI) (Powell-Tuck et al., 2012). According to the United Kingdom study's findings, healthcare workers' basic understanding of nutrition is still lacking, and more work needs to be done to improve malnutrition treatment. However, another study conducted assessed malnutrition knowledge among nurses using the Knowledge of Malnutrition-Geriatric (KoM-G) questionnaire found that the professions involved in treating malnutrition in hospitals had the most incorrect answers on malnutrition (Bauer et al., 2015). This demonstrated that nutritional care responsibilities are low, and there is still a lack of knowledge for a multidisciplinary approach to treating malnutrition in hospitals, as this is one of the factors contributing to inadequate nutritional care (Bauer et al., 2015). A study by Mogre et al., (2017) assessed malnutrition knowledge among 104 nurses working at four hospitals in Tamale metropolis, adding to the consistent findings. The mean knowledge score for nurses in

the study was 54%, which was found to be slightly above average and could be considered inadequate in terms of knowledge about malnutrition (Mogre et al., 2017). It shows that from the studies stated, that poor malnutrition knowledge is achieved due to its lack of training receieved among healthcare workers which could have impacted the basic understanding of nutrition (Powell-Tuck et al., 2012).

2.4 Practice of Hospital Malnutrition among Healthcare Workers

Malnutrition practice in hospitals prioritises the importance of quick and simple nutritional screening methods using a validated tool to assess malnutrition risk prior to patient admission by all healthcare workers (Cederholm et al., 2017). Nutrition intervention and assessment have been shown to be effective practises in reducing adverse clinical outcomes, length of hospital stay, and morbidity and mortality risk in malnourished patients (Bavelaar et al., 2008). To ensure that patients receive effective malnutrition care, multiple clinical disciplines in the hospital must work together (Kelly et al., 2013).Therefore, early detection and treatment of malnutrition play an important role for the benefit of patients and healthcare systems as early detection should be done by healthcare workers; however, despite growing evidence for its benefits, yet malnutrition is still under-diagnosed (Bavelaar et al., 2008).

Bavelaar et al. (2008) conducted a study to describe current practice in diagnosing and treating hospital malnutrition among medical doctors, medical students, and nurses before, during and after hospitalisation in Amsterdam. According to the findings, among the 31.9 % of malnourished inpatients, medical doctors performed nutritional assessments on 15.3%, medical students on 52.8 %, and nurses on 29.9 % of their patients (Bavelaar et al., 2008). Medical doctors were the most capable of distinguishing between malnourished and well-nourished patients as a basis for nutritional assessment, though studies indicated that it was still insufficient in some cases (Bavelaar et al., 2008). Another study also showed similar results

whereby studies show inadequate practice for medical doctors and nurses during malnutrition assessment (Lennard-Jones et al., 1995). Results found that one-third of nurses did not assess a patient's weight, and almost half of the medical doctors did not know if a patient had been weighed before regardless of understanding the importance of weight measurement prior to admission (Lennard-Jones et al., 1995). This shows inconsistent practice among healthcare providers and a lack of awareness regarding the importance of malnutrition in hospitals.

In 2001, the Dutch Dietetic Association reported that only 50% of the malnourished patients from a national prevalence survey (n = 6150, malnourished = 800) were identified by the healthcare workers (Kruizenga et al., 2003). Similar findings were also found in different countries; whereby Scottish in-patients showed a prevalence of malnutrition of 13% and 75% of malnourished patients were not diagnosed as having risk of malnutrition by healthcare workers (Kelly, 2000). In a study in Canadian hospitalised patients, malnutrition was observed in 69% of patients. Of these, only one patient was identified as being malnourished by the house staff (Singh et al., 2006). In a Danish study, 22% of the patients were nutritionally at risk, and only 25% of these patients received an adequate amount of energy and protein (Kondrup et al., 2002).

In Malaysia, malnutrition in hospitals is yet to be assessed and understood; therefore, this possesses a vital role for researchers to identify the practice of malnutrition as by growing evidence, it may help reduce mortality and morbidity risk for malnourished patients.

2.5 Association of Knowledge on Malnutrition with Practice of Hospital Malnutrition among Healthcare Workers

Nutrition knowledge and education have shown to be one of the factors for the practice of identification and diagnosis of malnutrition in hospital settings among healthcare workers despite the evidence of high prevalence in malnutrition, its adverse clinical outcomes in

malnourished patients and increase of hospital costs (Silver et al., 2018). In hospital settings, nutrition care plays an important role in identifying malnutrition and planning nutritional interventions that could reduce adverse clinical outcomes due to malnutrition in patients (Alkhaldy, 2019).

Findings from a study conducted among doctors in Saudi Arabia showed insufficient nutrition knowledge and practice among doctors in the hospital. Results have shown that mean malnutrition knowledge scores were 50%, indicating insufficient knowledge regarding nutrition topics (Alkhaldy, 2019). The self-assessed knowledge and practice of doctors towards malnutrition were modest and a study found malnutrition practice to be moderately relevant to their field of work (Alkhaldy, 2019). Studies have suggested that inadequate knowledge on malnutrition often seen in hospital settings was the main barrier for performing malnutrition practice of assessment and diagnosis in malnourished patients (Mowe et al., 2008).

To support this finding, another study conducted among 4512 doctors and nurses in Denmark, Sweden and Norway were done to assess self-reported knowledge and practices of nutrition with the focus of ESPEN nutritional screening, assessment and treatment (Mowe et al., 2008). Findings have shown that 25% found it challenging to identify if a patient needs nutrition care, 39% lacked skills for identifying malnourished patients and 66% lacked guidelines for clinical nutrition (Mowe et al., 2008). Furthermore, this study has shown that poor nutrition knowledge shows poor practices as participants who had higher nutrition knowledge scored and showed higher nutritional practice (Mowe et al., 2008). Thus, high knowledge has been shown to influence the better practice of malnutrition among healthcare workers.

In Malaysia context, the identification of healthcare workers' knowledge on malnutrition and its association with malnutrition practice is yet to be understood. Therefore, there is a need

to assess the understanding to ensure the adequate practice of malnutrition among healthcare workers to tackle the high prevalence of malnutrition issues in hospitals.

3 METHODOLOGY

3.1 Study Design

This study was a cross-sectional study aiming to investigate the association of socio-demographic profiles, knowledge and attitude on malnutrition with the practice of hospital malnutrition among healthcare workers of HPUPM located in Serdang, Selangor.

3.2 Study Location

The study was conducted at HPUPM which is a teaching hospital established in the year 2019 and is located at Serdang, Selangor and also is located near Hospital Serdang. This hospital consisted of 26 departments consisting of different medical and non-medical based departments and was established to provide medical care to the community regardless of socioeconomic background. HPUPM also is a teaching hospital for Faculty of Medicine and Health Sciences (FMHS) of UPM to provide training for future health professionals including medical doctors, nurses, dietitians and other healthcare professionals equipped with a total of 400 beds.

3.3 Sampling and Subjects' Selection

3.3.1 Respondents

The respondents of the study were targeted to all clinical healthcare workers working in HPUPM that implements malnutrition practices for malnourished patients were the one who was responsible to answer the questionnaire.

3.3.2 Selection Criteria

The subjects of this study included healthcare professionals working at HPUPM. The inclusion and exclusion criteria followed as below:

Inclusion Criteria:

- Male or female
- Malaysian (all ethnicities)
- Participant with literacy in English and Bahasa Melayu

Exclusion criteria:

- Non-clinical staffs

3.3.3 Sampling Method

Sampling method chosen was purposive sampling method. Purposive sampling method is a non-probability sampling method that selects participants based on characteristics of a population and the objective of the study. The study focused on healthcare workers in different departments of HPUPM. After that, a list of all departments were collected. From the 26 departments, all clinical staff from each department were extracted from the list. All the clinical staff from the department was invited to participate in the online survey.

