

## PREVALENCE OF MALNUTRITION USING PATIENT-GENERATED SUBJECTIVE GLOBAL ASSESSMENT (PG- SGA) AND ITS ASSOCIATED FACTORS AMONG **HOSPITALISED PATIENTS IN**

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### INTRODUCTION

- The malnutrition in hospitals associated with increased morbidity, mortality, and healthcare costs.
- There are many factors associated with malnutrition that are still inconclusive and yet to be studied in Malaysia.
- · Patient-Generated Subjective Global Assessment (PG-SGA) as a screening tool covers items on weight history regardless of BMI, food consumption, nutrition impact symptoms (e.g., nausea, difficulty swallowing, diarrhoea), and activity & functioning.

#### **OBJECTIVE**

• This study aims to determine the prevalence of malnutrition among adult hospitalised patients and its association with sociodemographic factors, health status, functional status, anthropometric measures, biochemical profiles, nutritional support, and dietary intake in Hospital Sultan Abdul Aziz Shah (HSAAS), UPM.

### LITERATURE REVIEW

- In female subjects shows significant negative correlation between functional limitation (grip strength) and some of the dietary intake (Dhara, Sengupta & De, 2011)
- In 2017, the prevalence of malnutrition was 43.5% among general patients using SGA in Malaysia (Norshariza et al. 2017).
- In Vietnam the prevalence of malnutrition among esophageal patients were 95.3% (Quyen et al. 2017)



More than half (53.4%) of the admitted patients were reported to be malnourished using PG-SGA and scored high in HSAAS, UPM. Therefore, an early detection of malnutrition is warranted to reduce the adverse outcomes of malnutrition. Effective strategies and intervention should be implemented to improve the nutritional status of hospitalised patients. Early screening and nutrition support need to be constantly implemented in hospital setting to reduce the rate of malnutrition among hospitalised patients therefore early identification and intervention should be implemented to prevent its negative effects.

#### REFERENCES

- Elliott, A., Gibson, S., Bauer, J., Cardamis, A., & Davidson, Z. E. (2023). Exploring Overnutrition, Overweight, and Obesity in the Hospital Setting—A Point Prevalence Study. Nutrients, 15(10), 2315–2315. https://doi.org/10.3390/nu15102315
  Norshariza J, Zaidah F, Zaharah A, Betti S, Neoh MK, Aeininhayatey A, et al. Prevalence of malnutrition among hospitalized adult cancer patients at the National Cancer Institute, Outrajaya, Malaysia. Mal J Nutr 2017;23:161e74.
  2] Quyen TC, Angkatavanich J, Thuan TV, Xuan VV, Tuyen LD, Tu DA. Nutrition assessment and its relationship with performance and Glasgow prognostic scores in Vietnamese patients with esophageal cancer. Asia Pac J Clin Nutr 2017;26:49e58.



53.3%

46.7%

Total cholesterol

5.48 ± 1.55 mmol/L

Triglycerides

1.53 ± 1.20 mmol/L

Handgrip strength

18.88 ± 9.66 kg

Associations of Sociodemographic Characteristics, Medical Status, Anthropometry Parameters, Biochemical Data, Functional Status and Nutritional Management with Dietary Inadequacy among Stroke Patients in Hospital Sultan Abdul Aziz Shah (HSAAS), UPM

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oler, A. G., Rodriguez, I., Gómez, L. A., & Masmiquel, L. (2021). Influence of nutritional status on clinical outcomes among

rtzakis, M. (2020). Ad



## Prevalence of Malnutrition and its Associated Factors among Stroke Patients in Hospital Sultan Abdul Aziz Shah, UPM

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## Introduction

- Malnutrition is often coexisted with in stroke patients although the associations remain poorly understood. Malnutrition may result from poor monitoring of nutritional status, prolonged inadequate dietary intake during hospitalization and increased nutritional requirements during recovery.
- There are **limited studies** conducted to study the malnutrition and its associated factors among stroke patients in Malaysia.
- Therefore, this cross-sectional study was conducted to determine the prevalence of malnutrition and its associated factors among stroke patients in Hospital Sultan Abdul Aziz Shah (HSAAS), UPM.

#### Hypothesis

There are **significant associations** between *sociodemographic characteristics*, *anthropometry parameters, biochemical data, functional status, nutritional management, medical status* and *dietary inadequacy* with *malnutrition* among stroke patients in HSAAS, UPM.

Literature Review		
Factors	Findings	Studies
Sociodemographic characteristics	Advance age	(Ghorbani et al., 2020; Hisckson, 2006)
Anthropometry parameters	Low BMI     Low body fat percentage	• (Gulland, 2016) • (Alhamdan et al., 2020)
Functional status	Low handgrip strength	(Nor'hisham et al., 2022)
Medical status	Long length of stay	(Nigatu et al., 2020; Foley et al., 2009)

Table 1: Summary of the main studies that highlight the association between IVs and DV



## **Results & Discussion**



References



- all stroke patients.
  Having higher BMI and normal phase angle tends to have protective effect against malnutrition among stroke patients.
- Referral to dietitian tends to be a preventive and corrective approach for malnutrition among stroke patients. This highlights the important role of dietitian in implementing early dietary interventions in stroke patients.

[1] Sulmont-Rossé, C., Wymelbeke-Delannoy, V., & Maitre, I. (2022). Prevalence of Undernutrition and Risk of Undernutrition in Overweight and Obese Older People. Frontiers in nutrition, 909. https://doi.org/10.3389/fnut.2022.892675 [2] Sato, Y., Yoshimura, Y., & Abe, T. (2022). Phase angle as an indicator of baseline nutritional status and sarcopenia in acute stroke. Journal of Stroke and Cerebrovascular Diseases, 31(1), 106220. https://doi.org/10.1016/j.jstrokecerebrovasdis.2021.106220 [3] Ekert, K., E. (2018). Malnutrition in Canadian hospitals. CMAJ, 190(40), E1207-E1207. https://doi.org/10.1503/emaj.180108



## FACTORS ASSOCIATED WITH MALNUTRITION AT-RISK CASES AMONG PAEDIATRIC INPATIENTS IN HOSPITAL SULTAN ABDUL AZIZ SHAH (HSAAS)

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#### **INTRODUCTION**

- Children are at a higher risk of malnutrition during sickness as they have limited energy reserves, reduced energy intake, increased nutrient losses and higher calorie requirement.<sup>3</sup>
- · Limited studies were found on malnutrition risk for acute or less serious condition patients as hospital staff usually prioritize severe or chronic cases more due to shorter hospital days, less medications and treatments unless there are underlying diseases.<sup>1</sup>
- · Poor and worsening nutritional status can negatively affect the recovery period, health status of patients and cognitive development.1

#### **OBJECTIVE**

To determine the association between sociodemographic characteristics, clinical characteristics, dietary factor and gestational factors with at-risk cases of malnutrition among paediatric inpatients in HSAAS.

#### LITERATURE REVIEW

#### SOCIODEMOGRAPHIC CHARACTERISTICS

· The highest risk groups for malnutrition include newborns due to the fast growth rate. A previous study showed that 46.3% of malnourished patients were below 2 years old, 15.2% were 2-5 years old, 38.5% were 5 years and older.<sup>2</sup>

#### **CLINICAL CHARACTERISTICS**

- Nearly half of paediatric inpatients have a high risk of malnutrition and it was linked to longer hospitalisation period and worsening condition.<sup>2</sup>
- Another factor that affects malnutrition is diagnosis that can be further elaborated through types of diseases and severity of diseases.
- There may be metabolite imbalances in malnourished patients which includes low sodium, low potassium, low cholesterol, low albumin, low calcium and low sugar with anaemia.4

#### **DIETARY FACTOR**

 Reduced appetite, preferences of meal, food choices, picky eating, environment, stress and presence of pain may slow down the intake of food.

#### **GESTATIONAL FACTORS**

- The relationship with low birth weight and malnourished children may be due to exposure to infection and increased risk of complications.
- · SGA status in infants increases the risk of malnourishment in later life.

#### **METHODOLOGY**





■Normal ■Moderate Thinness ■Severe Thinness ■Low ■Moderate ■Severe Less No change FIGURE 1: SOCIODEMOGRAPHIC AND CLINICAL CHARACTERISTICS, DIETARY FACTOR AND RISK SCORE

Variables	x2	p value
Age ª	2.063	0.151
Gender <sup>a</sup>	2.063	0.151
TABLE 2: CL	INICAL CHARACTERIS	TICS (n=40)
Variables	x2/r	p value
Length of Stay =	2.063	0.151
Disease Diagnosis <sup>6</sup>	2.283	0.131
Number of Medication b	-0.221	0.171
Sodium (mmol/L) b	-0.059	0.718
Creatinine (µmol/L) <sup>b</sup>	0.160	0.323
Chloride (mmol/L) b	-0.028	0.863
otassium level (mmol/L) b	0.195	0.227
Haemoglobin level (g/dL) b	0.103	0.527
CRP level (mg/L) b	-0.202	0.212
TABLE 3: DIETARY AN	ND GESTATIONAL FAC	TORS (n=40, n=36, n=38)
Variables	x2	p value

Variables	X2	p value	
Appetite during Hospitalisation a	2.462	0.107	
Birth Weight °	1.440	0.785	
Gestational Age c	0.171	1.000	

<sup>a</sup> Chi-square test,<sup>b</sup> Pearson correlation,<sup>c</sup> Fisher's exact test

#### DISCUSSION

- The mean age of patients is ±1.80 and common diagnosis are respiratory diseases (55%) and gastrointestinal diseases (25%).
- Reduced or loss of appetite is common in hospitalised children thus resulting in a higher risk score for malnutrition based on the STAMP screening tool.
- The prevalence of severe risk patients to malnutrition is 43% (17), moderate risk 50% (20) and low risk 7% (3).
- · Only 2 out of 17 patients (12%) were given dietetic referrals from the severe risk group.
- · A screening tool could identify the majority of the patients who needed dietetic referral for malnutrition issues in a clinical setting. For patients at risk of malnutrition, dietitian assessment and intervention is effective in improving dietary intake and quality.
- The study found no associations between sociodemographic characteristics, clinical characteristics, dietary factor and gestational factors with at-risk cases of malnutrition.
- · The limitations of this study are small size obtained, patients' short duration of hospitalisation, incomplete data and no previous malnutrition risk screening conducted.

#### CONCLUSION

Severe and moderate risk of patients were detected as the majority from this study. The author recommends all healthcare professionals to utilise a nutritional screening tool to identify patients at risk of malnutrition thus encouraging proper interventions to be conducted.

#### **ACKNOWLEDGEMENTS**

The author would like to thank all nurses of the Paediatric wards, the Paediatric Department and HSAAS filing unit for their support, help and cooperation for this study.



EXPERIENCE

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## Factors Associated with Weight Status among Pediatric Inpatient in Hospital Sultan Abdul Aziz Shah (HSAAS)

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**RESULTS & DISCUSSION** 

Figure 1 Weight Status of Pediatrict Inpatient in HSAAS (n=40)

Nation Street and Street

Figure 2 Sociodemographic Characteristics

10



Dietitian referral

Figure 3 Gestational Factor & Dietitian Referral

Maternal medical history

ntestinal Diabetes (GDM)

Birth weight

#### INTRODUCTION

- · Patients who were underweight were admitted more often than those who were normal
- · Numerous studies on children or adults suggest that being underweight or obese is linked to a higher risk of infection<sup>2</sup>.
- · While 33% of children admitted for more than a month were underweight, and by the time they were discharged, 39% of them were moderately or severely underweight<sup>2</sup>
- · Weight status in hospitalized children can occur in four categories, namely thinness, normal, overweight and obesity.
- · A global study of children with severe sepsis, undernutrition was linked to a higher all-cause mortality rate, while overnutrition was linked to a longer stay in the intensive care unit<sup>3</sup>.
- · During a child's brief hospital stay, the primary medical issue receives the majority of the attention, with minimal focus being placed on dietary management<sup>4</sup>

Patient's BMI was determined using WHO Anthroplus Software and classified into two groups.

performed using IBM SPSS

Data analysis was

Version 27 Software

Purposive Sampling

Ethical approval

from JKEUPM

JKEUPM-2023-132

Number Reference:



Majority of subjects in this study were not being referred to dietitian, hence, encouragement for dietitian referrals needs to be increased so that children's nutrition levels can be improved to reduce thinness among children.

### ACKNOWLEDGMENT

I would like to express gratitude to nurses at Pediatric Ward 1 & 2, Filling Unit of HSAAS, parents and course mates for their guidance and support in completing my final year project. among diblinin Davin (an. Expose) Jame driver, testin, run) service in equivalence of the service of the servic

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- 5. S. M. Machaia, W. (2017). Hospital-acquired mainuttion in children at a totiary https://doi.org/10.1080r16070658.2017.1322825 wention. (2022, December 14). Defining childhood weight status. Centers for Pis-thood-defining/teni repol/www.ob. gov/back/plausicativition\_configured repol/back/ repol/www.ob. gov/back/plausicativition\_configured repol/back/ Skinar, R., Abdai, F., Mahmood, T., & Sommoryfrong, R. (2019), Frwakence and tabox associated with underweight children. A populativitiana (Jack W), Salakinar, M. (2019), Kalakinar, J. (2014), Mather F., Fadat J. V. Anaz Zari, A. Moo-Tal, S. R., Raye, R. M. Woo, A. J. & Chanay, H. K. (2012), Frankamen, J. Consta, H. (2014), Mather F., Fadat J. J. Nanz Zari, A. Moo-Tal, S. R., Raye, R. M. Moor, A. J. & Chanay, H. K. (2012), Providence of underwation and associated factors in young clidren in Makyas: A nationwide survey. Forefase J. Products. St. Backaline, M. (2012), Salakinar, K. (2014), Salakinar, Fadat J. (2014), Salakinar, J. (2014), Salakinar, J. (2014), Salakinar, K. (2014), Salakinar, J. (201
- 2942-42058 cm Data H. 2003 c
- Head, C., Gana, A., Sprinner, H., Henderski, E. (2022). The offset of and transmissional scalar and transmission of the probability of transmission of the probability of the probabi 91.0016/sieczo201502001 mar. A.B. Doogner, B. A. Park, S., Hartico, M., Lundsen, E. A., & Bland, H. (2016). Relimita and management stategies for space survey 2017 Forcins in Postation. & High-Biol Conf. (2016). Statistical and Science Science (2016). Science 2017 Forcins in Postation. & High-Biol Conf. (2017). Biological and deally in othering. A promoreal Database based 2011. J. In Hussian Conf. (2017). Biological and deally in othering. A series generated database makes on other space status of the Rocards. A. Hou, L. 6 Hu. G. (2017). Hypertensive disorders on units generated database makes on other space status of the information. Natural of Human Experiments and the conference of the science status of the space status of the information. Natural of Human Experiments and Science of Human Science Science

isk to the offspring: Why life: 10.1038/io.2015.15

The integenerational convelation in weight How genetic resemblance reveals the social role of birthm in the poweriartisics (PMC2794569). Zavoshy, R., Akhannezaei, A., Jalloighadr, S., & Esmalzadorha, N. (2017). Mahuthilon and aropean Journal of Public Health, 27(3). 555–550. https://doi.org/10.1003/eurpublio0043 are and childhood deality. Early "Childhood Lonalutinal Study. - kinderaathen cohort. Pi

weaks the social role of Families. AJS; America

7.17 H. (2015). Maternal obesity and metaboli ( of Obesity. 39(4). 642–649. https://doi.or



SURVEY ON KNOWLEDGE, PERCEPTIONS AND CHALLENGES OF IMPLEMENTING NUTRITION SCREENING TOOLS FOR PREOPERATIVE PATIENTS AMONG HEALTHCARE PROFESSIONALS IN HOSPITAL SULTAN ABDUL AZIZ SHAH UNIVERSITI PUTRA MALAYSIA (HSAAS UPM). AMIRA NATASHA MOHAMED MUBASHEER,

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#### INTRODUCTION

- Malnutrition is rarely identified and treated in clinical settings, especially in individuals who have had major elective surgery.(Aishah et al., 2021) and it is affecting about 60-85% of surgical patients.(Taipa-Mendes et al., 2021)
- · Malnutrition during surgery is widespread and is linked to higher mortality rates, complications, and medical cost expenses.(Aishah et al., 2021)
- · Nutrition Screening Tools is an assessment of nutritional status being conducted by HCPs to identify patients in need of nutrition support especially malnutrition, common in surgical patients.(Collins et al., 2023)
- · Pre-operative clinicians include screening for malnutrition and pathways for the nutritional assessment and management of patients identified and optimising nutrition pre-operatively has been shown to improve outcomes after surgery (Pan et al., 2013; Vaid et al., 2012) and may impact long-term health outcomes (Horowitz et al., 2015).
- The prevalence of malnutrition in gastrointestinal surgical patients is obtained at 65.3% confirms the severity of this issue in Albania.(Edington et al, 2019)

#### **OBJECTIVE**

To determine the knowledge, perception and challenges of implementing Nutrition Screening Tools for preoperative patients among Healthcare Professionals in Hospital Sultan Abdul Aziz Shah, Universiti Putra Malaysia.

#### LITERATURE REVIEW

50% of surgery patients are malnourished maybe due to lack of nutrition screening. and there is a link between a patient's nutritional health and the success of the procedure.(Jordan et al., 2016) Malnutrition prevalence increased substantially from 32% preoperatively to 92%, and there is lack of nutrition screening tool being used in 18% only from total of 324 surgical patients.(D Jonas et al., 2022)

High malnutrition risk in surgical patients may increased morbidity rate, mortality rate, length of stay (LOS) and healthcare costs (Weimann et al., 2017)

implementing NST in Malaysia's settings. Survey was conducted along with questionnaires intended for 457 health care professionals (physicians, 34.6%; nurses, 50.3%; dietitians, 15.1%). Almost majority of dietitian and nurses in New Brunswick, Canada indicated that nutrition screening is important (98.5 % and 94.7% respectively). However, 63.5% of physicians indicated as not important.(Lita et al., 2011)

82

There is a limited studies carried out on In Malaysia, there is about 45% malnourished surgical patients. Early postoperative outcomes were development of surgical site infection (SSI), total length of hospital (LOS) and stav mortality.64 (29.1%) patients were malnourished among 220 patients that were enrolled. (Nizam et al., 2016)

#### METHODOLOGY

Study Design : Prospective cross sectional study.