3.4 Sample Size

Correlation formula was used to determine sample size for this study as shown below (Hulley, Cummings, Browner, Grady & Newman, 2013)

$$\mathbf{N = [(Z\alpha + Z\beta)/C]^2 + 3}$$

Where,

N = number of respondents

$\alpha = Z\alpha = 1.96$

$\beta = Z\beta = 0.84$

$C = 0.5 \times \ln [(1+r)/(1-r)]$

r = the expected correlation coefficient

Table 3.1: Calculation of sample size

Correlation Studies	Correlation coefficient, r	Sample size, N
Knowledge and Attitude Knowledge And Attitudes Of Nursing Staff Towards Malnutrition Care In Nursing Homes (Bauer et al., 2015)	r = 0.42	C = 0.5 x In [(1+r)/(1-r)] C = 0.45 N = $[(Z\alpha+Z\beta)/C]^2 + 3$ N = 41.7 ***42**
Knowledge and Attitude Nurses' knowledge and attitudes regarding malnutrition in children (Mogre et al., 2017)	r = 0.38	C = 0.5 x In [(1+r)/(1-r)] C = 0.4 N = [(Zα+Zβ)/C]2 + 3 N = 52 ***52**

Table 3.0 shows the calculation of sample size using the formula by Hulley, Cummings, Browner, Grady & Newman (2013). Fifty-two respondents were calculated as the total. From the previous study by Bauer et al., 2015, the response rate was 59.5% (dropout rate of 40%), whereby the adjusted sample size would be 73 participants to be recruited in the study.

3.5 Study Instrument

The questionnaire was compiled which included the three components of socio-demographic background, knowledge and attitude on hospital malnutrition and practice of hospital malnutrition. The self-administered online questionnaire was both in English and Bahasa Melayu and were filled by the health workers working in HPUPM.

3.5.1 Socio-demographic characteristics

The socio-demographic characteristics were obtained through the self-administered questionnaire. It included information such as age, gender, ethnicity, marital status, profession at hospital, employment status, department section and lastly years of working experience in HPUPM.

3.5.2 Knowledge, Attitude and Practice in Malnutrition

3.5.2.1 Knowledge and Attitude on Malnutrition

The knowledge and attitude of malnutrition were assessed through Malnutrition Knowledge, Attitudes and perceived Practices (M-KAP) Questionnaire (Laur et al., 2016b) which consisted of 20 sets of questions to be answered. The questionnaire was tested in terms of its face validity and test–retest reliability, and satisfactory results were reached. The intra-class correlation coefficient (ICC) for the subscale KA was 0·69 (fair to good agreement). Knowledge and Attitude (KA) questions had similar response categories and were viewed the same way theatrically and for measurement through scale as it is hard to differentiate between what is known (knowledge) and what is to be believed (attitude). The categories for the questions included: Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, and Strongly Agree. Total score for KA is 100 points based on points of Strongly Disagree = 1, Somewhat Disagree = 2, Neutral = 3, Somewhat Agree = 4, and Strongly Agree = 5. Certain questions were reversed whereby reversed scoring is applied, which was marked with "*" by the end of the statement. This means that the score for Strongly Disagree = 5, Somewhat Disagree = 4, Neutral = 3, Somewhat Agree = 2, and Strongly Agree = 1, whereby was backwards than the non-reversed statements. The total KA scores was totaled up for questions 1-20 to get the total score for Knowledge and Attitude (KA).

3.5.2.2 Practice on Malnutrition

The Practice (P) of malnutrition was evaluated through the Malnutrition Knowledge, Attitude and perceived Practices (M-KAP) Questionnaire (Laur et al., 2016). The questions consisted of 7 elements that assessed self-reported practices of hospital malnutrition among respondents participating in the study. The questionnaire was tested in terms of its face validity and test–retest reliability, and satisfactory results were reached. The intra-class correlation coefficient (ICC) for the subscale P was 0·84 (excellent agreement). These questions were followed after Knowledge and Attitude (KA) 20 sets of questions from 20-27. The 7 items included 4 scaling categories of "Not Applicable" and "Never" vs. "Sometime", "Often" and "Always". Total score for P is 28 points based on points of Never = 1, Sometimes = 2, Often = 3, Always = 4, N/A = 1, Blank = 1. To calculate the total KA+ P scores, Total of KA was added with total P scores and the maximum scores for both scales would be 128 points.

3.6 Pre-Testing

A pre-testing was conducted among 8 participants (10% from total sample size study) selected randomly to pre-test the questionnaire. The total of 8 participants selected randomly for pre-testing was not included in actual data collection. The pre-testing is done to identify the time taken for the completion of the questionnaire as well as to identify if the instructions given are direct, clear and understandable towards the subject. Any problems or issues that arise during the completion of the questionnaire was identified, reviewed and corrected back based on the feedback given. Subsequently, the questionnaire was edited and improvised after the pre-testing completion to ensure the subject can obtain the appropriate information during the data collection process.

3.7 Ethical approval

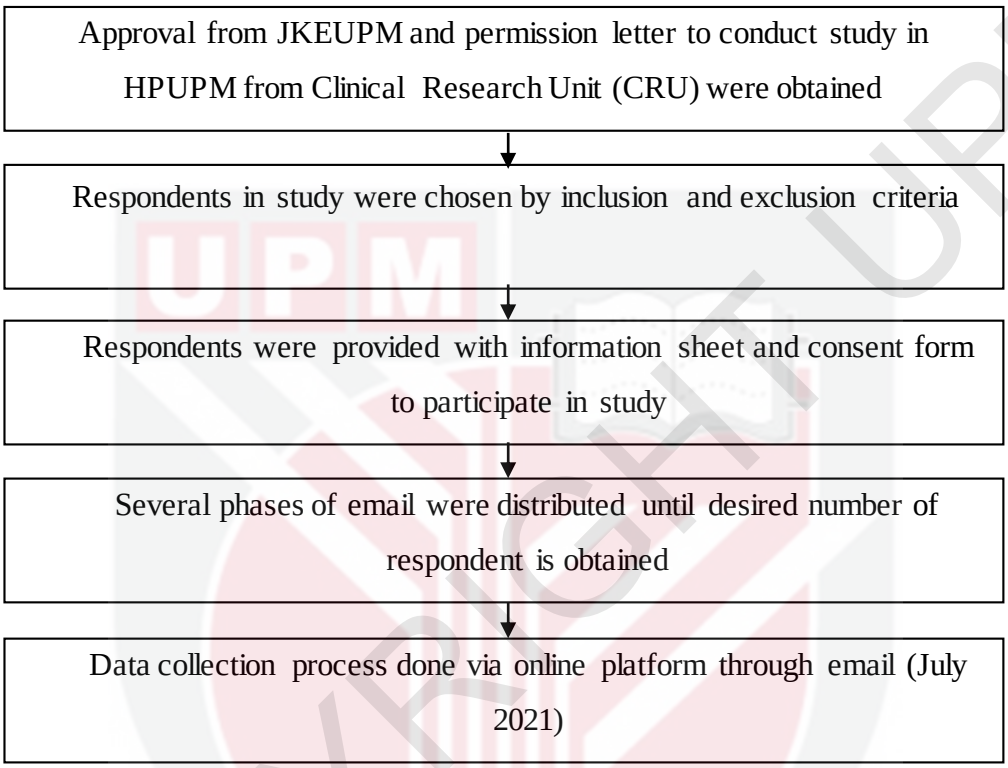
Prior to conduction of the study, approval for the study protocol was obtained from the Ethics Committee for Research Involving Human Subjects UPM (JKEUPM) (Reference no: - JKEUPM-2021-245) (APPENDIX A) and approval for permission to conduct the study at Hospital Pengajar Universiti Putra Malaysia (HPUPM) (APPENDIX B). The respondents for this study included all clinical staff working at HPUPM. Data collection process was only carried out after permission was obtained from both JKEUPM and HPUPM. Upon approval received, clinical staff's list name and email information sheet were obtained from the administration of the hospital. Survey was conducted online via an online platform whereby the questionnaire was distributed among the healthcare workers in the hospital. This study had minimal to no risk or side effects to participants as this study only involves online questionnaires that are easy to be administered and must be filled out by the participants. The online platform chosen included the purpose of the study and the consent was asked prior to the completion of the questionnaire by the participants and participants can answer the questionnaire during their free time to lower the burdens. Participants who wish to get an overall score of the malnutrition management, they can provide their email for dissemination of the study findings. To ensure high participation from the respondents, several phases of email was distributed among the healthcare workers until the desired number of respondents was obtained and achieved.

3.8 Data collection procedure

The data collection procedure starts with obtaining the approval from JKEUPM and Hospital Pengajar Universiti Putra Malaysia (UPM) to conduct the study. The study was conducted online via an online questionnaire prepared and available in both English and Bahasa Melayu. After that, the online questionnaire was reviewed and emailed to all the clinical staff

involved in this study including the consent form prior to the questionnaire. Follow-up was done after each week of the first email sent to the clinical staff until the desired number of respondents was met.