Sampling Design : Convenience sampling method - all respondents are requested to fill a consent form prior to the study.

Study Subjects : 103 Healthcare Professionals (HCPs) in HSAAS, UPM.

Study Location : Surgical Clinic and Ward, Orthopaedic Clinic and Ward, Ear, Nose and Throat (ENT) Clinic and Ward, and Obstetrics and Gynaecology (OBN) Clinic and Ward, Urology Department, Outpatient Pharmacy and Dietetics Department in HSAAS.

Study Instruments : Part A - Sociodemographic Factors, Part B - Knowledge, Perceptions and Challenges on Malnutrition in Preoperative Patients, from Laur et al. (2016), Kassa Alemu and Biru (2019) and MOH (n.d.) Part C - Knowledge, Perceptions and Challenges on Nutrition Screening Implementation Among HCPs, are referred from a paper by A.M.Taipa-Mendes et al (2021).

Ethical Approval : Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (JKEUPM) - JKEUPM-2023-163

Statistical Analysis : Descriptive Analysis using IBM SPSS Statistics Version 26

#### ACKNOWLEDGMENT

The author want to express her deepest gratitude to all parties that made this study a success along with gratefulness for the love and support given to the author.



**RESULTS & DISCUSSION** 



· About 75% (n=76 respondents) are aware on the malnutrition guidelines but there is only 32% (n=33 respondents) screened the patients using Nutrition Screening Tools before any surgical procedures. Meanwhile, implementation of NST is only about 33% only which is not significant.

- Common reported challenge faced is due to lack of training in nutrition skills and there is about 46% surgeons and residents claimed to not have the knowledge of the nutrition therapy multidisciplinary team (Paulo et al., 2013) This inline with current study as 28.2% claimed that the main reason of not implementing NST is not perceived orders from Doctors to conduct a thorough Nutrition Screening.
- This relates to a study carried out as 60.4% of general practitioners choose their patients wisely for nutrition screening, and 39.6% of them claimed having no understanding about nutritional screening (Castro et al., 2020)

#### CONCLUSION

Almost 75% HCPs in HSAAS acknowledged the importance of managing malnutrition in preoperative patients, however there is a lacking of implementation of Nutrition Screening Tools (32.4%) and a need for training to HCPs (74.5%) which relates to the less number of patients being referred to Dietitian for a better nutrition care. All HCPs have positive perception (85.4%) on the importance of preoperative nutrition screening and concur that challenges faced to execute NST accordingly beforehand is the barrier (52.3%) , thus creating a need to establish a standardised nutrition care pathway and feeding protocol in HSAAS in the future.

stcomes in older patients. Journal of clinical



### SURVEY ON KNOWLEDGE, PERCEPTIONS AND CHALLENGES OF PRESCRIBING ORAL NUTRITION SUPPORT FOR PREOPERATIVE PATIENTS AMONG HEALTHCARE PROFESSIONALS IN HOSPITAL SULTAN ABDUL AZIZ SHAH **UNIVERSITI PUTRA MALAYSIA**

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#### INTRODUCTION



- 1. To determine the demographic of the HCPs
- 2. To ascertain the knowledge, perceptions and challenges of HCPs about malnutrition among surgical patients, in prescribing ONS and on dietitian collaboration to prescribe ONS to malnourished surgical patients

#### LITERATURE REVIEW

Variable	Author(S)	Origin	Finding
Knowledge,	Khan et al., 2015	Malaysia	29.1% preoperative patients are undernourished
Perceptions and Challenges of HCPs on	Castro et al., 2020	Ireland	19.5% GPs have no understanding about nutritional screening
Malnutrition in Pre-operative Patients	Avgerinou et al., 2020	United Kingdom	Challenge for GPs to address malnutrition is due to lack of training
Knowledge,	Shafiee et al., 2017	Iran	<9% patients receive ONS prior to surgery
Perceptions and Challenges of HCPs on ONS prescription	Kennely et al., 2010	Ireland	ONS prescription were largely not evidence-based and uncoordinated with expert guidelines
	Mawardi et al., 2021	Indonesia	HCPs inadequate knowledge on ONS prescription left them feeling underqualified to prescribe ONS
Knowledge, perceptions and challenges of	Sowerbutts et al., 2022	Ghana, India, the Philippines, Zambia	Doctors often refer undernourished patients to nutritionist in the Philippines but the referral rate was not disclosed
HCPs on Dietitians' Involvement.	Browne et al., 2021 Castro et al., 2020	Ireland Ireland	Increased needs of dietitians' availability to support other HCPs in managing malnutrition and prescribing ONS

#### METHODOLOGY

#### Study Design: Cross-sectional study

#### Study Location: Hospital Sultan Abdul Aziz Shah (HSAAS)

• Surgical wards & clinic, Orthopaedic wards & clinic, ENT ward & clinic, OBN wards, Medical wards, Dietetic department, Pharmacy

#### Study Subject: 103 HCPs in HSAAS

- Specialists, MOs, MAs, Dietitians, Pharmacists, Nurses, Healthcare Assistants
- Measurements & Instruments
  - Sociodemographic, Knowledge, Perceptions and Challenges to address malnutrition, Knowledge, Perceptions and Challenges to prescribe ONS, Knowledge, Perceptions and Challenges to involve a dietitian Self-administered questionnaire

- Statistical Analysis: Descriptive Frequencies, Percentages

## ACKNOWLEDGMENT

Deepest gratitude for all respondents taking part in this survey. I am forever grateful to my supervisor, Dr Zalina, collaborator, Ms A'ishah Zafirah as well as my fellow researcher, Amira Natasha for all the guidance and help throughout completing this project. A big congratulations to my classmates for finishing their respective studies. Lastly, I would like to thank my family and friends for the support they give.



 Health professionals perceived malnutrition as a multifaceted problem. Common reported challenge is due to lack of training in nutrition.
(Avgerinou et al., 2020)

#### **ONS PRESCRIPTION**

Table 2. Proportion of responses for HCPs Knowledge, Perceptions and Challenges on ONS Table 3. Proportion of responses for HCPs Knowledge, Perceptions and Challenges on ONS

Question	Most Answered, n	Question	Yes, n (%)
Which ONS do you regularly prescriba?	Standard formula (10) Semi-elemental formula (10) Disease specific formula (6)	Should ONS be initiated when MUST score +2?	30 (31.3)
Who starts the prescription?	Dietitian (64) MO (45) Specialist (27)	Do you feel that ONS prescription preoperatively improves patients' postoperative recovery?	75 (72.8)
In what circumstances would you start a patient on sip feeds?	Poor appetite (71) Weight loses (22) Post operation (8)	Do you feel that training should be provided to HCPs to prescribe ONS to patients?	75 (72.8)
When should ONS be initiated?	After surgery (13) Malnutrition (8) Before surgery (7)	Do you think patients undergoing surgery should be prescribed ONS?	58 (56.3)
When do you prescribe ONS to patients?	Before surgery (54) After surgery (33) Before and after surgery (10)		

- Regardless of nutritional status, surgical patients who do not meet their energy needs from normal food shall receive ONS preoperatively (Weimann et al., 2017).
- >80% surgeons and residents did not feel confident regarding nutrition therapy (NT) (Paulo et al., 2013).

#### DIETITIANS' INVOLVEMENT

60

Table 4. Proportion of responses for HCPs Knowledge, Perceptions and Challenges on Dietitians' Involvement

Question	Strongly Agree, n (%)	40			
All malnourished surgical patients require individualised treatment by dietitian	62 (60.8)	40			
know how to refer to a dietitian	12 (11.7)	20			
	Yes, n (%)		_		
know the availability of dietitian referral	74 (71.8)	No referral	Pt not at	Pt have	Others
Do you think that a multidisciplinary approach is important for better care of patients' nutrition?	83 (80.6)	from Specialist/ MO	malnutrition risk	normal BMI	
		Figure 5. Q11. Whe dietitian before p	at is/are the rea prescribing preop	son(s) for not perative ONS t	referring a to patients?

- ~70% HCPs stated that they should refer to dietitian though only 23% knew how and 13% knew when (Shakhshir & Alkaiyat, 2023)
- 46% surgeons and residents claimed to not have the knowledge of the nutrition therapy multidisciplinary team (NTMT) (Paulo et al., 2013).

#### CONCLUSION

Strongly Agree, n (%

20 (19.4)

43 (42.6)

45 (44.1)

24 (23.5)

- More than half HCPs in HSAAS are well aware of the availability of nutrition screening, ONS and dietitians referral however they claimed lack of training on implementing these into practice.
- Almost all HCPs have positive perception on the importance of preoperative nutrition screening, ONS prescription and multidisciplinary approach.
- Challenges faced by HCPs to executing nutrition screening, prescribing ONS and collaborating with dietitian can be overcame with the establishment of a standardised nutrition care pathway and feeding protocol in HSAAS.

#### REFERENCES

, & Alkaiyat, A. (2023). Healthcare provides and 1), 15. Niveira, B. M. R. D., Wang, D. W. M., Guimarães, M. P., Cu at, A. (2023). Healthcare providers' knowledge, attitude, and practice on quality of nutrition care in hospitals from a developing country: a multic a, m. A, Braga, M, Carli, F, Higashguchi, T, Hübner, M, Köek, S, ... & Singer, P. (2017). ESPEN guideline: clinical nutrition in surgery. Clinical nutrition, 38(3), 623–655 ca, C, Bharna, C, Walters, E, Croker, H, Tulji, R, Rea, J. ... & Rhardma, K (2020). Supporting nutrition in thail older popple: a qualitative study apploining Wave of J. 2. Zold, Z. A., Walter, S. C., Potter, H., Tulji, R., Rea, J. ... & Rhardma, K. (2020). Supporting nutrition in thail older popple: a qualitative study apploining Wave of J. Z. Zold, Z. A., Walter, S. C., Rotter, H., Tulji, R., Rea, J. ... & Rhardma, K. (2020). Supporting nutrition in the older popple: a qualitative study and an occologic steed control trial. Trials, 23, 961. al. Trials, 23, 961. C. M., Kennelly, S., Clyne, B., Bury, G., Hanlon, D., ... & Corish, C. A. (2020). General pra cal nutrition ESPEN, 38, 116-127. caseri, M., Selfi, N., Arabi, S. M., & Norouzy, A. (2016). An audit to evaluate the knowled ive study. Clinic M., Belghaisi-N edge and attitude of Iranian start A. S. Kunnerstein, H. Stasongko, E. P. & Herrourb, D. (2021). Mainutition in older coluble: how interprofessional teams see 16:A systematic review of the qualitative research. Family Practice, 38(1), 43-48. Key Start A. S. Kunnerstein, E. P. & Herrourb, D. (2022). Mainutition in older coluble: how interprofessional processional processional processional and the systematic review of the qualitative research. Family Practice, 38(1), 43-48. Key Start A. S. Kunnerstein, P. K. S. Herrourb, D. (2022). Mainutition in older coluble: how interprofessional processional processional



# Factors associated with Disordered Eating

## Behaviours among 8-11 Years School Children

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### Introduction

- According to Academy of Nutrition and Dietetics <u>Disordered eating behaviours (DEBs</u>) is used to describe a variety of unusual eating habits that may contribute to eating disorder.
- There are still limited study on DEBs and associated factors at <u>community-based</u> particularly among <u>school</u> <u>children in Malaysia.</u>
- Possible risk factors involved are important for early detection of the children's DEBs and to adopt the prevention before it evolves to the true eating disorder.

#### **Objectives**

- To determine the DEBs factors and occurrence of DEBs and among 8-11 years school children.
- To determine the association between sociodemography (age, gender, ethnicity and household income), anthropometry (BMI for age), maternal factors (age and education), children feeding practices, family mealtime and screen time with DEBs among 8-11 years school children.

#### Literature Review

- Despite these rises in DEBs of children and adolescent's referrals to eating disorder treatments during the <u>Covid-19</u> <u>pandemic</u>. There are still limited updated school-based studies to identify underlying causes of disordered eating among children.<sup>3</sup>
- The potential protective factors of eating behaviours such as <u>family mealtime and children feeding practices</u>, as family connectedness promoting children's psychological developement and positive behavioural outcomes.<sup>2</sup>

#### Methodology

- A cross-sectional study among <u>3 primary school (240</u> <u>students with mothers).</u>Study approval: Ethic Committee for Research Involving Human Subjects (JKEUPM-2023-059), Ministry of Education Malaysia (MOE) and the Department of Education Selangor (JPN), Principal of schools, Respondents' consent form.
- Statistical analysis: Descriptive analysis (Frequencies,percentages,means, standard deviations), Pearson's correlation test, Chi-square test.



Table 1: Summary of assessment

	Variables	Instruments
Children (Printed survey)	<ol> <li>Socio-demographic characteristics and anthropometry</li> <li>Disordered Eating Behaviours</li> </ol>	<ol> <li>Self-administered questionnaire</li> <li>Children Eating Attitudes Test (ChEAT) (Maloney et al., 1988)</li> </ol>
Mothers (Google Form)	<ol> <li>Maternal characteristics</li> <li>Family Mealtime</li> <li>Child Feeding Practices</li> <li>Screen Time</li> </ol>	<ol> <li>Maternal-administered questionnaire</li> <li>Family Ritual Questionnaire (Fiese &amp; Kline, 1993)</li> <li>Child Feeding Questionnaire (Birch et al., 2001)</li> <li>Screen Time Questionnaire (Olexaverki 2015)</li> </ol>



#### Discussion

- This study findings have shown a higher percentage DEBs compared to the existing local study which found only 30.8%. Age, ethnicity and screen time is associated with DEBs. It is in line with previous study, which also highlights that both primary school children with older age who were post-pubertal stage were more likely to develop DEBs. The findings of ethnicity is consistent with previous studies<sup>1</sup> which found Malay and Indian children has twice higher as Chinese to develop DEBs due to greater pressure from the adults, siblings or cousins in losing weight.<sup>1</sup> The excessive screen time use is unavoidable since post-covid pandemic.<sup>3</sup> Children tend to overeating when distracted in front of screens and they possess negative feelings toward their own body image due to advertising content.
- In addition, low significant correlations with other variables were likely <u>small sample size and generalized</u> to Malaysia's context. Also, possibly due to <u>lack awareness</u> or <u>socially desirable</u> reporting of the parents.

#### Conclusion

• Early exploration of causes of DEBs can serve as baseline data for future studies on prevention programs in community for the parents and the children could prevent from the true eating disorder during adolescence.

#### References

- Chong, L. S., Chin, Y. S., Gan, W. Y., & Mohd Nasir, M. T. (2017). Associations between socio-demographic characteristics and pubertal status with disordered eating among primary school children in Selangor, Malaysia. Asia Pacific Journal of Clinical Nutrition. https://doi.org/10.6133/apjcn.012016.10
- Langdon-Daly, J. & Serpell, L. (2017). Protective factors against disordered eating in family systems: A systematic review of research. Journal of Eating Disorders, 5(1). https://doi.org/10.1186/s40337-017-0141-7
- 3. Tan, S.T., Tan, S.S. and Tan, C.X. (2022), "Screen time-based sedentary behaviour, eating regulation and weight status of university students during the COVID-19 lockdown", Nutrition & Food Science, Vol. 52 No. 2, pp. 281-291. https://doi.org/10.1108/NFS-05-2021-0156





## ASSESSMENT OF DIETARY ADHERENCE AND ITS ASSOCIATED FACTORS AMONG HEMODIALYSIS PATIENTS IN HOSPITAL SERDANG

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RESULTS



### INTRODUCTION



- prevalence of non-compliance rates among hemodialysis patients and diet restrictions.<sup>1</sup>
- · A prior study found that patients frequently failed to follow recommendations on fluid intake.<sup>1,2</sup>
- · However, there is a lack of information about adherence to other treatment regimens, such as dietary intake during dialysis.<sup>2</sup>

#### **OBJECTIVES**

To determine the association between the prevalence of dietary adherence among hemodialysis patients with socio-demographics factors, medical history and dietary knowledge

#### LITERATURE REVIEW

#### **Previously identified factors:**

#### Sociodemographics factors

- · Younger male patients were at highest risk for non-adherence<sup>2</sup>
- · Single marital status and male sex were independent predictors for non-adherence to fluid.<sup>3</sup>

### Medical history

· One study discovered that patients with longer dialysis vintage were linked to higher nutrition literacy, regardless of the age factor.<sup>4</sup>

### **Dietary knowledge**

• The evidence on whether improved adherence arises from greater knowledge is inconsistent.<sup>4</sup>

#### METHODOLOGY

- · Cross sectional study
- · Hemodialysis Unit, Hospital Serdang
- Sample size: 90 hemodialysis patients
- · Consecutive sampling



## Statistical analysis

 Pearson's chi square test Independent t-test



demographics



Dietary knowledge (DDKQ)

Dietary adherence



- · Getting more information might not be enough to encourage dietary adherence in the hemodialysis population.4
- · Suprisingly in this study, dialysis vintage does not have a significant association towards dietary adherence.

#### CONCLUSION

Dietary adherence is highly associated with dietary knowledge, marital status and ethnicity.

#### REFERENCES

- Beerappa, H., & Chandrababu, R. (2019). Adherence to dietary and fluid restrictions among patients undergoing hemodialysis: An observational study. Clinical Epidemiology and Global Health, 7(1), 127–130. https://doi.org/10.1016/j.cegh.2018.05.003
   Chan, Y. M., Zalilah, M. S., & Hii, S. Z. (2012). Determinants of compliance behaviours among patients undergoing hemodialysis in Malaysia. PloS one, 7(8), e41362. https://doi.org/10.1371/journal.pone.0041362
   Non-adherence in patients on chronic hemodialysis: an international comparison study
   Lim, J. H., Chinna, K., Khosla, P., Karupaiah, T., & Daud, Z. A. M. (2020). Understanding How Nutrition Literacy Links to Dietary Adherence in Patients Undergoing Maintenance Hemodialysis: A Theoretical Exploration Using Partial Least Squares Structural Equation Modeling. International journal of environmental research and public health, 17(20), 7479. https://doi.org/10.3390/ijerph17207479
   Teixeira, B., Afonso, C., Sousa, A. S., Guerra, R. S., Santos, A., Borges, N., Moreira, P., Padrão, P., & Amaral, T. F. (2019). Adherence to a Mediternanean dietary pattern status and associated factors among Portuguese older adults: Results from the nutrition up 65 cross-sectional study. Nutrition, 65, 91–96. https://doi.org/10.1016/j.nut.2019.03.005

#### ACKNOWLEDGEMENT

history

Author would like to acknowledge the contribution of the respondents from Hospital Serdang who willing participate in this study.