Figure 3.1: Summarisation of data collection procedure



3.9 Screening and recruitment of respondents

Total respondents were recruited from clinical healthcare workers working in HPUPM. Clinical staffs that participated in the study were from 11 departments out of 26 departments in the hospital including Department of Dietetics, Department of Family Medicine, Department of Surgery, Nursing Unit, RESQ Stroke Emergency Unit, Department of Orthopaedics, Department of Radiology, Department of Obstetrics and Gynaecology, Department of Ophthalmology, Department of Paediatrics and Department of Medical Specialist. Figure 3.2 shows the screening and recruitment procedure of the study. A total of 672 healthcare workers are emailed, whereby, every 50 emails were distributed on a daily basis. From the email

distribution, a total of 47 staff participated in the online survey for the study. All 47 respondents that answered the online survey were eligible for this study based on inclusion and exclusion criteria.

The overall response rate among respondents were 65% from 73 targeted respondents. There were no respondents that were excluded from the online survey as no missing values were detected. Participants can answer each question stated in each section carefully, and none faced any technical difficulties completing the online survey. Therefore, the final total number of respondents obtained from this study was overall of 47 respondents. The total number of respondents obtained did not achieve the required 73 samples as stated in the study's methodology. This is because of limited or time constraints for the data collection process as well as having low responding rate for online surveys targeting a specific population group (clinical healthcare workers from HPUPM).

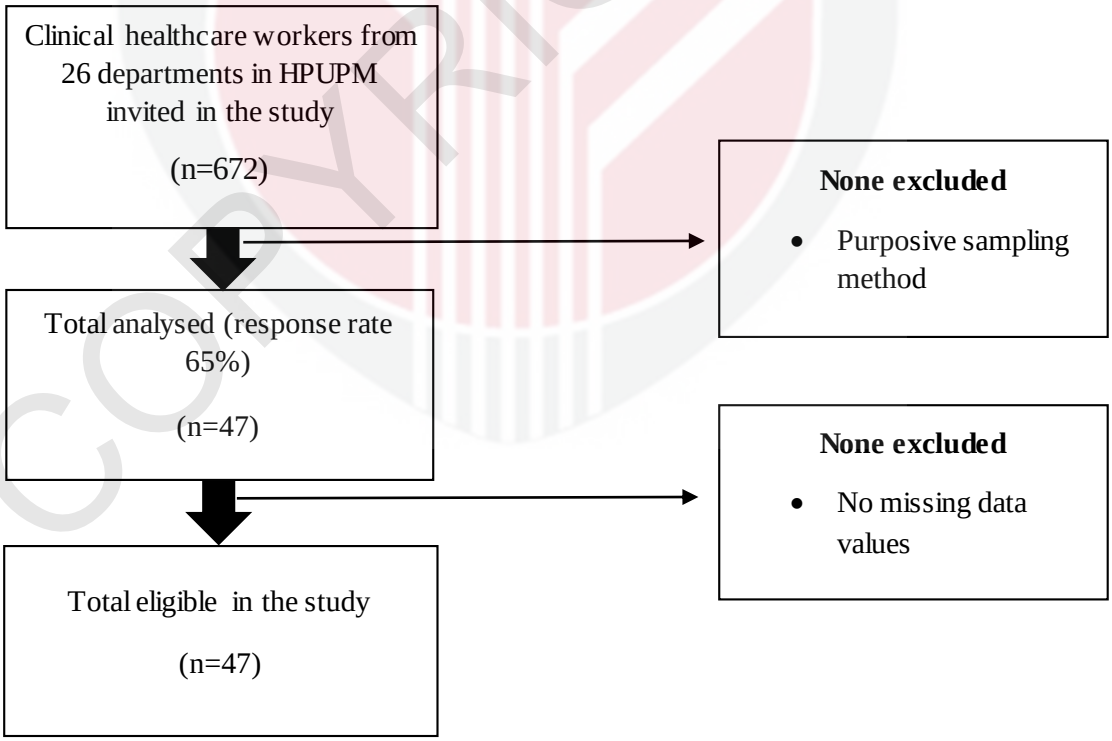


Figure 3.2: Total recruitment of participants in study

3.10 Statistical Analysis

Statistical analyses was performed using IBM SPSS version 25 with statistical significance level set at $p < 0.05$. All data that are categorical variables were presented in Frequencies (n) and Percentages (%) while all the continuous variables in the study were presented in Means and Standard Deviation (SD). The statistical test that was used in this study is firstly Pearson Correlation Coefficient to measure the strength of a linear association between continuous variables (knowledge and attitude on malnutrition with practice of hospital malnutrition). Another statistical test was Independent T-test to test the mean differences between two independent groups and One-Way ANOVA to test mean differences between ≥3 independent groups between the categorical variables (socio-demographic profiles: age, gender, years of working experience and designation at hospital) and the continuous variables (practice of hospital malnutrition).

4 RESULTS AND DISCUSSION

4.1 Socio-demographic profiles

Table 4.1 presents the distribution of socio-demographic profiles of the respondents based on age, gender, ethnicity, marital status, designation at hospital, employement status, department section and years of working experience.

Table 4.1: Socio-demographic profiles of respondents (n = 47)

Variables	n (%)	Mean ± SD
Age (years)		31.57 ± 8.25
Gender		
Male	12 (25.5)	
Female	35 (74.5)	
Ethnicity		
Malay	42 (89.4)	
Chinese	4 (8.5)	
Indian	1 (2.1)	
Ethnicity		
Malay	42 (89.4)	
Non-Malay	5 (10.6)	
Marital status		
Single	21 (44.7)	
Married	26 (55.3)	
Designation at hospital		
Dietitian	23 (48.9)	
Medical Doctor	19 (40.4)	
Clinical Support (Nurses & Radiologists)	5 (10.6)	
Employment status		
Permanent	28 (59.6)	
Contract	16 (34.0)	
Daily part-time	3 (6.4)	
Department section		
Department of Dietetics	19 (40.4)	
Department of Family Medicine	8(17.0)	
Department of Surgery	5 (10.6)	
Department of Radiology	4 (8.5)	
RESQ Stroke Emergency Unit	3 (6.4)	

Nursing Unit	2 (4.3)	
Department of Obstetrics and Gynaecology	2 (4.3)	
Department of Orthopaedics	1 (2.1)	
Department of Ophthalmology	1 (2.1)	
Department of Paediatrics	1 (2.1)	
Department of Medical Specialist	1 (2.1)	
Years of working experience		1.39 ± 0.90

Results showed that the mean age for the total of the respondents was 31.57 ± 8.25 years old. The majority of the respondents were female clinical healthcare workers in HPUPM (74.5%), where majority were Malay (89.4%) and married (55.3%). Aside from that, more than half of the respondents were permanent healthcare workers (59.6%). Besides, the majority of the hospital's designations (48.9%) were dietitians, followed by medical doctors (40.4%) and clinical support (40.4%). (10.6%). Respondents from nurses and radiologists, who play an important role as clinical support in the HPUPM healthcare system, were included in this study as clinical support.The mean years of working experience in the hospital for respondents were 1.39 ± 0.90. The working experience stated in the questionnaire and included in the data were years of working experience in HPUPM. Overall, from a total of 26 departments in HPUPM, the respondents included in the study were from a total of 11 departments in HPUPM, where mostly were from Department of Dietetics (40.4%), followed by Department of Family Medicine (17.0%) and Department of Surgery (10.6%) as shown from Table 4.1.

4.2 Knowledge and attitude on malnutrition

Table 4.2 shows the distribution table for scoring based on likert scale of knowledge and attitudes of malnutrition among respondents.