## FACTORS ASSOCIATED WITH KNOWLEDGE ON MANAGEMENT OF DIABETES DURING RAMADAN AMONG HEALTHCARE PROVIDERS

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## INTRODUCTION

- · Healthcare providers (HCPs) promote communication, enhance the relationship, and deliver better overall care<sup>1</sup>.
- · Pre-Ramadan education reduced the risk of symptomatic hypoglycemia and improved glycaemic control 2,3

#### **General objective**

To determine factors associated with knowledge on the management of diabetes (MoD) during Ramadan among HCPs.

#### Specific objectives

- 1. To determine sociodemographic characteristics, experience, attitude and usability of IDF-DAR application of HCPs.
- 2. To determine knowledge on the management of diabetes during Ramadan among HCPs.
- 3. To identify the association of sociodemographic characteristics, experience, attitude and awareness of IDF-DAR application with their knowledge level among HCPs.

## LITERATURE REVIEW

- A lack of knowledge among HCPs is one of the main hurdles to diabetes management<sup>4</sup>
- . There is no local study determining knowledge about MoD during Ramadan among the HCPs.
- · To the best of knowledge, no previous study determines the association of the type of HCPs, their attitude on the diabetes management, and awareness of IDR-DAR application with their knowledge level.

## METHODOLOGY

Study design: Cross-sectional study

### Study location

Hospital Sultan Abdul Aziz Shah (HSAAS), UPM

#### Study population

- · HCPs who are male and female Malaysian aged 18 years and above. · Have experience meeting people with
- · Must work at least 6 months in healthcare.



diabetes during Ramadan fasting.



#### Sampling method: Convenience sampling

#### Study instrument

- · A self-administered questionnaire by adapting a previous similar study<sup>5</sup> and referring to Practical Guidelines of Diabetes and Ramadan<sup>1</sup>
  - · Good reliability Cronbach's Alpha of 0.826.
  - Take 5-10 minutes to complete.

#### Statistical analysis

- IBM SPSS Statistics version 27.0
- · Chi-square test and Fisher's exact test



- Most of HCPs are 31-40 years old (67.1%), female (74.0%), Malay (84.9%), nurses (38.4%), have 6-10 years of experience in healthcare (42.5%), are not aware of the IDF-DAR app (79.5%), and have a good attitude (49.3%). Overall, the knowledge level is moderate (45.2%).
- The type of HCP (p<0.001), their experience in healthcare (p=0.007), attitude (p<0.001) and awareness of IDF-DAR app (p=0.014) are significantly associated with the knowledge level on the MoD during Ramadan among HCPs (p<0.05).
- · HCPs with more working experiences in healthcare, a good attitude and aware of IDF-DAR application acquire good knowledge level on the MoD during Ramadan.
- . The participants with positive attitudes regarding the importance of knowledge were more likely to increase their knowledge<sup>6</sup>.
- · Compared to a previous study conducted among Sudanese pharmacists<sup>6</sup> , it shows no significant association between years of practice and knowledge on MoD during Ramadan. The possible reason could be due to larger study population (n=311). Most of them (65.9%) have only 1 to 5 years of experience.

## CONCLUSION

- · Majority of HCPs in HSAAS have moderate knowledge level on MoD during Ramadan but good attitude towards MoD during Ramadan.
- The type of HCP, experience in healthcare, attitude and awareness of IDF-DAR application were found to be significantly associated with the knowledge on MoD during Ramadan while age group, sex, ethnicity, religion and usability of IDF-DAR application were not significantly associated with the knowledge on MoD during Ramadan.
- A large-scale study involving respondents across Malaysia and the globe should be conducted to confirm the findings of the research.

#### References

- **Exercises**1. International Diabetes Federation and DAR International Alliance (IDF-DAR). (2021). *Diabetes and Ramadan: Practical Guidelines*. International Diabetes Federation (IDF-DAR). www.idf.org/guidelines/diabetes-in-ramadan and www.daralliance.org
  2. Salti, I., Benard, E., Detournay, B., Bianchi-Biscay, M., Le Brigand, C., Voinet, C., & Jabbar, A. (2004). A Population-Based Study of Diabetes and Its Characteristics During the Fasting Month of Ramadan in 13 Countries: Results of the Epidemiology of Diabetes and Ramadan 1422/2001 (EPIDIAR) study. *Diabetes Care*. 27(10), 2306–2311. https://doi.org/10.2307/diacere.27.10.2306
  3. Shaltout, I., Zakaria, A., Abdelwahab, A. M., Hamed, A., Elsiaid, N. H., & Attia, M. A. (2020). Culturally based pre-Ramadan education increased benefits and reduced hazards of Ramadan fasting for type 2 diabetic patients. *Journal of Diabetes & Metabolic Disorders*. https://doi.org/10.1007/s40200-020-00489-1
  4. Enameguolo, Y. I., & Tamunopriye, J. (2016). Survey on Knowledge of Healthcare Providers about Childhood Diabetes Mellitus in Tertiary healthcare Institution in a resource-limited setting. The Nigerian Health Journal, 16(3).
  5.Zainudin, S. B., & Hussain, A. B. (2016). The current state of knowledge, perception and practice in diabetes management during fasting in Ramadan by healthcare professionals. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 12(3), 337-342. https://doi.org/10.1016/j.dsx.2017.10.205
  6. Abdeleza, T. A., Abdulraheem, M.A., Badawi, M. I., Saeed, A. O., Elobied, M. A., & Ahmed, M. H. (2019). Knowledge, attitude and practice of Sudanese pharmacist with regard to management of diabetes during Ramadan: A cross-sectional survey. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 13(1), 122–126. https://doi.org/10.1016/j.dsx.2018.07.019









## FACTORS ASSOCIATED WITH MUSCLE MASS IN PATIENTS WITH METABOLIC OBESITY

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## FACTORS ASSOCIATED WITH FALLS AMONG HOSPITALISED **OLDER PATIENTS IN HOSPITAL SULTAN ABDUL AZIZ SHAH, UPM**

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STUDY DESIGN



#### INTRODUCTION

- · Falls among hospitalized older patients pose a significant challenge in healthcare settings worldwide.
- · Potential consequences of falls include severe injuries, increased morbidity, prolonged hospital stays, and higher healthcare costs.<sup>1</sup>
- · Limited research findings related to prevalence of falls in healthcare settings.
- · Early identification of these factors beneficial in implementing intervention programs to prevent falls in hospital setting.

#### **OBJECTIVE**

To investigate the association between sociodemographic factors, medical background, anthropometry, dietary intake, risk of malnutrition, and functional status with falls among older patients in HSAAS.

### LITERATURE REVIEW

Inconsistent findings on sociodemographic factors, anthropometry, dietary intake, risk of malnutrition and functional status with falls among older patient except for medical background.



#### Association factors with falls among older patients

Objective 3 :To determine association factors with falls among older patients in HSAAS						
Table 1: Sociodemographic and falls			Table 4: Medical ba	ackground a	nd falls	
	Variables	χ2	p-value	Variables	χ2	p-value
	Age	0.000	0.992	Comorbidity	0.094	0.468
	Gender	0.144	0.705	Diabetes Mellitus	1.601	0.206
	Ethnicity	0.362	0.834	Hypertension	1.414	0.332
N	Marital status	5.825	0.039*	Chronic Kidney Disease	0.381	0.537
	Living status	2.990	0.119	Dyslipidemia	0.518	0.472
Table 2: BMI and falls		Cardiovascular Disease	0.005	1.000		
	Variables	γ2	p-value	Polypharmacy	5.712	0.041*
	BMI	0.723	0.697	Table 5: Risk of mal	nutrition and	d falls
	Table 3: Dietary	intake and	falle	Variables	χ2	p-value
	Table 5. Dietary		iaus	MNA-SF Nutritional	7,869	0.023*
	Variables	χ2	p-value	Status		0.020
I	Energy adequacy	y 0.07	4 0.785	Table 6: Function	al status and	l falls
I	Protein adequacy	0.23	5 0.628	Variables	χ2	p-value
	Dietitian referra	l 19.52	27 0.003*	Hangrip strength	0.035	0.852

### **CONCLUSION**

- · Proper nutrition and referral to dietitian tends to have protective impact on falls among older patients.
- · Marital status and number of medications taken have to be considered when assessing patient's risk of falls during admission.
- The results highlight importance of healthcare professionals especially dietitian in implementing early dietary intervention among older patients to reduce incidence of falls in healthcare settings.