Table 4.2: Distribution of knowledge and attitude on malnutrition among respondents (n=47)

Knowledge on malnutrition						
Variables	**n (%)**					**Mean ± SD**
	Strongly Disagree	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Strongly Agree**	
Nutrition is not important to a patient's recovery in hospital*	36 (76.6)	3 (6.4)	2 (4.3)	1 (2.1)	5 (10.6)	4.36±1.33
All patients should be screened for malnutrition at admission to hospital	0	0	10 (21.3)	6 (12.8)	31 (66.0)	4.45±0.83
A patient's weight should be taken at admission	1 (2.1)	1 (2.1)	2 (4.3)	6 (12.8)	37 (78.7)	4.64±0.85
All staff involved in patient care can help set up the meal tray, open packages etc.	1 (2.1)	5 (10.6)	11 (23.4)	16 (34.0)	14 (29.8)	3.79±1.06
All staff involved in patient care can provide hands-on assistance to eat when necessary	0	1 (2.1)	8 (17.0)	19 (40.4)	19 (40.4)	4.19±0.80
Malnutrition is a high priority at this hospital	0	0	12 (25.5)	13 (27.7)	22 (46.8)	4.21±0.83
Giving malnourished patients an adequate amount of food will enhance their recovery	1 (2.1)	0	4 (8.5)	5 (10.6)	37 (78.7)	4.64±0.82
All malnourished patients require individualized treatment by a dietitian *	1 (2.1)	0	3 (6.4)	6 (12.8)	37 (78.7)	1.34±0.79
I have an important role in promoting a	1 (2.1)	1 (2.1)	8 (17.0)	10 (21.3)	27 (57.4)	4.30±0.98

patient's food intake						
Monitoring food intake is a good way to determine a patient's nutritional status	0	1 (2.1)	5 (10.6)	14 (29.8)	27 (57.4)	4.43±0.77
Interruptions during the meal can negatively affect patient food intake	0	3 (6.4)	4 (8.5)	13 (27.7)	27 (57.4)	4.36±0.90
Promoting food intake to a patient is every staff member's job	0	2 (4.3)	6 (12.8)	20 (42.6)	19 (40.4)	4.19±0.83
Nutritional care of a patient is only the role of the dietitian*	12 (25.5)	13 (27.7)	10 (21.3)	5 (10.6)	7 (14.9)	3.38±0.83
Malnourished patients who are discharged need follow up in the community	0	1 (2.1)	11 (23.4)	12 (25.5)	23 (48.9)	4.21±0.88
A patient's weight is not necessary at discharge*	18 (38.3)	14 (29.8)	11 (8.5)	0	4 (8.5)	3.89±1.18
Total (maximum score = 75)						60.38±6.30

Attitudes on malnutrition						
Variables	**n (%)**					**Mean ± SD**
	Strongly Disagree	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Strongly Agree**	
I always know when to refer to a dietitian	0	2(4.3)	13 (27.7)	11 (23.4)	21 (44.7)	4.09±0.95
I know how to refer to a dietitian	0	4 (8.5)	8 (17.0)	11 (23.4)	24 (51.1)	4.17±1.01
I know when a patient is at risk	0	0	8 (17.0)	14 (29.8)	25 (53.2)	4.36±0.76

of malnutrition or is malnourished						
I know some strategies to support food intake at meals	0	3 (6.4)	8 (17.0)	16 (34.0)	20 (42.6)	4.13±0.92
I need more training to better support the nutrition needs of my patients	3 (6.4)	1 (2.1)	10 (21.3)	10 (21.3)	23 (48.9)	4.04±1.18
Total (maximum score = 25)						20.79±3.32

* indicates negative statement where reversed scoring is used

As shown in table 4.2, the first question was an inversed question that describes the importance of nutrition for patient's recovery in the hospital and majority of respondents answered "strongly disagree" (76.6%) with mean score of 4.36 ± 1.33. The second and third questions asked if all patients should be screened for malnutrition and if weight should be taken upon hospital admission, and the majority answered "strongly agree" (66.0%) with a mean score of 4.45 ± 0.83 and (78.7%) with a mean score of 4.64 ± 0.85. Apart from that, the fourth and fifth questions state that all healthcare personnel are permitted to provide assistance during mealtime, whether it is opening packages or providing hands-on assistance while eating. Respondents dominantly chose "somewhat agree" (34.0%) with a mean score of 3.79 ± 1.06 and "strongly agree" (40.4%) with a mean score of 4.19 ± 0.80.

Sixth questions asked respondents on the agreement of the statement that malnutrition is a high priority in the hospital and majority understood the importance and answered "strongly agree" (46.8%) with mean score of 4.21 ± 0.83. The seventh question states that giving adequate amount of food will encourage malnourished patient's recovery and answers were dominantly "strongly agree" (a 78.7%) with mean score of 4.64 ± 0.82. The eighth question was an inversed statement describing that individualised care for each patient should

be given by dietitians and seen that dominantly had responded "strongly agree" (78.7%) where mean score is 1.34 ± 0.79. Additionally, the ninth question asked if healthcare workers have an important role in improving intake of the patient. More than half answered "strongly agree" (57.4%) where the mean score obtained was 4.30 ± 0.98. The tenth and eleventh question in the online survey mentions that to determine the nutritional status of patients, healthcare workers should monitor their food intake and that meal interruption will affect patient's food intake. This statement had majority answering "strongly agree" (57.4%) with mean score of 4.43 ± 0.77 and mean score of 4.36 ± 0.90, respectively.

To continue, the twelfth question inside the online survey indicates that all healthcare workers have a role in promoting food intake and respondents agreed that the dominant responded "somewhat agree" (42.6%) with a mean score of 4.19 ± 0.83. Meanwhile, the thirteenth question is an inverse statement that states dietitians are the only ones responsible for improving patient's nutritional status and this negative statement shows that majority does not agree with the statement, where participants majorly answered "somewhat disagree" (27.7%) with mean score of 3.38 ± 0.83. The fourteenth question states that that malnourished patients who are discharged require follow-up care and dominantly answered by respondents were "strongly agree" (48.9%) with a mean score of 4.21 ± 0.88. Subsequently, the fifteenth question is an inverse statement that states that weight is not important for patients during the discharge phase The respondent's majority did not agree and answered "strongly disagree" (38.3 %) with a mean score of 3.89 ± 1.18.

As seen from the trend shown in Table 4.2, the total knowledge mean score obtained among clinical healthcare workers was 60.38 ± 6.30 with a maximum total knowledge score of 75. Also, the mean score obtained based on each question did not differ among healthcare workers. Thus, in average, healthcare workers showed a higher knowledge score regarding malnutrition management for patients in hospitals.

The next following questions in the questionnaire were the beliefs or attitudes of healthcare workers towards malnutrition in the hospital. Based on table 4.2, the first two questions state that healthcare workers should know when to refer to a dietitian and how to refer to one. Respondents dominantly "strongly agree" (44.7%) with the first statement as mean score was 4.09 ± 0.95 and "strongly agree" (51.1%) for the second statement with mean score of 4.17 ± 1.01 respectively. This shows that healthcare workers showed positive attitude to understand when and how to refer to a dietitian when needed in malnutrition management. The third question points out that if the healthcare workers know if a patient is at risk of malnutrition or malnourished, more than half responded "strongly agree" (53.2%) with a mean score of 4.36 ± 0.76. To add on, the fourth question in this section states that the healthcare workers know a few strategies to help improve the food intake of patients and respondents dominantly answered "strongly agree" (42.6%) whereby the mean score is 4.13 ± 0.92. Lastly, the fifth and final question in this section asks if the healthcare workers require or want more training to support the nutrition needs of their patients. Majority of the respondents had responded "strongly agree" (48.9%) where the mean score is 4.04 ± 1.18, which indicated that there were positive attitudes in wanting more practice in terms of malnutrition management. (Table 4.2).

Therefore, the total mean score for attitude in malnutrition among healthcare workers was 20.79 ± 3.32 with a maximum score of 25. Also, as seen from the trend in table 4.2, the mean score obtained from each question also did not differ among healthcare workers. In average, healthcare workers showed higher attitude score regarding malnutrition management for patients in hospitals.

4.3 Practice on malnutrition

As shown below in Table 4.4 are the results based on likert scale scoring of respondents for practice on malnutrition.

Table 4.4: Distribution table on practice on malnutrition among respondents (n=47)

	n (%)				Mean ± SD
	Never/ Not Applicable	**Sometimes**	**Often**	**Always**	
Check the patient has all that they need to eat (e.g. dentures, glasses)	5 (10.6)	6 (12.8)	14 (29.8)	22 (46.8)	3.13±1.01
Help a patient with opening food packages	10 (21.3)	16 (34.0)	8 (17.0)	13 (27.7)	2.51±1.12
Assist a patient to eat if they need help	10 (21.3)	14 (29.8)	11 (23.4)	12 (25.5)	2.53±1.10
If permitted, encourage a patient's family to bring food from home for the patient	12 (25.5)	14 (29.8)	8 (17.0)	13 (27.7)	2.47±1.16
Visit and check a patient during their meal time to see how well they are eating	10 (21.3)	9 (19.1)	15 (31.9)	13 (27.7)	2.66±1.11
Realign my tasks so I do not interrupt a patient during their meal time	7 (14.9)	9 (19.1)	14 (29.8)	17 (36.2)	2.87±1.08
At discharge of a malnourished patient, provide the patient or family with nutrition education material	8 (17.0)	5 (10.6)	14 (29.8)	20 (42.6)	2.98±1.11
Total (Maximum score = 28)					19.15±4.69

Based on the tabulated results above, the first question stated on the practice of healthcare workers that they ensure their patient has all the equipment (e.g. dentures, glasses) they require to eat and majority answered they "always" practice (46.8%) and the mean score is 3.13 ± 1.01. Besides that, the second and third questions mentioned regarding the practice of helping patients during mealtime either opening food packages and assisting patient to eat and majority responded "sometimes" practice it (34.0%) with mean score of 2.51 ± 1.12 and similar to the third statement where majority responded "sometimes" practice (29.8%) with mean score of 2.53 ± 1.10 respectively. The fourth question describes how often healthcare workers practice that patients were allowed to have family members bring food from home if permitted and the dominant answer from respondents is "sometimes" practice (29.8%) whereby mean score obtained was 2.47 ± 1.16.

In addition, the fifth question in the practice domain is on how often healthcare workers visit their patient during mealtime to see how well patient is eating. The majority of healthcare workers answered "often" in terms of practice (31.9%) with mean score of 2.66 ± 1.11. Next, the sixth question describes how often healthcare workers would practice arranging their task to ensure they do not interrupt patients during mealtime and shown the majority answered "always" practice (36.2%) with a mean score of 2.87 ± 1.08. The last and seventh question mentioned how frequently healthcare workers would practice providing nutrition education to the patient or family members as discharge plans of patients. Respondents dominantly answered "always" practice (42.6%) whereby the mean score is 2.87 ± 1.08, which shows that continuous family education is part of malnutrition practice in hospitalised patients.

Overall, results tabulated showed that the mean practice score obtained for clinical healthcare workers was 19.15 ± 4.69 with maximum score being 28. This shows that the mean score obtained from each question also did not differ among healthcare workers. In average, healthcare workers showed higher practice scores in terms of practice in malnutrition.

4.4 Mean differences between socio-demographic profiles and practices on malnutrition

Table 4.5 below shows the tabulation of mean differences found between the sociodemographic variables of gender, age, designation at hospital and years of working experience) with practice of malnutrition using Independent T-test and and One-Way ANOVA.

Table 4.5: Mean differences between socio-demographic profiles with practice of hospital malnutrition

Variables		Practice on malnutrition				
	n	Mean ± SD	t-value	p-value	F-value	p-value
Gender						
Male	12	19.33±5.16	0.156[a]	0.267		
Female	35	19.09±4.59				
Age						
24-34	34	19.38±4.52			0.306[b]	0.738
35-44	8	19.13±6.22				
≥ 45	5	17.60±3.58				
Designation at Hospital						
Dietitian	23	20.65±3.80			2.850[b]	0.069
Medical Doctor	19	17.32±4.96				
Clinical Support	5	19.20±5.81				
Years of working experience						
≤1.5 years	33	19.21±5.19	0.062[a]	0.386		
>1.5 years	14	19.12±4.54				

[a] Independent T-test [b] One-way ANOVA

Based on table 4.5 presented below, an Independent sample T-test was conducted between both gender male and female. Results showed that there are no significant mean differences found ($p>0.05$) ($t= 0.156$, $p= 0.267$) seen between gender whereby, male shown to

have higher mean value (19.33 ± 5.16) as compared to female (19.09 ± 4.59). Thus, the null hypothesis is failed to be rejected.

Aside from that, One-way ANOVA test was done to find meaningful differences between age range and years of working experience among healthcare workers with practice on malnutrition. Found in the table 4.5, results shown that there is no significant mean differences ($p>0.05$) ($F= 0.306$, $p= 0.738$) found between three different age groups with practice on malnutrition; therefore, null hypothesis is failed to be rejected. The mean score for age group was not significantly different from the practice of malnutrition. Those age group of 24-34 years had a mean value of 19.38 ± 4.52, and those with age group of 35-44 years had a mean value of 19.13 ± 6.22 which was slightly higher compared to aged ≥ 45 years which had a mean value of 17.60 ± 3.58. These findings were similar to a study conducted among medical doctors in Saudi Arabia, where age also did not play an important in the influence of practice in malnutrition (Alkhaldy, 2019). Young healthcare workers, who made up half of the total respondents, were the majority of those who took part in the study. This may influence the outcomes, as their lack of experience could have an impact on their practice (Alkhaldy, 2019). In this study, data obtained compromised the age range with a wide gap that could have explained and influenced the outcomes as a wider age range may reduce the effect size of variables.

To add on, there were no significant mean differences ($p>0.05$) ($F= 2.850$, $p= 0.069$) found based on tabulated results shown below, leading to the failure to reject the null hypothesis. The mean score for three groups of designation at the hospital was not significantly different from the practice of malnutrition. Dietitians had higher mean value of (20.65 ± 3.80), followed by clinical support (19.20 ± 5.81) and medical doctors (17.32 ± 4.96). These findings were different as compared to a study conducted where a significant difference $p<0.05$ was found among nurses compared to other healthcare workers with practice on malnutrition (Laur

et al., 2016). The study mentioned that nurses were more likely than non-nursing direct care professionals to describe care practices that supported malnutrition diagnosis, management, and treatment (Laur et al., 2016). However, this study showed that most respondents were participated by dietitians and less frequent participation were seen from support staff, including the nurses. As seen from Table 4.5, the mean value for dietitians was higher than clinical supports, which showed that dietitians were also likely to report care behaviours and treatment towards managing malnourished patients in hospital.

Next, results tabulated have showed that there was no significant difference ($p>0.05$) ($t= 0.062$, $p= 0.386$) found between the two variables; thus, the null hypothesis is failed to be rejected. Those with ≤1.5 years of working experience (19.21 ± 5.19) had a slightly higher mean value compared to >1.5 years of working experience (19.12 ± 4.54). However, the findings contradict a study conducted among healthcare workers in Canada. The study found that a significant difference ($p<0.05$) was found for years of working experience with mean of malnutrition practice score (Laur et al., 2016). Results showed that those practising less than two years having the highest mean practice score compared to those practising for more than 31 years having the lowest (Laur et al., 2016). The most significant hurdle to performing excellent nutritional management for malnourished patients in the hospital environment is a lack of nutritional knowledge (Laur et al., 2016). Those with more experience are more likely to have higher and better nutritional knowledge in managing malnutrition. Compared with our findings, the years of working experience are only limited to years of working in HPUPM and not overall working experience as a healthcare worker. The hospital opened its official service in 2019, leading to the low mean value for working experience seen in the table, which could have influenced the findings of this study.

Overall, there were no significant mean differences found between the socio-demographic profiles with practice on malnutrition. There was a limited study assessing the

association between socio-demographic profiles with malnutrition practice in the hospital. However, this shows that regardless of age, gender, years of working experience, and designation at hospital, all healthcare workers are responsible and provide good nutritional practice towards malnourished patients in the hospital settings.

4.5 Association between knowledge and attitude on malnutrition with malnutrition practice among respondents

A Pearson correlation test was conducted to test the association between knowledge on malnutrition and attitude on malnutrition with practice on malnutrition as shown on Table 4.6 below.

Table 4.6: Association between knowledge and attitude on malnutrition with malnutrition practice

Variables	Practice on malnutrition	
	r	p-value
Knowledge on malnutrition	0.239	0.106
Attitude on malnutrition	0.313	**0.032***

*Correlation is significant based on value set at level $p<0.05$

Based on the table, results have shown no significant association between the knowledge on malnutrition with practice on malnutrition ($p>0.05$). Therefore, the null hypothesis is failed to be rejected. This finding is consistent with a study that is conducted between healthcare workers in a Canadian hospital. Results showed that practice score in malnutrition management still was inadequate among healthcare workers although perceived knowledge was relatively high (Laur et al., 2016). The study justified that although education can improve and enhance the knowledge of healthcare workers; however, this does not ensure that practice will improve immediately (Laur et al., 2016). Improving the practice of malnutrition, it requires continuous improvement in the behaviour of healthcare workers (Laur et al., 2016). Also, it is important to note that there is no "one size fits all" in managing malnutrition among malnourished patients in terms of practice.