**METHODOLOGY** 

STUDY LOCATION

Hospital Sultan Abdul Azizz

ight Normal Overwei (24-30) (>30) Objective 2 : To determine sociodemographic factors, medical background, anthropometry, risk of malnutrition and functional status

#### DISCUSSION

- Significant association (p<0.05) were found between marital status, (x2=5.825, p=0.039), polypharmacy (x2=5.712, p=0.041), referral of dietitian (x2=19.527,p=0.003), and risk of malnutrition (x2=7.869,p=0.023) with falls.
- Single or widowed older patients have higher falling risk, this aligned with previous research in which single individual tend to have fewer social connections and less assistance available.<sup>2</sup>
- · Referral to dietitian seems to have positive impact on lowering fall risk similar to prevent findings as dietitian manage malnutrition, provide personalized nutrition care plans which adequate nutrition essential for good muscle strength and body balance.<sup>3</sup>
- The use of multiple medications lead to drug interactions, adverse effects, dizziness, impaired balance increase the risk of falls<sup>4</sup> This finding is consistent with previous study.
- No association between comorbidity contradicted to the previous findings that shows diabetes mellitus would increase risk of falls 5

### REFERENCES

- 1. Najafpour, Z., Godarzi, Z., Arab, M., & Yaseri, M. (2019b). Risk Factors for Falls in Hospital In-Patients: A Prospective Nested Case Control Study. International Journal of Health Policy and Management, 8(5), 300-306.
- https://doi.org/10.15171/ijhpm.2019.11 2. Vaishya, R., & Vaish, A. (2020). Falls in Older Adults are Serious. Indian Journal of Orthopaedics, 54(1), 69-74. https://doi.org/10.1007/s43465-019-00037-x
- 3. Manvelian, A., & Sbarra, D. A. (2020). Marital Status, Close Relationships, and All-Cause Mortality: Results From a 10-Year Study of Nationally Representative Older Adults. Psychosomatic Medicine, 82(4), 384–392. https://doi.org/10.1097/psy.0000000000000798
- 4. Hoel, R. W., Connolly, R., & Takahashi, P. Y. (2021). Polypharmacy Management in Older Patients. Mayo Clinic Proceedings, 96(1), 242–256. https://doi.org/10.1016/j.mayocp.2020.06.012
- 5. Sahril, N., Shahein, N. A., Yoep, N., Mahmud, N. A., Sooryanarayana, R., Maw Pin, T., Muhamad, N. A., & Ismail, H. (2020a), Prevalence and factors associated with falls among older persons in Malaysia, Geriatrics &Amp; Gerontology International, 20(S2), 33-37. https://doi.org/10.1111/ggi.13980



## FACTORS ASSOCIATED WITH MALNUTRITION AMONG HOSPITALISED OLDER PATIENTS IN HOSPITAL SULTAN ABDUL AZIZ SHAH, UPM

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# Factors Associated with Pressure Ulcer Among Older Patients in Hospital Sultan Abdul Aziz Shah, UPM



## Fatemeh Bazyari, Noraida Omar, Kong Jing Ying, Norleisa Hashim & Siti Nur Jannah Nor Aznan

Nutritional Status

Variable

ed 🔳 At risk 💻 Malnourished

Body Mass Index (n=102)

Underweight (Below 23) Normal (24 - 30)

Overweight (Above 30)

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## INTRODUCTION

- Pressure ulcer (PU) predominantly affect hospitalized patients [1], with 90% of documented cases occurring among individuals aged 60 years or older [2].
- The prevalence of PU in hospitals in Malaysia range from 1.49% to 15.5% [3,4]
- There have been few published papers [3] with mixed findings on the associated factors related to PU in Asia [5]
- · Consequences of PU include increased levels of pain, prolonged hospitalization periods, increase health care costs and mortality [6]

## LITERATURE REVIEW

· Advanced age [2], presence of comorbidities [7], risk of malnutrition [8], dietary intake [9], and mobility status [5,10] have been identified as risk factors strongly associated with pressure ulcer among older adults.

## OBJECTIVE

· To investigate the factors associated with pressure ulcer among older patients in HSAAS, UPM

## METHODS

Sample size Study instruments Study design Cross-sectional study Inclusion criteria · Self-administered questionnaire 114 subjects Malaysian citizen · Anthropometry measurements Sampling Design •  $\geq$  60 years old Study location · 2 day diet recall · Admitted for more than 48 hr Purposive and convenience Hospital Sultan Abdul Aziz Shah • MNA-SF RESULTS 1. To assess the sociodemographic, medical background, anthropometry, dietary intake, risk of malnutrition and mobility status among older patients in HSAAS Fia 3.

Fig 2. Types of Comorbidities

Chrank Kidney Dis

Carrilovascular Disea

n (%)

41 (39.8) 62 (60.1)

69 (67.6)

8 (7.8)

59 (57.8)

15 (14.7)

67 (65) 36 (34.9)

**Dietary Characteristics** 

ian Referral (n=103)

Adequate Excessive in Adequacy (n=102)

Adequacy (n=103)

Adeouate

Energy Adequacy (n=102)

#### 2. To determine the proportion of pressure ulcers among older patients in HSAAS

Fig 5

3. To determine the associated factors with

Sociodemographic and pressure ulcer

Table 3

18.18

4.86

2.22

310

0.71

0.68

0.46

1.00

0.28

0.09

pressure ulcer among older patients in

HSAAS

Variable

Age Gender

Ethnicity

Religion Educational status

Marital status

Livino status

ure ulce



Statistical analysis

Descriptive analysis

· Chi-square test

p<0.05

Di

τ.

Pr

IBM SPSS statistics version 27

Table 4

male

0.58

0.05

0.56

0.28

1,0

0.05

0.57

Dietary intake and pressure ulcer

riable	X2	p-value
titian referral	5.20	0.03
rgy adequacy	3.60	0.12
tein adequacy	2.15	0.49
id adequacy	1.25	0.40

Mobility status an	d pressure	ulcer
		a state

Table 5

Variable	X <sup>2</sup>	p-value
Mobility status	9.25	0.009
Table	e 6	

## DISCUSSION

Fig. 1 Sociodemographic Background

= 60 - 74 y/o = 75 - 84 y/o => 85 y/o

Ethnicity

The prevalence of pressure ulcers was found to be 6 individuals, accounting for 4.8% and falling within the range reported by previous studies [3,4]. Differences in the results might be attributed to variations in sample size.

An association between cardiovascular diseases and pressure ulcer was observed, which is consistent with findings from previous studies [11].

Table 1

The results indicate that early referral to a dietitian can vield favorable outcomes for patients with pressure ulcers, facilitating improvements in their nutritional intake.

Consistent with previous studies [5,10], the mobility status of the subjects emerged as another significant factor strongly associated to pressure ulcer.

## CONCLUSION 🕏

n (%)

37 (36.2)

44 (43.1)

21 (20.5)

obility Status

24

Number of subjects 100

Classification

Table 2

60

20

Bed-ridder

Able to move, but do not

The presence of cardiovascular diseases, referral to dietitian, and mobility status were identified as significant factors associated with pressure ulcer among older patients in HSAAS. These findings accentuate the important role of dietitians in managing and treating pressure ulcer as dietitians use an individualized approach to optimize nutrient intake and promote wound healing.

## ACKNOWLEDGMENT

The author would like to extend sincere appreciation and gratitude to the participants who generously dedicated their time and contributed to this study as well as the staff at HSAAS for their support, cooperation, and assistance throughout the research process. Additionally, the author would like to acknowledge the contribution of UPM for providing the necessary resources, guidance, and academic environment that nurtured this research



al from National Medical Research Registe

(NMRR - 20-308-52632)

Approval from JKEUPM UPM/TNCPI/RMC/1.4.18.2 (MREC-JKEUPM

REFERENCES

Gonde

= Male = Female

**Marital Status** 

of subjects

Cance

Variable

Die

Fluid

iheshlagh F . V., Poi, P. The incidence of pres-, & Tan, M. P. (2014).



Fig 2: Medical Background

![](_page_16_Picture_0.jpeg)

## FACTORS ASSOCIATED WITH CONSUMERS' INTENTION TO PURCHASE HEALTHFUL FOODS AND BEVERAGES FROM VENDING MACHINES IN HOSPITAL SULTAN ABDUL AZIZ SHAH UNIVERSITI PUTRA MALAYSIA (HSAAS UPM)

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![](_page_16_Picture_4.jpeg)

#### INTRODUCTION

- · Vending machines in healthcare institutions typically offer energy-dense and nutrient-poor foods that are high in added sugars, saturated fats, and sodium [4].
- · Overconsumption of these foods has significantly contributed to the population weight gain, increasing the risk of obesity, and non-communicable diseases [4].
- This study aims to examine factors associated with consumers' intention to purchase (PI) healthful foods and beverages from the vending machines in Hospital Sultan Abdul Aziz Shah Universiti Putra Malaysia (HSAAS UPM).
- · Extended Theory of Planned Behaviour (TPB) attitude (ATT), subjective norms (SN), perceived behavioural control (PBC), and health consciousness (HC), was used as the underpinning theory.

#### **HYPOTHESES**

- H1: ATT is significantly associated with PI towards healthful foods and beverages from the vending machines.
- · H2: SN is significantly associated with PI towards healthful foods and beverages from the vending machines.
- · H3: PBC is significantly associated with PI towards healthful foods and beverages from the vending machines.
- · H4: HC is significantly associated with PI towards healthful foods and beverages from the vending machines.

#### LITERATURE REVIEW

- · No known studies on consumers' PI towards healthful foods and beverages from vending machines in Malaysia [6].
  - Transition from unhealthy to healthy products may impact sales and revenue of vending machines [2]
- · Lack of theory-based studies on predicting consumers' PI in Malavsia [7].
  - Have better design and execution features [3]
- TPB is effective in assessing intention to predict behavior [5] . Limited research on using HC as an additional predictor to assess consumers' PI in Malaysia [6,7].
  - · Reflects an individual's perceived inclination to concern about his health [6,7]

#### METHODOLOGY

#### Study Design

Online survey quantitative cross-sectional study

#### Study Location and Participants

HSAAS UPM; HSAAS UPM employees, out-patients, and visitors (aged ≥ 18 years old, and literate in Malay and English)

#### Sample Size and Sampling Design

#### N = 129; Purposive sampling

#### Study Instrument

- · Self-administrated survey by using Google Form
- Section A: Socio-demographics
- Section B: Extended TPB guestionnaire [7]
  - · Constructs: ATT, SN, PBC, HC, and PI
  - Measurement: 7-point Likert scale
  - ("1 = Strongly Disagree" to "7 = Strongly Agree")

#### Data Collection

- Pre-testing Period: 8/3/2023 12/3/2023
- Data Collection Period: 21/3/2023 13/4/2023
- Method 1: Questionnaire QR code scanning for outpatients and visitors during on-site visits
- · Method 2: Online invitations via email to employees

#### Data Analysis

- Software: IBM SPSS Statistics version 27
- · Screened data before conducting normality test
- · Computed univariate analysis and Pearson correlation

![](_page_16_Figure_45.jpeg)

#### Level of Agreement on ATT, SN, PBC, HC, and PI of Consumers (N = 137)

![](_page_16_Figure_47.jpeg)

Note: Attitude = ATT; Subjective Norms = SN; Perceived Behavioural Control = PBC; Health Consciousness = HC; Intention to Purchase = PI Figure 2. Level of Agreement on ATT, SN, PBC, HC,

and PI of Consumers (N = 137)

![](_page_16_Figure_50.jpeg)

![](_page_16_Figure_51.jpeg)

Note. Attitude = ATT; Subjective Norms = SN; Perceived Behavioural Control = PBC; Health Consciousness = HC; Intention to Purchase = PI "Correlation is significant at p < 0.01 (2-tailed).

Figure 3. Correlations of ATT, SN, PBC, HC, and PI of Consumers (N =137)

significantly positive correlated consumers' PI with towards healthful foods and beverages from vending machines in HSAAS UPM. PBC had the stronaest association with PI among all the

• On average, respondents slightly

agreed on the statements related

to their ATT, SN, PBC, HC, and PI

towards healthful foods and

beverages from vending machines

with a mean ranging from 5.02 ±

Similar result was found in a

previous research studying about

selecting healthy snacks [5]. This

might be due to similar socio-

demographic background, which majority of the respondents were

young adults and tertiary educated.

1.37 to 5.71 ± 1.14.

- variables. This result aligned with a previous research that had similar socio-demographic background, which majority of the respondents employed and tertiarv were educated [7].
- Consumers with high PBC are more likely to engage in desired purchases due to their confidence in making informed decisions [1].
- ATT, SN, PBC, and HC are the factors that significantly associated with consumers' PI towards healthful foods and beverages from vending machines in HSAAS UPM.

CONCLUSION

- · Findings could assist policymakers and vending machine retailers in understanding consumers' PI, and implementing tailored and effective interventions to provide healthier options in the vending machines in HSAAS UPM.
- Findings could contribute to body of knowledge and act as a baseline data for further research.

#### REFERENCES

[1] Ajzen, I. (2020). The Theory of Planned Behavior: Frequently asked questions. Human Behavior & Emerging Technologies, 2, 314–324. https://doi.org/10.1002/bbs2.195 [2] Blake, M., Boelsen-Robinson, T., Hanna, L., Ryan, A., & Peetera, A. (2021). Implementing a healthy food retail policy: A mixed-methic investigation of change in stakeholdern' persper Health Nutrition, 24(9), 08569-880, doi:10.1017/S13898000020414 [3] Cummins K. M. (2022). Explanations for the Cloudy Evidence That Theory Benefits Health Promotion. Frontiers in Psychology, 13, 910041. https://doi.org/10.3389/ftpsyg.2022.910041 [4] Grench, A., & Alman-Fannell, M. (2015). A systematic Interfure function interventions in vending machines that encourage consumers to make healther torices. Deskty for Automatic Intervention and the vending machines that encourage consumers to make healther torices. Deskty for Automatic Interventions and the antice and the antice and the chains. The Automatic Intervention of Automatic Interventions and the antice and the chain and the antice and the chains. The Automatic Interventions and the antice and the antice and the chains. The Automatic Intervention and the antice and the antice and the chains. The Automatic Intervention and the antice and the antice and the antice and the antice and the chains. The Automatic Intervention and the Intervention of the Chains. The Automatic Intervention and the Intervention and Intervention and the Intervention and Intervention and the Intervention and the Intervention and In

[1] Orecu, A. 2. A match an inter, in: (2012), regression constant events in national metriculus in retraining machines and includes constant events. Collectry reterets, 10(12), 1000 (2014). https://doi.org/10.1111/doi.12301 [3] Lamber, L. G., Chang, Y. & Mann, G. (2020) College students' intention to select healthy snacks: An application of the Theory of Planned Behavior. *American Journal of Health Education*, 51(4), 215-224 https://doi.org/10.1080/19325037.22021/1767003

foid org/101080/1922637.2020.1767003 mm. A. A., Hayat, N. & Zaniou, N. R. B. (2020). Healthy earing determinants: A study among Malaysian young adults. Foods, 9(8), 974. https://doi.org/10.3390/foods9080974 mg. X. Pacho, F., Liu, J. & Kajungiro, R. (2019). Factors influencing organic food purchase intention in developing countries and the moderating role of knowledge driver and 1309mus 1107000.

![](_page_17_Picture_0.jpeg)

### FACTORS ASSOCIATED WITH PATIENT'S SATISFACTION ON HOSPITAL FOODSERVICE AT HOSPITAL SULTAN ABDUL AZIZ SHAH UNIVERSITI PUTRA MALAYSIA (HSAAS UPM)

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![](_page_17_Picture_4.jpeg)

![](_page_17_Figure_5.jpeg)

3) Capra, S., Wright, O., Sardie, M., Bauer, J., & Askew, D. (2005). The acute hospital foodservice patient satisfaction questionnaire: the development of a valid and reliable tool to measure patient satisfaction with acute care hospital foodservice. Foodservice Research International,

4) Dijxhoom, D. N., Mortier, M. J., van den Berg, M. G., & Wanten, G. J. (2019). The currently available literature on inpatient foodservices: systematic review and critical appraisal. Journal of the Academy of Nutrition and Dietetics, 119(7), 1118-1141. https://doi.org/10.1016/j.jand.2019.01.018

5) El Sherbiny, N.A., Ibrahim, E.H., & Hewedi, M.M. (2017). Patients' satisfaction with delivered food services in Favour Hospitals. EC. Nutr. 9(2), 94-104 6 Easu, K (2020). My culture, my plate: an exploration of the cultural food and meal preferences of Main (spinles, and Chinese groups during hospital admission in New Zealand: a thesis submitted in partial fulfilment of the requirements for the degree of Master of Science majoring in Nutrition and Dietetics, Massey University, Auckland, New Zealand (Doctoral dissertation, Massey University).

7) MacKenzie-Shalders, K., Maunder, K., So, D., Norris, R., & McCray, S. (2020). Impact of electronic bedside meal ordering systems on dietary intake, patient satisfaction, plate waste and costs: a systematic literature review. Nutrition & Dietetics, 77(1), 103-111. 8) Rapo, S., Mattson Sydner, Y., Kautto, E., & Hörnell, A. (2021). Exploring patient satisfaction with hospital foodservice: a Swedish study using the acute care hospital foodservice patient satisfaction questionnaire. Nutrition & dietetics, 78(5), 487-495

![](_page_18_Figure_0.jpeg)

100%

ained

90% remained

75% remained

50% remained

25% remained

0% remained

![](_page_18_Picture_10.jpeg)

![](_page_18_Picture_11.jpeg)

 Construct and products, 19(3), 033-071.
 Schlavone, S., Pelullo, C. P., & Attena, F. (2019). Patient evaluation of fr research and public health, 16(22), 4330.
 Simzari, K., Vahabzadeh, D., Nouri Saeidlou, S., Khoshbin, S., & Bektas, Y ou, S., Khoshbin, S., & Bektas, Y. (2017). Food intake, plate waste and its ass 34(6), 1376-1381 Valero Díaz, A., & Car a, A. (2013). Evaluation of factors affecting plate waste of inpatients in different healthcare settings. Nutricion Plate waste in hospitals and strategies for change. e-SPEN, the European e-Journal of Clinical Nutrition and

ns, P., & W on, K. (2011). Plat 235-241. 16. Zaid, A. Z., Lim, V. C. C., & Jamhuri, N. (2019). Plate Wastage among Hospitalized Cancer Patients. Malays. J. Med. Health Sci. 15, 84-86

![](_page_19_Picture_0.jpeg)

#### NUTRITIONAL CONTENTS AND FACTORS ASSOCIATED WITH ATTITUDE TOWARDS VENDING MACHINES AT HOSPITAL SULTAN ABDUL AZIZ SHAH (HSAAS)

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#### INTRODUCTION

overweight and obesity [4].

- · Vending machines (VM) is a part of food service that serve food and beverages [1].
- · VM products commonly unhealthy (high in calories. sugar, fat, and salt) [14]. · Accessibility and availability of the VM lead to

· VM is common in institutional organizations including

![](_page_19_Picture_8.jpeg)

Figure 1: Vending Machines at HSAAS

Comparison with Malaysian Vending

Section B: Individual characteristics [5]

Section C: Health consciousness [9]

and attitudes [4] (7-point Likert Scale; 1

= Strongly disagree to 7 = Strongly

Method 1: Scanned QR code for visitors

· Method 2: Emailed online invitations to

and outpatients during on-site visits.

Chi-squared Test and Pearson

\*Correlation is significant at the

Machine Guidelines 2011

Attitudes towards VM: Google Form

Section A: Sociodemographic [11]

## OBJECTIVES

hospitals [10].

General Objective To examine nutritional contents and factors (gender and health consciousness) associated with attitudes toward VM at HSAAS.

#### Specific Objectives

- a. To assess the nutritional contents of current VM foods and beverages at HSAAS.
- b. To determine the sociodemographic characteristics and health consciousness of VM consumers
- c. To examine the significant differences in attitudes toward VM between gender.
- d. To investigate the association between health consciousness and attitude toward VM.

### **REVIEW OF LITERATURE**

Variables	Finding(s)
Nutritional contents	<ul> <li>Limited studies conducted to access the healthfulness of vending machines' foods and beverages [11,13].</li> <li>No known study conducted in Malaysia about that.</li> </ul>
Gender	<ul> <li>Inconsistence findings about the attitudes toward vending machine between gender [5].</li> </ul>
Health concsiousness	<ul> <li>Health consciousness showed a positive result on health, life goals and perceived behavioral control [12].</li> <li>Health consciousness of people will give a significant impact on them to choose healthier food options [16].</li> <li>Health consciousness and attitudes are squared correlate (r<sup>2</sup>= 0.202) [6].</li> </ul>
METHODOLOG	
·ⓒ· <b>Study Design</b> 로 <i>ው</i> Cross-sectional s	tudy Study Instrument Nutritional contents: Nutrient profiling

Sampling Design

## Purposive sampling

- Sample Size Nutritional contents:
  - All available VM
  - Attitudes towards VM: n = 129
- Location

Hospital Sultan Abdul Aziz Shah (HSAAS)

#### Participants

- HSAAS's employees, outpatiens, and
- visitors Literate in Malay or English
- **Ethical Approval**

- JKEUPM and HSAAS

## **RESULTS AND DISCUSSION**

![](_page_19_Figure_34.jpeg)

• Neither VM foods nor beverages were nutrient-dense, and the most majority were calorie-dense [3].

90% of the foods offered in VM are not following the guideline as all the flour confections products are not labeled 'high fiber', 'high in vitamin' or 'high mineral' and/or 'low fat', 'low sugar' or 'low salt'. Grain food is not labeled 'whole grain'.

offered are not following the guideline as all carbonated drinks are prohibited even if labeled as low calories and all ready-todrinks (except milk) should be low sugar (≤ 2.5 g per 100 ml) and low fat (≤ 1.5 g per 100 ml).

HSAAS Employees

HSAAS Outpatients

![](_page_19_Figure_38.jpeg)

(N = 150)	(44%)	(14%) (42%)	HSAAS Visitors
68% of	98% of	71.2% of	53.3% of
responder	respondents	respondents	respondents aged
are female	are Malaysian	are Malays	18-30 years old.

Table 1: The Diffe Attitudes To	rence betw owards Ven	een Male a ding Macl	and Femal nines	le	<ul> <li>Current study showed that mor than 70% of participants agreed th current vending machine option</li> </ul>		
Altitudes (Vending machines products)	Disagree N (%)	Neutral N (%)	Agree N (%)	p- value	<ul> <li>were unhealthy and not nutritious.</li> <li>VM users think that VM is not bealthy and want bealthier option</li> </ul>		
keep me healthy. Male Female	113 (76,9) 29 84	19 (12.9) 8 11	15 (10.2) 10 5	0.004*	<ul><li>[5].</li><li>VM usually offer unhealthy produc</li></ul>		
are nutritious. Male Female	113 (75,3) 20 (13, 30 9 63 11	20 (13,3) 9 11	17 (11.3) 9 6	0.038*	<ul> <li>beverages [13].</li> <li>Over half of participants agreed the HSAAS's VM are easily accessible</li> </ul>		
take no time to prepare my meals. Male Female	40 (26.7) 6 34	30 (20.0) 10 20	80 (53.3) 32 48	0.021*	<ul> <li>Convenience and lack of time wer the most common reasons for purphening from VM [6]</li> </ul>		
are easily available. Male Female	11 (7.3) 28 (18.7) 0 9 11 19	111 (74) 39 72	0.058	Strategic location of VM and quic process for on-the-g consumption [8].			

#### Health Consiousness & Attitudes toward Vending Machines

Mean score for Health Consciousness = 5.7 (Agreement on Health Consciousness)

Health consciousness	Pearson's r = -0.189*	Attitudos
Treatti consciousiless	p-value = 0.02 (2-tailed)	Attitudes

- · Health consciousness has negative correlation with attitudes toward current VM. • The higher health consciousness, the lesser attitudes toward current VM
- · A previous study revealed an association of health consciousness and intention to purchase healthy food options [7].
  The perception that VM do not often give the better healthy options that health-conscious
- consumers want [5]

#### CONCLUSION

- · Investigated the nutritional contents and factors associated with attitudes toward VM at HSAAS
- This study highlighted a low adherence to vending machine guidelines
- . This study could guide policymakers in developing initiatives to increase the availability
- and accessibility of nutritious choices and enhance overall consumer experience Offering nutrition education to consumers can help guide them in making healthier choices when using vending machines

### REFERENCES

1. Bavani, S., & Choo, Y. P. (2016). An analysis on the perception and situational factors in using vending machine among universities' students in Malaysia. Research on Humanities and SocialSciences, 6(17), 1-7.
2. Cunha, L. M., Cabral, D., Moura, A. P., & de Almeida, M. D. (2018). Application of the food choice questionnaire across cultures: Systematic review of cross-cultural and Single Country Studies. Food Quality and Preference, 64, 21–36. https://doi.org/10.1016/j.foodqual.2017.10.007
5. Faris, M. a. E., Al-Bakheit, H., Hasan, H., Ismail, L. C., Jahrami, H., Rajai, D. J., Almashgouni, A. A., Alshehti, A., Aljaby, A. S., Ajjarvan, M., Alnaqbi, M., & Obaid, R. S. (2021). Assessment of nutritional quality of snacks and beverages sold in university vending machines: a qualitative assessment. *British Food Journal*, 123(7), 2449–2460. https://doi.org/10.1086/j.foodqual.2011.1006/j.
4. Godin, K. M., Hammond, D., Chaurasia, A., & Leatherdale, S. T. (2018).Examining changes in school vending machine beverage availability and sugar-sweetneed beverage intake among Canadian adolescents participating in the compass study. J. Alongshipot. Along/10.1186/s12966-01910/18016/312926 Sugar-Sweetened beverage intake among Canadian adolescence year optimized and the second s

agree)

February until March 2023

HSAAS's employees

IBM SPSS Statistics 27

correlation coefficient

p-value ≤ 0.05 level

**Data Collection** 

Data Analysis

Nguyen, N., Nguyen, H. V., Nguyen, P. T., Tran, V. T., Nguyen, H. N., Nguyen, T. M. N., Cao, T. K., & Nguyen, T. H. (2019). Some key factors affecting consumers' intentions to purchase functional foods: A case study of functional yogurts in Vietnam. *Foods*, 9(1), 24. https://doi.org/10.3390/foods9010024
 Matthews, M. A., & Horacek, T. M. (2015). Vending Machine Assessment Methodology. A systematic review. *Appetite*, *90*, 176-186.https://doi.org/10.1016/j.appet.2015.03.007
 Park, H., & Papadaki, A. (2016). Nutritional value of foods sold in vending machines in a UK university: Formative, cross-sectional research to inform an environmental intervention. *Appetite*, *96*, 517–525.https://doi.org/10.1016/j.appet.2015.10.022
 Pu, B., Zhang, L., Tang, Z., & Gui, Y. (2020). The relationship between health consciousness and home-based exercise in China during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *17*(16), 5693.
 Rozman, U., Mis, N. F., Kupirovič, U. P., Pravst, I., Kocbek, P., Strauss, M., & Turk, S. (2021). Nutritional quality of beverages available in vending machines in health and social care institutions: Do we really want such offers? *Journal of Health*, *Population and Nutrition*, *40*(1). https://doi.org/10.1186/s41043-021-100250-1
 Volpe, R., & Marchant, S. (2020). Vending Machines and Cardiovascular Prevention: How to Implement Healthy Dietary Habits at School. *High Blood Press Cardiovasc Prev*, *27*(5), 417–419. https://doi.org/10.1007/s40292-0200397-8
 St. Whatnall, M. C., Patterson, A. J., & Hutchesson, M. J. (2020). Effectiveness of Nutrition Interventions in Vending Machines to Encourage the Purchase and Computer food and Drinks in the University Setting: A Systematic Review. *Nutrients*, *12*(3), 876.https://doi.org/10.1016/j.appet.2015.00.017