Meanwhile, a positive significant association was found between attitude on malnutrition with practice on malnutrition ($p<0.05$); therefore, the null hypothesis is rejected. Similar findings were discovered in another study, which revealed a substantial disparity between reported nutrition practise in hospitals with optimal perceived attitudes/beliefs (Duerksen et al., 2015). This includes the importance of identifying malnutrition risk and malnutrition assessment during patient admission (Duerksen et al., 2015). If proper practise guidelines are developed and nutrition is prioritised, attitudes and behaviours can be modified (Duerksen et al., 2015).

Overall, these findings have proven that a positive attitude in malnutrition plays an important role in influencing malnutrition practice. In improving practice among healthcare workers, not only knowledge plays an important role but continuous improvement in behaviour or attitudes of healthcare workers should be aligned together to ensure good malnutrition management. Align with this, as shown in the fifth question of the attitudes on malnutrition questionnaire in Table 4.2, results have proven good feedback where the majority "strongly agreed" that there is a need to increase the training given to healthcare workers to better support the nutrition needs of their patients. Therefore, the increasing need of implementation of training and continuous exposure of knowledge in nutrition, these will become an important factor in improving the practice of malnutrition among patients in the hospital.

5 CONCLUSION, LIMITATION AND RECOMMENDATION

5.1 Conclusion

In conclusion, there is an importance in assessing the knowledge, attitude, and practice on hospital malnutrition among healthcare workers to help improve malnutrition management in hospitals. According to the findings of this study, healthcare workers in HPUPM had a higher knowledge, attitude, and practise score. The socio-demographic profiles (age, gender, years of work experience, and hospital designation) had no association on the practice of malnutrition among healthcare workers. Furthermore, knowledge of malnutrition did not correlate significantly with practise of malnutrition; however, attitudes toward malnutrition showed a positive correlation with practice of malnutrition. Thus, continuous improvement in malnutrition practice should include a positive shift in attitudes or behaviours among healthcare workers to ensure that healthcare workers can provide good nutritional care regardless of socio-demographic differences.

5.2 Limitation of the study

This study had several limitations that should be addressed. First, the study was a cross-sectional study, meaning this study cannot represent all study populations of healthcare workers. Second, the sample size was relatively small and the study only included healthcare workers from HPUPM. Aside from that, there was an unequal distribution on participation among the age groups, limiting the statistical power of this study. Therefore, this could have had an influence the association between the socio-demographic profiles with practice on malnutrition. Also, this study included all departments of healthcare workers in HPUPM although some departments may not have had direct in-patient involvement when managing malnutrition among patients. This could have led to an error in perceived knowledge, attitudes and malnutrition practices of respondents.

Moreover, the questionnaire was adapted from a different country study, which may not be representable in terms of malnutrition management in Malaysia. Lastly, the years of working experience obtained from respondents only reflected experience in HPUPM. The questionnaire did not include the entire years of working experience as a healthcare worker. The shortened online questionnaire was to reduce the respondents' burden and enhance the response rate, limiting the information that could be obtained.

5.3 Recommendations

It is recommended that more studies were required to measure the knowledge, attitude and practice of malnutrition among healthcare workers in Malaysia with wider recruitment of study population. In addition, the study should include healthcare workers from different hospitals to ensure study can be representative towards the study population. Besides, it is suggested that authorities enhance the practice of malnutrition by aligning it with education to help improve malnutrition management with improvements in behaviour/beliefs among healthcare workers. This ensures that effective malnutrition management is being implemented to encourage quality care of malnourished patients with a multidisciplinary approach.

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7 APPENDICES

APENDIX A: APPROVAL LETTER FROM ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS (JKEUPM)

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)

Date: 30 June 2021

Dear Prof./Dr./Mr./Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled **'Sociodemographic Profiles, Knowledge, Attitudes and Practices of Hospital Malnutrition among Healthcare Workers in Universiti Putra Malaysia Teaching Hospital (HPUPM)'** has been approved.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (http://www.tncpi.upm.edu.my/faildokumen).

If you have any enquiries, please contact Ms. Nurulhasanah Ishak (03-97691605) or Ms. Nor Ellia Abd Ajis (03-97691244).

Note: Please use this reference number for any transaction.

- JKEUPM-2021-245
Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi
Chair
Ethics Committee for Research Involving Human Subjects

APPENDIX B: APPROVAL LETTER TO CONDUCT STUDY FROM HOSPITAL PENGAJAR UNIVERSITI PUTRA MALAYSIA (HPUPM)

BORANG MAKLUM BALAS PERMOHONAN KEBENARAN PENGGUNAAN HOSPITAL PENGAJAR UNIVERSITI PUTRA MALAYSIA (HPUPM) UNTUK MENJALANKAN PENYELIDIKAN

Tajuk Penyelidikan:

Sociodemographic profiles, knowledge, attitudes and practices of hospital malnutrition among healthcare workers in Universiti Putra Malaysia Teaching Hospital (HPUPM)

Nama dan Jabatan Ketua Penyelidik:

Dr. Zuriati Ibrahim (Penyelia Projek Dissertasi Bachelor)
Jabatan Dietetik, Fakulti Perubatan dan Sains Kesihatan, Universiti Putra Malaysia

Cik Nabihah Hannan binti Razaleigh
Pelajar Tahun 3
Program Bacelor Sains Dietetik
Jabatan Dietetik, Fakulti Perubatan dan Sains Kesihatan, Universiti Putra Malaysia

Pihak HPUPM dengan ini membuat keputusan seperti berikut:

☑ Membenarkan projek penyelidikan dijalankan

☐ Tidak membenarkan projek penyelidikan dijalankan

"Providing Extraordinary Care"

"BERILMU BERBAKTI"

Saya yang menjalankan amanah,

.....
PROF. MADYA DR. HJ MUHAMMAD MOHD ISA
Pengarah
Universiti Putra Malaysia
ng. Selangor

PROF. MADYA DR. HJ. MUHAMMAD B. MOHD
MD, (USM); M.Surg. Ophthalmology (UKM);
(MMC Reg. No:31510)
PENGARAH
Hospital Pengajar Universiti Putra Malaysia
43400 UPM Serdang, Selangor

APPENDIX C: RESPONDENT'S INFORMATION SHEET (ENGLISH VERSION)

JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

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

1. STUDY TITLE: Socio-demographic Profiles, Knowledge, Attitudes And Practices of Hospital Malnutrition Among Healthcare Workers In Universiti Putra Malaysia Teaching Hospital (HPUPM).

2. INTRODUCTION:

Malnutrition is a health issue that has been arising and affecting many countries worldwide. In Malaysia, approximately 61.9% and 43.5% of the patients were malnourished upon hospital admission for cancer patients. Knowledge and perceptions of malnutrition by healthcare workers are not well understood and this includes the responsibility for identification and practice of hospital malnutrition. Therefore, you are invited to participate in this online survey which aims to study the knowledge, attitudes and practice of hospital malnutrition at Universiti Putra Malaysia Teaching Hospital (HPUPM). Your participation in this study is entirely voluntary as it helps fill the research gap on hospital malnutrition.

3. WHAT WILL YOU HAVE TO DO?

If the participant agrees to participate in the study, they are required to answer sets of questions provided in the questionnaire required in the study as it will take approximately around 10 minutes to finish. The questionnaire consists of 3 sections, compromising of socio-demographic characteristics, knowledge and attitude on malnutrition and practice on malnutrition.

In the first section, the socio-demographic characteristics, it will require around 3 minutes to answer the questions. After all the data is obtained, the participants will need to answer the second section of the questionnaire which is the knowledge and attitude on malnutrition. In this section, there will be 20 sets of questions which will require around 4 minutes to answer. The categories for the questions included: Strongly Disagree, Somewhat Disagree, Neutral, Somewhat Agree, and Strongly Agree and participants required to tick one category for each question based on their agreement of the statement stated. Lastly, the third section of the questionnaire is to obtain data on the practice of malnutrition. This will take around 3 minutes to complete 7 sets of questions in this section. The 7 items included 4 scaling categories of "Not Applicable" and "Never" vs. "Sometime", "Often" and "Always". Participants are required to tick one scale from the four stated based on their agreement towards the statement. It is important for the participant to answer the questions with honesty throughout the study conducted.

After the data is obtained, participants can provide their phone numbers towards the researcher if they are interested to know the results they obtained from answering the questionnaire.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Those who will not participate in the study will be non-clinical staff working at Universiti Putra Malaysia Teaching Hospital (HPUPM).

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

a. **TO YOU AS THE SUBJECT?**

This research could potentially provide benefit or no benefit towards you. However, if you are interested to know the results of this study, you can provide your phone number to the researcher to further contact.

b. **TO THE INVESTIGATOR?**

Through the online questionnaire and the study conducted, it helps the researcher to understand and investigate the association between socio-demographic characteristics, knowledge and attitude on malnutrition with practice of malnutrition.

6. WHAT ARE THE POSSIBLE RISKS?

This study has minimal to no risk or side effects to both participants and researchers as this study only involves online questionnaires that are easy to be administered and must be filled out by the participants.

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

All the information obtained from this study will be kept private and will not be made publicly available, to the extent permitted by law. If the results of the study are published or presented to the public, the identity of the respondents will not be shown without consent.

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

If you have additional questions during the course of the research, you can contact the researcher of this research, Nabihah Hannan Binti Razaleigh, ***third-year student from Faculty of Medicine and Health Sciences, UPM*** or through call 011-10088678 or email to (nabihahhannan99@gmail.com). You can also contact Dr, Zuriati Binti Ibrahim, supervisor of this research through email (zuriati@upm.edu.my), ***lecturer from Faculty of Medicine and Health Sciences, UPM.***

Please initial here if you have read and understood the contents of this page_____

9. CONSENT

I …………………….……….…… Identity Card No. …………….………..… address……….………………………………………………………………………………………….. …………………….……….……….……….……..hereby voluntarily agree to take part in the research stated above *(clinical /drug trial/video recording/ focus group/interview-based/ questionnaire-based).

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

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be used in any form of publication or presentation (if applicable)

* 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 research.

Date ……….……….……….…….…

Signature ……….……….……….…….… (Researcher)

APPENDIX D: RESPONDENT'S CONSENT FORM (MALAY VERSION)

JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA

BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

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

1.TAJUK KAJIAN: Sociodemografi Profil, Pengetahuan, Sikap Dan Amalan Tentang Hospital Malnutrisi Antara Pekerja-Pekerja Kesihatan Di Hospital Pengajar Universiti Putra Malaysia (HPUPM).

2. PENGENALAN

Malnutrisi adalah sejenis isu kesihatan yang semangkin meningkat dan memberi kesan kepada seluruh dunia. Di Malaysia, anggaran 61.9% dan 43.5% pesakit mengalami malnutrisi apabila tiba di hospital untuk pesakit kanser. Pengetahuan dan sikap tentang malnutrisi antara pekerja kesihatan adalah kurang dan ini termasuk tanggungjawab untuk kenal pasti dan amalkan konsep malnutrisi di hospital. Maka itu, anda telah dijemput untuk mengikuti kajian dalam talian ini yang bertujuan untuk menilai tahap pengetahuan, sikap dan amalan tentang hospital malnutrisi antara pekerja-pekerja kesihatan di Hospital Pengajar Universiti Putra Malaysia (HPUPM). Satu kajian rentas dengan anggaran 73 pekerja-pekerja kesihatan dari HPUPM akan dipilih untuk menyertai kajian ini. Borang kendiri kaji selidik akan digunakan untuk menilai tahap kefahaman peserta tentang pengetahuan, sikap dan amalan tentang malnutrisi di hospital. Kajian ini adalah penting kerana penyertaan anda dalam kajian ini adalah secara sukarela kerana dapat mengisi jurang dalam penyelidikan tentang malnutrisi di hospital.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Jika anda bersetuju untuk menyertai kajian ini, anda dikehendaki menjawab soalan-soalan penyelidikan yang dijangkakan akan mengambil masa anda selama 10 minit. Borang dalam talian ini mempunyai 3 bahagian yang perlu mengambil data latar belakang sosiodemografi, pengetahuan dan amalan tentang malnutrisi dan sikap tentang malnutrisi.

Dalam bahagian pertama tentang data latar belakang sosiodemografi, masa yang akan diambil adalah lebih kurang 3 minit. Setelah semua data diambil, anda dikehendaki menjawab bahagian kedua borang soal selidik ini tentang pengetahuan dan sikap terhadap malnutrisi. Dalam bahagian ini, terdapat 20 soalan yang memerlukan sekurangnya 4 minit untuk menjawab. Kategori soalan termasuk: Sangat Tidak Setuju, Tidak Setuju, Neutral, Setuju dan Sangat Setuju. Anda perlu menanda hanya pada salah satu kategori berdasarkan persetujuan anda pada pernyataan tersebut. Akhir sekali, bahagian ketiga soal selidik ini adalah untuk mengumpul data tentang amalan tentang malnutrisi. Bahagian ini mempunyai 7 soalan yang mengambil masa sekurangnya 3 minit. Terdapat 4 kategori termasuk "Tidak Berkenaan" dan "Tidak Pernah" lawan "Kadang-Kadang", "Selalunya" dan "Sentiasa". Anda perlu menanda hanya pada salah satu kategori berdasarkan persetujuan anda pada pernyataan tersebut. Adalah penting untuk menjawab semua soalan yang ditanya dengan jujur sepanjang sesi penyelidikan dijalankan.

Setelah data penyelidikan diambil, anda boleh memberikan nombor telefon anda kepada penyelidik jika anda berminat untuk mengetahui tentang hasil kajian.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Kajian ini tidak melibatkan subjek atau kakitangan bukan klinikal yang bekerja di Hospital Pengajar Universiti Putra Malaysia (HPUPM).

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a. **KEPADA ANDA SEBAGAI PESERTA?**

Kajian ini mungkin memberi atau tidak memberi manfaat kepada anda. Walaubagaimanapun, jika anda berminat untuk mengetahui hasil kajian ini, anda boleh memberikan nombor telefon anda kepada penyelidik untuk dihubungi**.**

b.KEPADA PENYELIDIK?

Melalui soal selidik dan kajian ini, ia dapat membantu penyelidik untuk mengkaji tentang dan hubungan antara ciri-ciri sosiodemografi, pengetahuan, amalan dan sikap tentang malnutrisi di hospital.

6. ADAKAH IA BERISIKO?

Kajian ini adalah kajian yang hanya berisiko secara minimal dan tidak memberikan apa-apa kesian sampingan kerana kajian ini hanya melibatkan kajian soal selidik yang perlu dijawab.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Segala maklumat anda yang diperolehi dalam penyelidikan ini akan disimpan dan dikendalikan secara sulit, bersesuaian dengan peraturan-peraturan dan/ atau undang-undang yang berkenaan. Sekiranya hasil penyelidikan ini diterbitkan atau dibentangkan kepada orang ramai, identiti anda tidak akan didedahkan tanpa kebenaran anda terlebih dahulu**.**

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

Jika anda mempunyai sebarang pertanyaan berkenaan dengan kajian ini, anda boleh menghubungi penyelidik bagi penyelidikan ini, ***Nabihah Hannan Binti Razaleigh, pelajar Fakulti Perubatan dan Sains Kesihatan, UPM*** pada sambungan talian 011-10088678 atau emailkan kepada (nabihahhannan99@gmail.com). Anda boleh juga menghubungi pemantau penyelidikan ini iaitu, Dr. Zuriati Binti Ibrahim melalui alamat email (zuriati@upm.edu.my), ***pensyarah Fakulti Perubatan dan Sains Kesihatan, UPM.***

Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini _____

9. PERSETUJUAN

Saya…………………………………………… No Kad Pengenalan. ……………………………… beralamat…………………………………………………………………………… ……………………………………………………..dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini 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 melibatkan saya.

I setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidakberkenaan

Tandatangan …………………………………… (*Responden*)

Tandatangan …………………………………… (*Saksi*)

Tarikh :……………………………………….

Nama :……………………………………….

No. K/P: ……………………………………..

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

Tarikh ……………………………………

Tandatangan ……………………………………
(*Penyelidik*)

APPENDIX E: QUESTIONNAIRE (ENGLISH VERSION)

DTK4959 – BACHELOR DISSERTATION

QUESTIONNAIRE FORM

SOCIODEMOGRAPHIC PROFILES, KNOWLEDGE, ATTITUDES AND PRACTICES OF HOSPITAL MALNUTRITION AMONG HEALTHCARE WORKERS IN UNIVERSITI PUTRA MALAYSIA TEACHING HOSPITAL (HPUPM)

Student:

Nabihah Hannan Binti Razaleigh

Supervisor:

Dr Zuriati Binti Ibrahim

Program:

Bachelor Science (Dietetics)

Department of Dietetics,

Faculty of Medicine and Health Sciences,

Universiti Putra Malaysia

Instruction: Please fill in and answer the following questions accordingly.

PART 1: SOCIODEMOGRAPHIC CHARACTERISTICS

Please tick (✓) the related information:

Age	Please specify…						
Gender	Female				Male		
Ethnicity	Malay		Chinese		Indian	Others	
Marital status	Single		Married		Divorced	Widow	
Profession at hospital	Please specify…						
Employment status	Full time				Part time		
Department section	Please specify…						
Years of working experience	Please specify...						

PART 2: KNOWLEDGE AND ATTITUDE ON MALNUTRITION

Please tick only ONE (1) answer that best describes how you feel for each of the following item:

Please rate your agreement with each of the following statements	**Strongly Disagree**	**Somewhat Disagree**	**Neutral**	**Somewhat Agree**	**Strongly Agree**
1. Nutrition is not important to a patient's recovery in hospital*					
2. All patients should be screened for malnutrition at admission to hospital					
3. A patient's weight should be taken at admission					

4. All staff involved in patient care can help set up the meal tray, open packages etc.					
5. All staff involved in patient care can provide hands-on assistance to eat when necessary					
6. Malnutrition is a high priority at this hospital					
7. Giving malnourished patients an adequate amount of food will enhance their recovery					
8. All malnourished patients require individualized treatment by a dietitian *					
9. I have an important role in promoting a patient's food intake					
10. Monitoring food intake is a good way to determine a patient's nutritional status					
11. Interruptions during the meal can negatively affect patient food intake					
12. Promoting food intake to a patient is every staff member's job					
13. Nutritional care of a patient is only the role of the dietitian*					
14. Malnourished patients who are discharged need follow up in the community					
15. A patient's weight is not necessary at discharge*					

Please rate your agreement with each of the following statements	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree
1. I always know when to refer to a dietitian					
2. I know how to refer to a dietitian					
3. I know when a patient is at risk of malnutrition or is malnourished					
4. I know some strategies to support food intake at meals					
5. I need more training to better support the nutrition needs of my patients					

PART 3: PRACTICE OF MALNUTRITION

Please tick only ONE (1) answer that best describes how you feel for each of the following item:

Please rate your agreement with each of the following statements	Never	Sometimes	Often	Always	Not Applicable
1. Check the patient has all that they need to eat (e.g. dentures, glasses)					
2. Help a patient with opening food packages					
3. Assist a patient to eat if they need help					
4. If permitted, encourage a patient's family to bring food from home for the patient					
5. Visit and check a patient during their meal time to see how well they are eating					

6. Realign my tasks so I do not interrupt a patient during their meal time					
7. At discharge of a malnourished patient, provide the patient or family with nutrition education material					

APPENDIX F: QUESTIONNAIRE (MALAY VERSION)

DTK 4959 - BACELOR DISERTASI

BORANG SOAL SELIDIK

SOCIODEMOGRAFI PROFIL, PENGETAHUAN, SIKAP DAN AMALAN TENTANG HOSPITAL MALNUTRISI ANTARA PEKERJA-PEKERJA KESIHATAN DI HOSPITAL PENGAJAR UNIVERSITI PUTRA MALAYSIA (HPUPM)

Pelajar:

Nabihah Hannan Binti Razaleigh

Penyelia:

Dr Zuriati Binti Ibrahim

Program:

Bachelor Science (Dietetics)

Department of Dietetics,

Faculty of Medicine and Health Sciences,

Universiti Putra Malaysia

Arahan: Sila isikan jawapan pada soalan yang diberikan.

BAHAGIAN PERTAMA: CIRI-CIRI SOCIODEMOGRAFIK

Sila tandakan (✓) pada pernyataan berikut:

Umur	*Sila nyatakan…*						
Jantina	Perempuan				Lelaki		
Etnik	Melayu		Cina		India		Selain *(sila nyatakan)*
Status perkhawinan	Bujang		Berkahwin		Bercerai		Janda
Profesion di hospital	*Sila nyatakan…*						
Status pekerjaan	Sepenuh masa				Kerja sambilan		
Bahagian pejabat	*Sila nyatakan…*						
Tahun pengalaman bekerja	Kurang dari 2 tahun		2-5 tahun		6-10 tahun		Lebih dari 10 tahun

BAHAGIAN 2: PENGETAHUAN DAN SIKAP TERHADAP MALNUTRISI

Sila tandakan hanya pada SATU (1) jawapan yang bersesuaian dengan pendapat anda pada setiap penyataan yang diberikan:

Sila nilai persetujuan anda pada setiap pernyataan yang berikut	**Sangat Tidak Setuju**	**Tidak Setuju**	**Neutral**	**Setuju**	**Sangat Setuju**
1. Nutrisi tidak penting untuk kesembuhan pesakit di hospital*					
2. Semua pesakit perlu melakukan saringan untuk malnutrisi setiba di hospital					
3. Berat pesakit perlu diambil setiba di hospital					
4. Semua kakitangan terlibat dalam jagaan pesakit boleh					

membantu menyediakan dulang makan, buka pakej dan selainnya					
5. Semua kakitangan terlibat dalam jagaan pesakit boleh memberikan pertolongan ketika pesakit sedang makan apabila diperlukan					
6. Malnutrisi adalah keutamaan di hospital					
7. Memberikan pesakit yang mengalami malnutrisi makanan yang secukupnya akan membantu proses pemulihan					
8. Semua pesakit yang mengalami malnutrisi memerlukan rawatan secara individu oleh pakar dietetik*					
9. Saya mempunyai tanggungjawab yang penting dalam meningkatkan pengambilan makanan pesakit					
10. Memantau pengambilan makanan adalah cara yang baik untuk memantau status nutrisi pesakit					
11. Gangguan ketika makan boleh memberi kesan negative pada pengambilan makanan pesakit					
12. Mempromosikan pengambilan makanan kepada pesakit adalah sebahagian tanggungjawab semua kakitangan					
13. Penjagaan nutrisi pesakit adalah hanya tanggungjawab pakar dietetik*					
14. Pesakit yang mengalami malnutrisi yang telah discaj perlu melakukan susulan di tahap komuniti					
15. Berat pesakit tidak penting ketika discaj*					

Sila nilai persetujuan anda pada setiap pernyataan yang berikut	Sangat Tidak Setuju	Tidak Setuju	Neutral	Setuju	Sangat Setuju
1. Saya sentiasa tahu bila saya perlu rujuk pegawai dietetik					
2. Saya tahu bila saya perlu rujuk pegawai dietetik					
3. Saya tahu bila pesakit adalah berisiko mengalami malnutrisi atau sedang malnutrisi					
4. Saya tahu beberapa strategi untuk membantu pengambilan makanan ketika makan					
5. Saya perlukan lebih latihan untuk membantu memberi sokongan nutrisi kepada pesakit saya					

BAHAGIAN 3: AMALAN TENTANG MALNUTRISI

Sila tandakan hanya pada SATU (1) jawapan yang bersesuaian dengan pendapat anda pada setiap penyataan yang diberikan:

Sila nilai persetujuan anda pada setiap pernyataan yang berikut	Tidak Pernah	Kadang-Kadang	Selalunya	Sentiasa	Tidak Berkenaan
1. Memastikan pesakit mempunyai semua keperluan untuk makan (contoh: gigi palsu, cermin mata)					
2. Menolong pesakit membuka pakej makanan					
3. Membantu pesakit untuk makan jika mereka memerlukan bantuan					
4. Jika dibenarkan, menggalakkan keluarga					

pesakit membawa makanan dari rumah untuk pesakit					
5. Melawat dan memeriksa pesakit ketika waktu makanan mereka untuk melihat kadar pemakanan pesakit					
6. Menyusun semula tugas saya supaya tidak menganggu pesakit ketika masa makan mereka					
7. Pada discaj pesakit yang mengalami malnutrisi, memberikan keluarga pesakit bahan pendidikan nutrisi					

APPENDIX G: SIMILARITY REPORT

28%	23%	16%	17%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS