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RECRUS
Research Newsletter

CLINICAL RESEARCH UNIT
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Highlights

[click to view]

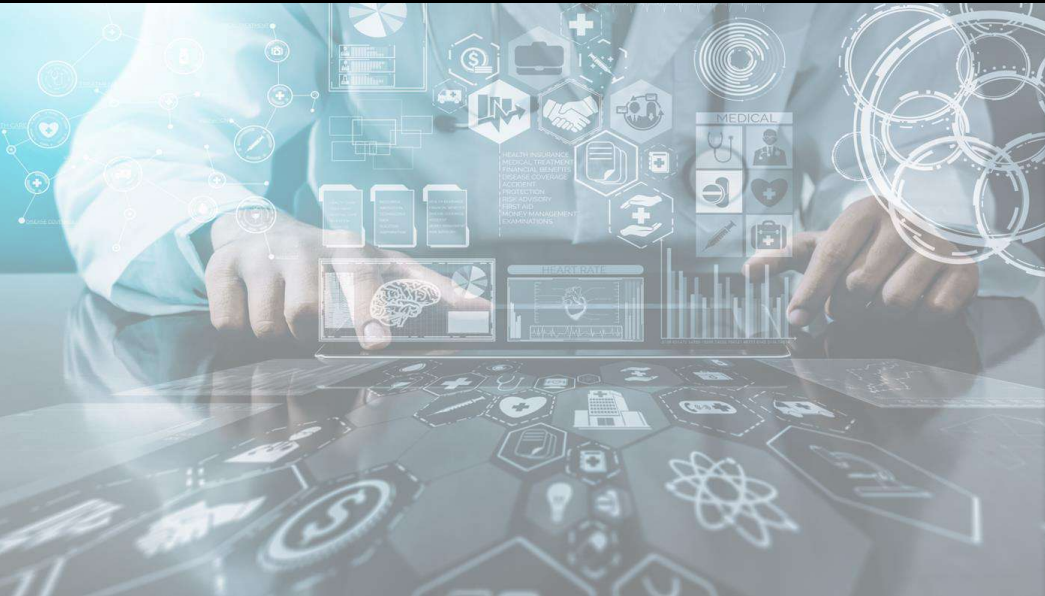## *Editor's Notes*

This Issue of the Newsletter present to you Breaking News on an outline of Biased Research Prevention Plan based on the increasing calls in the literature, including similar lights are shone forth from the reformed UK Research Excellence Framework.

Another important update are from the frontiers of codes of conduct in research and development of artificial intelligence/machine learning in healthcare and medical research, and the strategies available forward in the Open Science movement.

Lastly, do catch-up the key points from our workshops or seminars and if you wish to watch the replays, do get into contact with CRU.

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WHAT'S INSIDE

Announcements

REGISTER NOW!

- MJH19: Comparative Effectiveness of Aspirin Dosing in Cardiovascular Disease. 1030 – 1145, 25th August 2023.
- Research Colloquium series 1/2023. 1545 – 1630, 9th August 2023.
- Empowering Excellence: Unleashing thePower of Medical Audit for Enhanced Patient Care. 1400 – 1700, 3 August 2023, Bilik Seminar HSAAS.
- Identifying and Managing Missing Data and Outliers in Clinical and Health Sciences Research. 1400 – 1700, 10 August 2023, Bilik Seminar HSAAS.
- REDCap. 1400 – 1700, 17 August 2023 (Thursday), Bilik Seminar, HSAAS.
- Research Into Practice: The Challenge of Implementation (Hybrid Seminar). 1430 – 1600, 19th September 2024, Mini Theatre HSAAS
- The International Training Workshop on Open Science and SDGs 2023, 28 August – 8 September 2023, Beijing, China
- The International Symposium on Open Science Cloud (ISOSC), 4-6 September 2023, Beijing, China
- The 3rd International Forum on Big Data for Sustainable Development Goals (FBAS2023), 6-8 September 2023, Beijing, China
- 23rd FERCAP INTERNATIONAL CONFERENCE. A hybrid conference with face to face and online participation. November 26-29, 2023, Kuala Lumpur, Malaysia

SECTION A

BREAKING NEWS

LIVE ● ⟫

Biased Research Prevention Plan

By Associate Prof. Dr. Chew Boon How, Head of Clinical Research Unit, HSAAS

No.	Biases	Prevention / *Detection*	Notes
Extrinsic			
1.	Sponsorship bias [1]	i. Sequestering investigators from private companies ii. *Disclosure of all relationships*	i. Whenever possible. Otherwise, be utmost careful and sceptical with every step of the whole research process. ii. *Limited by timing and disclosures by (un)involved people in a research project.*
2.	Flawed incentive structures and researcher performance metrics that 'preferentially value aesthetics over authenticity.' [2]	i. To prize authentic and robust research and their outputs whether their findings are positive or negative. ii. To encourage or educate both investigators and research institutions to recognise the extent to which they are entangled in the major conflict of commitment and interest between conducting authentic science and being successful and enjoying the individual and institutional rewards of success in 'aesthetic' science. iii. To show proof of inclusion or exclusion of research papers produced by the researchers or the research institutions from high-quality systematic reviews in the related topics, if available. Otherwise, may consider conduct or simulate one that apply risk of bias assessment and grading of the certainty of the evidence. iv. Institutional leaders will need to take responsibility for eliminating the conflicts of interest that promote bias in research by having institutional metrics of professional success that align with good science [3-5] v. Institution or a professional society to host a competition to develop the best prevention plan for respective department or discipline, respectively. vi. Research institutions to sponsor audits of the work or outputs of their research teams	i. A challenging transformation given the extent to which both the investigators and research institutions flourished under the current rewards structures. ii. Researcher's personal behaviours are often determined by the institution's policy that would risk career advancement if not complied. While the institution's policy is often determined by the high-level stakeholder or policymakers fixed and outdated concepts of research excellence. iii. Limited by the availability of related systematic reviews. The alternative approaches are limited by competent and availability of reviewers. If this were achieved, the findings could result in insightful and decisive prevention plan. iv. To convince the leaders that good science will lead to the desired outputs and research excellence [6], more satisfied and motivated researchers and vibrant research culture [7]. Can draw on existing resources such as the published 5 Hong Kong Principles for assessing researchers: 1) responsible research practices; 2) transparent reporting; 3) open science (open research); 4) valuing a diversity of types of research; and 5) recognizing all contributions to research and scholarly activity [8]. v. This requires sizeable interest, having critical mass of champions and participation from the institutional leaders. vi. Systematic reviews that are available would be used to inform the audits. The audits could be conducted at random or only on teams that volunteer. The launch of the audits would need to be preceded

			by a communication effort that outlined the aim and value of the audits in order that they are not perceived or experienced as punitive.
3.	Biases research practices have caused much scientific misconduct and diffused through the scientific community as an unhealthy condition to be handled *en masse* [9].	To impose a heavier responsibility than currently applied on all institutions and their leaders for ensuring ethical and sound research environments, and avoiding minor breaches of good scientific practice. i. Acknowledge and address scientific misconduct ii. Broad definition for prevention iii. Simplify guidelines and improve training iv. Establish independent investigation mechanisms v. Reform academic system of reward and merit	i. Scientific misconduct should not be downplayed, and its occurrence must be openly acknowledged. Regular seminars and discussions on the causes, outcomes, and consequences of scientific misconduct should be held by research institutions. ii. While a strict definition is suitable for legal action, a wider definition that includes all breaches of accepted scientific practice should be used for preventive measures. iii. Current guidelines and regulations should be simplified and readily accessible to researchers. Ethical and legal issues should be included in research training. Supervision of young researchers should be enhanced, with senior researchers serving as models for ethical behavior. Issues such as conflict of interest and guidelines for authorship should be addressed. iv. National-level mechanisms for investigating suspected incidents of serious scientific misconduct should be established. Clear methods to manage whistleblowers should be in place, with designated individuals to receive complaints. v. A thorough discussion is needed on the academic system of reward and merit. Emphasis on productivity and publication numbers should be reduced, while fostering a culture of transparency and ethics within academia.
Intrinsic			
4.	Biased design, conduct and reporting of preclinical studies	i. Peer reviewing the research proposal before study initiation (such as at the ethic committee or funding level), and manuscript for publication ii. Reporting guidelines such as the ARRIVE (Animal Research: Reporting of In Vivo Experiments) guidelines [10]. Many similar reporting guidelines and checklists are available on EQUATOR (**E**nhancing the **QUA**lity and **T**ransparency **O**f health **R**esearch) network for different study designs	i. Limited by availability of competent and fair reviewers. ii. Ensuring transparency of critical methodological aspects of animal studies.

		https://www.equator-network.org/.	
5.	Biased study designs due to incoherency in the whole research process	i. To provide field-specific courses focused on the fundamentals of research methodologies, techniques or tools such as experimental design and statistics, reproducibility, and other practical skills related to the robustness of different types of research [11-13]. ii. Having an introductory course on research integrity in a safe and non-punitive environment [13]. iii. Principal Investigators (PIs) could also lead an annual informal research integrity discussion with their team, demonstrating their commitment to instilling a culture of integrity in their group. iv. Involvement of PIs and senior researchers as role models.	i. To convince researchers and institutional leaders that research knowledge and skills can be learned. Participation in courses and workshops may be a challenge to busy clinicians. ii. Having competent trainers, dedicated and regular slots that are supported by all stakeholders may be a challenge if this topic is not valued more than the 'aesthetic' outputs [2]. iii. A system change is likely to be needed to require and to record this practice. However, effectiveness of this within every team would depend on the passion and genuine interest and input of the PIs. iv. This can be done quite easily with appropriate recognition to the role models.
6.	Cognitive biases [14]: i. Hypothesis myopia ii. p-hacking and HARKing iii. Asymmetric attention iv. Just-so storytelling/ JARKing (justifying after results are known)	i. Use the strong inference approach to explicitly considering competing hypotheses, and if possible, working to develop experiments that can distinguish between them. ii. Transparency in registering research protocols, or publishing research proposal on repository or journals to subject the research to public/open scrutiny. This is to reduce the unconscious temptation to warp the data analysis. Another approach is blind data analysis where important variables are hidden, or dataset is added with removable noises. iii. Use team of rivals (an adversarial collaboration) to quickly spot flaws such as hypothesis myopia, asymmetric attention or just-so storytelling. iv. To explicitly list alternative explanations for all observations to reduce tendency to tell just-so stories.	i. Researchers are to be always on the guard and prepared to be impartial when facing with the data and results. ii. Belief in pre-print and publishing research protocols before the initiation of the study require motivation and support. This could come from journals that accept publication of research protocol without or with minimal cost and practice open access. iii. This may be easier said than done. Such a practice demands big and open heart among the academic rivals and strive to support good science as the ultimate end. iv. Same to item (i).

References

1. Yarborough M. Moving towards less biased research. BMJ Open Sci. 2021;5(1):e100116. doi: 10.1136/bmjos-2020-100116.
2. Hardwicke TE, Ioannidis JPA. Mapping the universe of registered reports. Nat Hum Behav 2018;2:793–6. (url: doi:10.1038/s41562-018-0444-y), http://www.ncbi.nlm.nih.gov/pubmed/31558810
3. Benedictus R, Miedema F, Ferguson MWJ. Fewer numbers, better science. Nature 2016;538:453–5. (url: doi:10.1038/538453a), http://www.ncbi.nlm.nih.gov/pubmed/27786219
4. Rice DB, Raffoul H, Ioannidis JPA, et al. Academic criteria for promotion and tenure in biomedical sciences faculties: cross sectional analysis of international sample of universities. BMJ 2020;369:m2081. (url: doi:10.1136/bmj.m2081), http://www.ncbi.nlm.nih.gov/pubmed/32586791
5. Sox HC, Schuster MA. Criteria for academic promotion in medicine. BMJ 2020;369:m2253. (url: doi:10.1136/bmj.m2253), http://www.ncbi.nlm.nih.gov/pubmed/32586829
6. National Research Council (US) and Institute of Medicine (US) Committee on Assessing Integrity in Research Environments. Washington (DC): National Academies Press (US); 2002. Access on 05/07/2023 https://www.ncbi.nlm.nih.gov/books/NBK208714/
7. Antes AL, Kuykendall A, DuBois JM. Leading for research excellence and integrity: A qualitative investigation of the relationship-building practices of exemplary principal investigators. Account Res. 2019;26(3):198-226. doi: 10.1080/08989621.2019.1611429.
8. Moher D, Bouter L, Kleinert S, et al. The Hong Kong principles for assessing researchers: fostering research integrity. PLoS Biol 2020;18:e3000737. (doi:10.1371/journal.pbio.3000737), http://www.ncbi.nlm.nih.gov/pubmed/32673304
9. Nylenna M, Simonsen S. Scientific misconduct: a new approach to prevention. Lancet. 2006;367(9526):1882-4. doi: 10.1016/S0140-6736(06)68821-1.
10. Kilkenny C, Browne WJ, Cuthill IC, et al. Improving bioscience research reporting: the ARRIVE guidelines for reporting animal research. PLoS Biol2010;8:e1000412. (doi:10.1371/journal.pbio.1000412), http://www.ncbi.nlm.nih.gov/pubmed/20613859
11. Chew BH. Planning and Conducting Clinical Research: The Whole Process. Cureus. 2019;11(2):e4112. doi: 10.7759/cureus.4112.
12. Chew BH, Lim PY, Shaun Lee WH, et. A systematic review of medical and clinical research landscapes and quality in Malaysia and Indonesia [REALQUAMI]: the review protocol. medRxiv 19004010; doi: https://doi.org/10.1101/19004010.
13. Martinez-Campos M. Ten tips for teaching research integrity to early career students: A perspective over 20 years. Front Res Metr Anal. 2022;7:989668. doi: 10.3389/frma.2022.989668.
14. Nuzzo R. How scientists fool themselves - and how they can stop. Nature. 2015;526(7572):182-5. doi: 10.1038/526182a.

UK RESEARCH EXCELLENCE FRAMEWORK'S REFORM IS TAKING AIM AT INEQUITY IN SCIENCE

The Research Excellence Framework (REF) evaluation exercise plays a critical role in determining universities' share of government funding.

The new rubric will place more importance on research culture and less emphasis on publications. In addition to academic output, institutions will need to demonstrate efforts in enhancing work environment and promoting diversity. They will also be required to demonstrate contributions to knowledge beyond traditional publications, including data sets and software.

The implementation of these changes is scheduled for the upcoming round of evaluations, which is expected to be concluded by 2028.

The proposals are "quietly revolutionary," says James Wilsdon, a science policy researcher at University College London, who helped advise the panel tasked with overhauling the REF.

REF2021 Key Facts

Key facts

157 number of UK universities whose research was assessed

1,878 submissions including:

76,132 academic staff

185,594 research outputs

6,781 impact case studies

34 expert sub-panels reviewed the submissions

4 main panels overseeing including:

900 academic members

220 research users

The overall quality of submissions was judged, on average to be:

41% world-leading ★★★★

43% internationally excellent ★★★

14% recognised internationally ★★

2% recognised nationally ★

Source: https://www.ref.ac.uk/

" The shift is in line with global trends that see research assessment as a powerful tool to shape research culture for the better, rather than just a measure of research prestige and productivity, he adds.

Read More ▶▶

The UK higher education funding bodies have recently published their initial decisions on REF 2028.
Please see the Future Research Assessment Programme for further information.

THE NATIONAL ACADEMY OF MEDICINE (NAM) LEADERSHIP CONSORTIUM COLLABORATES WITH LEADING HEALTH, TECH, RESEARCH, AND BIOETHICS ORGANIZATIONS TO DEVELOP HEALTHCARE AI CODE OF CONDUCT

The NAM is partnering with a group of leading health, bioethics, equity, tech, patient advocacy, and research organizations to develop an Artificial Intelligence Code of Conduct (AICC) and describe the national architecture required to give rise to and support equitable and responsible use of AI in health, medical care, and health research.

In this respect, it will aim to clarify roles and responsibilities of the many stakeholders on issues of privacy, ethics, equity, accountability, and applicability, at each stage of the AI lifecycle. The Code of Conduct will represent a "best practice" framework, subject to testing, validation, and improvement as the technology and the ability to effectively govern it progresses

> Involving these accomplished national leaders from across the U.S. is essential for creation of a harmonized, broadly adopted AI Code of Conduct, as well as for development of the national architecture that promotes the equitable and responsible use of AI. This collaborative effort will help ensure that the application of health AI is based on the best science and is consistent with ethical principles and societal values in pursuit of effectiveness, efficiency, and equity for all members of society – Dr. Michael McGinnis, Leonard D. Schaeffer Executive Officer and Senior Scholar

For more information on the project, please visit
https://nam.edu/programs/value-science-driven-health-care/health-care-artificial-intelligence-code-of-conduct/

For questions about the initiative, email to:
LeadershipConsortium@nas.edu

SECTION B

RESEARCH ACHEVEMENTS AND IMPACTS

This section highlight the researchers' great achievements in the fields including the grants granted, sharing of successfull pathway and other outstanding achievements that becomes a precious journey forfor other researchers to learn and follow.

'Success is best measured by the achievers'

RESEARCH ACTIVITIES REPORT CRU ASSOCIATE MEMBERS (CRAMS) AND CLINICIAN SCIENTIST COTERIE (CSC) FOR SERIE 4/2023

SHARING FROM CRAMS AND CSC MEMBERS! 4/2023

By Salwana Ahmad

CRAMs Online Meeting was held every 2 months among CRAMs Members, Clinician Scientist Coterie (CSC) Members, and staff among Hospital Sultan Abdul Aziz Shah (HSAAS), UPM, and Faculty of Medicines and Health Sciences, UPM. This session was intended for the CRAMs members to share their research activities in the department and how they are coping with all the coming challenges and striving to keep moving forward. During the session, the members will have to present their research activities report comprising remarkable research activities and outputs, promoting positive perceptions and motivation for facing challenges, improving clinical research, and cultivating research & networking. In light of cultivating the spirit of research and knowledge sharing, here are the summaries of the presentation shared for all of us to get to learn how is everyone is doing in proceeding with the quality research in UPM.

DEPARTMENT OF SURGERY

Background:

The Department of Surgery is one of the core clinical services at Hospital Sultan Abdul Aziz Shah (HSAAS). The Department of Surgery's service history started in 1998 in line with the establishment of the Faculty of Medicine and Health Sciences at Universiti Putra Malaysia. Since the establishment of the Department of Surgery, various specialist and professional services have been provided starting at Hospital Kuala Lumpur and then moved to Hospital Serdang. Apart from clinical services, this department is also responsible for producing doctoral graduates at the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia. In line with the Sultan Abdul Aziz Shah Hospital (HSAAS) opening, the Department of Surgery has expanded its services more efficiently and openly.

CRAMs Member:
Dr. Ahmad Al-Hafeez
Bin Ahmad Zaidi

Department Specialist and Lecturers:

The department consists of 17 Specialists in total:
- ❖ 2 Professors Adjung, 1 Professor, 3 Associate Professors.
- ❖ 11 Specialists and 6 Medical Officers.

REMARKABLE RESEARCH ACTIVITIES AND OUTPUTS

Research Highlights and Achievements:

No.	STAFF NAME	RESEARCH TITLE	Status Start Date/ End Date	Duration	Grant Name/ Amount (RM)
1.	Assoc. Prof. Dr. Zubaidah Nor Hanipah	Comparison of therapeutic effects of ginger essential oil and bariatric surgery on liver-related outcomes in non-alcoholic steatohepatitis (NASH) Sprague-Dawley rats	Completed • 15-Nov-2019-14-Mar-2023	2 years	GP-IPS UPM / 25,000
2.		Identification of risk factors associated with cancer prognosis, disease survival and recurrence in obese individuals	Completed • 1-Feb-2019-30-Jun-2023	3 years	LRGS-MRUN/KPT/ 1,870,000
3.		Molecular, metabolomic and nutritional changes after metabolic surgery among obese diabetic patients and biomarkers of different diabetes status	Ongoing • 1-Jan-2022-31-Dec-2024	3 years	NIH/KKM/ 17,000
4.		Effects of a Multidisciplinary Team-based Obesity Management in the Metabolic and Obesity Clinic, Universiti Putra Malaysia Teaching Hospital	Ongoing • 1-Sept-2022-31-Dec-2025	3 years	Industrial Grant/Novo Nordisk Pharma (Malaysia) Sdn. Bhd/ 90,000

Table 1 Research activities occurring in the department.

No.	STAFF NAME	RESEARCH TITLE	Status Start Date/ End Date	Duration	Grant Name/ Amount (RM)
5.	Dr. Mohd Islahuddin Mohd Tamrin	Exploring an association between the microRNA 21 with the major molecular subtypes of breast tumors and major ethnics of Malaysian women, in Putrajaya Malaysia	Completed • 22-Dec-2020- 21-Jun-2023	2 years	GP-IPM – GERAN PUTRA INISIATIF PUTRA MUDA/UPM /40,000
6.	Dr. Nur Suriyana Abd Ghani	Incidence, Diagnosis, Management and Outcome of Acute Mesenteric Ischaemia: A Prospective, Multicentre Observational Study (AMESI STUDY)	Ongoing • 23-Aug-2022- 23-Aug-2023	1 year	–
7.	Dr. Nik Qisti Fathi bin Nik Hisyamuddin Fathi	EAGLE: ESCP sAfe-anastomosis proGramme in colorectaL surgEry. An international, cluster randomised-sequence study of a 'safe-anastomosis' quality improvement intervention to reduce anastomotic leak following right colectomy and ileocaecal resection.	Ongoing • 1-May-2022- 30-Sept-2023	1 year	–
8.	Dr. Hizami Amin Tai	Hernia, Pathway and Planetary Outcomes for Inguinal Hernia Surgery (HIPPO Global Cohort study)	Completed • 24-April- 2023-24-Jun-2023	2 months	–
9.	Dr. Ahmad Al-Hafeez Ahmad Zaidi	Global Evaluation of Cholecystectomy Knowledge and Outcomes (GECKO), An International Prospective Cohort Study on Cholecystectomy	Submitted		–

Table 1 Research activities occurring in the department.

PROMOTING POSITIVE PERCEPTIONS AND MOTIVATION FOR FACING CHALLENGES, IMPROVING CLINICAL RESEARCH, and CULTIVATING RESEARCH & NETWORKING.

Challenges

The department found that it was hard to juggle clinical duties teaching and research at the same time due to a few reasons:

1. A low number of lecturers due to the department members being on subspecialty training and postgraduate study.
2. The number of patients in the hospital is still low, with the absence of proper emergency and trauma cases has limited the members to producing more research projects and publications.

Steps were taken to improve clinical research

Step forward for publications

- Approached journal's Editor for a special issue publication.
- Published 9 articles in Supplementary issues on surgical case reports by the Department of Surgery
- e.g. MJMHS VOL.18 SUPP 13 –OKTOBER 2022.

Brainstorming ideas

- Having monthly coffee and journal club to encourage our young lecturers and trainees to brainstorm and produce research ideas.
- Have the best plans and strategies for the execution of ideas from brainstorming.

Find good opportunities for networking and collaboration

- Invited well-known researchers and collaborators through research and publication workshops for guidance.
- Find an opportunity for networking, collaborations, original research ideas, and "piggyback research" on a global scale through overseas subspecialty training and clinical/research attachments.

Motivation

Focus on studies areas where there is a sufficient number of cases (e.g. patients undergoing endoscopy and elective surgery.

We would like to thank Dr. Ahmad Al-Hafeez for sharing. We hope that the sharing can transform tacit knowledge into explicit, written, and easily communicated knowledge for the right people to receive the right information at the right time. See you the next time!.

Check out more information about our CRU Associate Members (CRAMs) for the Year 2022/2023 Member on HSAAS website at CRAMs Members.

Be featured in our next series of RECRUS Newsletter by contacting us at CRU!

SECTION C: CLINICAL EPIDEMIOLOGY

APPRAISALS IN META-JOURNAL HOUR 17
By **Iman Hafizah** and **BH Chew**

The paper: Exploring Factors That Influence the Practice of Open Science by Early Career Health Researchers: A Mixed Methods Study [1].

Why was this study conducted?

Open Science is a term which encompasses several areas, such as open access, open data, open source and open reproducible research, all of which encourages transparency and collaboration among stakeholders in the research process. This transparency is important to avoid unnecessary duplication of research and thus maximize research efficiency. It is especially important for health research in order to ensure the best possible outcomes for patient care and health service delivery. Despite this, awareness and engagement in open science activities remains suboptimal, particularly among early career researchers (ECRs). ECR had less knowledge than senior researchers, and they are often heavily involved in research data collection and analyses but have less autonomy for research decision-making. Hence, this study aimed to:

i.   To explore the perceptions and experiences of open science for ECRs working in health research.
ii. To explore the barriers, facilitators and factors influencing their practice of open science activities.

How was it done?

Ethical approval and study protocol
This study was approved by the NUI Galway Research Ethics Committee. The study protocol is accessible at [2]. This study is reported as per Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist.

Study sample and setting
Study participants were a convenience sample recruited from a two-day introductory training workshop on open science, which was held in NUI Galway (Republic of Ireland) in April 2019 for ECR. Participants self-defined themselves as ECRs when registering for the event, with no restrictions placed on eligibility.

Study design
A convergent mixed method design was used to address the research question of the study. Using this method, both qualitative and quantitative data will be collected and analysed separately before being interpreted. In this study, participants were provided with quantitative data via questionnaires and they were subsequently followed up with individual semi-structured qualitative interviews.

Quantitative data collection
Participants were required to complete study questionnaire before and after the workshop. Before the workshop, data on participant demographics such as gender, age and work discipline were collected. In terms of the contents, both pre- and post- workshop questionnaires:
•   Explore the knowledge and awareness of open science components
•   Explore the initiatives among ECR
•   Explore the perceptions of the barriers and facilitators influencing their practice of open science activities

Watch the video recording on:
▶ YouTube
Click **[HERE]** and don't forget to subscribe to our channel!

Qualitative data collection

Collected in-telephone or face-to-face by preference

Duration of 13 to 34 minutes with an average of 21 minutes

Conducted within three weeks after workshop

Interviews were audio-recorded and transcribed verbatim

Member checking of transcripts was not conducted due to time

The topic guide for qualitative data collection were developed by an experienced qualitative researcher (CH) with input from members from the research team to structure the interviews.

Explored participants' understanding and experience with open science

Perceptions of barriers and enablers to practicing open science, with specific probes to enable deeper exploration of the topic in question

The interview topic guide can be obtained from Appendix 1.

Data analysis

Quantitative data analysis was conducted using Microsoft Office Excel involving basic descriptive statistical analysis including percentage distribution and median calculations. On the other hand, qualitative data was analysed using thematic analysis utilizing NVivo 12 software. The analysis were divided into two phases, namely Phase 1 and Phase 2.

FIRST PHASE

Interview transcripts were read by 1 research member

Coded statement into nodes which is named according to the content of the statements

The coding was an iterative process which involving re-naming the node to give a better idea of its content

The NVivo file was sent to a second researcher (CH) to review the nodes

SECOND PHASE

| NVivo file was sent to second researcher to review the nodes | Initial themes were then generated and refined by the two researchers through iterative cycles of discussion and review | The final themes, subthemes and their descriptions were then reviewed by a third researcher alongside the transcripts aka 'critical friend' |

Rigour

A number of strategies were employed to ensure the study was carried out in a rigorous and transparent way such as:

1. Peer researcher to review and assess transcripts, emerging and final categories from those transcripts and the final themes or findings.
2. Creation of a codebook within QSR NVivo to demonstrate the dependability of the findings. (Appendix 4: Codebook)
3. Coding query function to illustrate the density of coded references from each participant across all subthemes in order to emphasis the findings were grounded data (Appendix 5: Coding density).

What were the findings?

Participant characteristics

Data on participant demographics are described in Table 1. Out of 14 participants:
- Four participants had obtained a PhD in the previous 1 – 2 years
- One was 6 years post PhD, seven were undertaking a PhD at the time of participating in the study.
- Two did not have a PhD

Survey findings

Survey data identified that participants reported better knowledge of open science components like open access and open peer review than of components such as open data, open source, open notebooks, open education and citizen science. In addition, more than half of the participants expressed their concerns over personal data breach and the lack of standard operational procedures (SOP) for data sharing guidelines by respective institutions. Besides that, open science activities should be recognised to enhance career progression.

Further details of post-workshop survey findings are available in Extended data: Appendix 6 [2].

Thematic analysis

A 'wordcloud' was created using QSR NVivo queries to illustrate most commonly used words when participants talked about open science.

THEME 1: VALUING OPEN SCIENCE

Subtheme 1: The 'what' of open science

Participants perceived open science as a broad umbrella term, encapsulating 'openness' across the entire research cycle, from before a study starts (for example, using pre-registration and open notebooks) until after it finishes (for example, with open access publishing and data sharing).

"Before [the workshop] I really thought open science was just about open access publishing and maybe just sharing data, so putting some data up on the open science framework or those kind of things. So I hadn't really thought about kind of how the whole process can be open from beginning to end"

Subtheme 2: The 'why' of open science

Participants perceived open science to be important because it leads to better research which leads to better overall impact of research for patients and public. For example, practices such as protocol publication may facilitate timely and accessible sharing of researchers' plans, further allowing others to review and identify potential errors early in the research process.

*"It's about doing ethical research so that if we have open transparent ethical research then it can **better inform** whatever it's supposed to inform whether it be health care etc. So it leads to better research being done fairly and then secondly it leads to more **reproducible research** so others can build on that research when they know exactly what you did...Good transparency and open research is the cornerstone of doing good research."*

*"I suppose that it is a more transparent way of working that builds the capacity of the research community so that they're **avoiding maybe duplication or** where they want to build on maybe smaller research studies that have been done that it allows for knowledge transfer then."*

THEME 2: CREATING A CULTURE FOR OPEN SCIENCE

Subtheme 1: Cultural and academic pressure

Despite being early career researchers, participants expressed pressure in terms of time constraints and the needs to publish their work as academics. As a consequence, incorporating activities related to open science can be challenging to their already hectic schedules. Besides, there were also reluctance to embrace change in research practice towards supporting open science especially among senior colleagues pertaining to their familiarity in a well-established and traditional research activities.

Subtheme 2: Increased accountability and the challenges of transparency

The increased accountability was discussed as one of the crucial factors influencing ECR's engagement with open science activities, serving as both a barrier and a facilitator. The transparency in open science was acknowledged but raised concerned including feeling exposed and vulnerable to criticisms. The participants also had concerns about potential mistakes being identified by others.

1 *"Well I think the flip side of it is the timing to engage and find and network, as well, with others about open science on a day to day running of and teaching and administrating and writing and trying to engage in research. We have all got so many hats on us that unless you know there's a little bit more protected time for I suppose advancing ourselves and our own knowledge in certain areas."*

2 *"So I think in terms of challenges around knowledge and training I believe that they would also be challenges if not more so a challenge for more senior career researchers. So I think that's definitely similar as well. Publications, impact factor, I don't think things like that slow down as you become more senior...I think challenges are similar and probably all at the same level of knowledge I'd say as well and expertise and experience in doing this."*

Besides that, there were participants identified fear of data being misused and risk of having research ideas being stolen as potential barriers in practicing open science.

"And I know that's something that you shouldn't really be scared of because you know we're all just kind of working and doing our best. But that would definitely be something that would be in the back of my mind if I was putting up my data that someone would rerun it and say you did this all wrong."

"I think it probably creates efficiencies in the system because if you're the named reviewer you probably would respond quicker. And if you know your information's up there, you're probably more likely to be pleasant at least and courteous with your colleagues. And at least you can see conflicts of interest more clearly as well."

Subtheme 3: Striving to be open

All interviewees stressed the significance and necessity of additional training and resources to support both early-career researchers (ECRs) and all researchers. They emphasized the importance of integrating such support into existing systems and having it driven from the top, exemplified by institutional buy-in.

> *"And then as I mentioned unfortunately as an early career researcher you are focused on how many grants you win, how many publications you have. I think it needs to be recognised if on your CV that you've mentioned that you have your open science platform and you have all this data. I think there needs to be a way of kind of acknowledging … that as well, the work that you've done through that."*

How much can we learn from this paper?

The concept of an 'open science culture' holds significant importance within this study. Specifically, the current academic culture and the absence of career incentives to practice open science are critical factors influencing the behaviours of ECR. The lack of incentives has been previously identified as a major challenge to open science for ECRs [3], in which the existing reward system as detrimental to open science behaviours among ECRs [4].

As stated by the participants in the study, practices or systems that reward open science behaviours are rare, and involvement in open science is often not formally acknowledged, sometimes even discouraged. While the availability of funding, training, education events, and resources was recognized as vital for facilitating open science at a fundamental level, participants predominantly emphasized the need for a cultural shift and a change in institutional reward systems to value open science practices on a deeper level.

This study comes with certain limitations that need to be acknowledged. It is crucial to understand that the interviewees were recruited from participants of a two-day open science training workshop in Ireland, and they willingly volunteered to take part in the interviews. As a result, selection bias might occur that the study sample represents a subset of the broader target population of ECR who already possessed an interest in open science and may have had prior exposure and understanding of open science. Participating in the workshop inevitably influenced their knowledge about open science, and this aspect should be considered when interpreting the study findings. However, this also means that the participants were well-equipped to provide in-depth and insightful perspectives into a relatively unexplored area of research. Consequently, these findings can serve as valuable comparison data for future similar studies or replications among other samples of ECRs. However, further quantitative interpretation may be needed in order to find the association or factors influencing open science behaviours not only among ECR but including other academic communities as well.

Reference

1. Zečević, K., Houghton, C., Noone, C., Lee, H., Matvienko-Sikar, K., & Toomey, E. (2021). Exploring factors that influence the practice of Open Science by early career health researchers: a mixed methods study. HRB open research, 3, 56.
2. Zecevic K, Houghton c, Lee H, et al.: Open science study 2019; factors for practicing OS by ECRs ('Exploring factors that influence the practice of Open Science by early career health researchers: a mixed methods study'). 2020. http://www.doi.org/10.17605/OSF.IO/PKREN.
3. Allen C, Mehler DMA: Open science challenges, benefits and tips in early career and beyond. PLoS Biol. 2019; 17(15): e3000246.
4. Bazeley P: Defining 'Early Career' in Research. High Educ. 2003; 45: 257–279

Appraisals in Meta-journal Hour 18
By Salwana, and BH Chew

The paper:
The Illness Experience of Long COVID Patients: A Qualitative Study Based on the Online Q&A Community Zhihu
DOI: 10.3390/ijerph19169827

Why was this study conducted?
The introduction section of the paper discusses the impact of the COVID-19 pandemic on people's health and well-being, including the potential for longer-term effects of COVID-19 infection, known as "long COVID." The World Health Organization defines long COVID as occurring in individuals with a history of probable or confirmed COVID-19 infection, usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months, which cannot be explained by an alternative diagnosis. The paper focuses on the illness experiences of long COVID patients in China and aims to understand how they adapt to their illness and reconstruct their lives. The authors used grounded theory as the methodology for this study, which allowed for the development of concepts and models based on data, rather than pre-existing theories or assumptions. The study is based on self-produced texts of long COVID patients on the largest online Q&A community in China, Zhihu APP. The results show that long COVID patients in China face the threat of pain from the illness itself and social stigma and discrimination. The findings can help policymakers and medical institutions to provide timely and appropriate policy support and psychological assistance to patients with long COVID, to create a supportive and inclusive social environment, and reduce discrimination and stigma against them.

How was it done?
Data Sources and Collection
The authors used grounded theory as the methodology for this study, which allowed for the development of concepts and models based on data, rather than pre-existing theories or assumptions.

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Using Grounded Theory
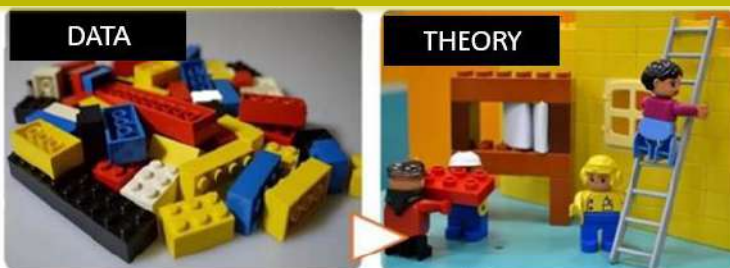
- **Theories are derived from real-world data**
- **Data collection and analysis occur iteratively**

Data Source and Collection

Using ZHIHU APP

Serves as a knowledge-sharing platform where users can ask questions, receive answers from experts and the community, and engage in discussions on a wide range of topics.

Grounded the theory was chosen for this study because:
- Its ability to develop concepts and models from information 'grounded' in the data.
- Serving to explain the content of texts, rather than being based on a priori theory or assumption.
- Enabled the construction of a model of long COVID patient illness experience in China.
- Its applicability can be verified in subsequent studies.

- The authors selected self-narratives of long COVID patients on the Zhihu App as the data for analysis.
- Zhihu is one of the largest online Q&A communities in China, and as of April 1, 2022, the topic of "COVID-19 Pandemic" on Zhihu has generated 248,000 discussions

Data Collection

The authors selected two questions with answers of relatively good quality: "What are the sequelae of COVID-19?" and "What happens to people who have had COVID-19 now?", and obtained all answers under the two questions up to April 1, 2022, via Python, with a total of 908. After screening the data and eliminating invalid answers, the final 64 answers remained. Five answer texts were randomly retained for the coding saturation test, and the rest were collated and imported into NVivo12 as raw data for grounded theory coding.

1 Topic selection
Self-narratives of long COVID patients from the apps were used based on the topic - "COVID-19 Pandemic"

Item: Generated 248,000 discussions as per 1 April 2022

2 Browsing and Screening
The browsing and screening process was done on related questions, 2 questions were chosen with relatively good-quality answers.
"What are the sequelae of COVID-19?"
"What happens to people who have had COVID-19 now?"

Item: All 908 answers were obtained via Phyton.

3 Screening data and eliminated invalid answers
The data were screened and invalid answers were eliminated (advertisements, non-patient self-reports, less than 100 words , etc.).

Item: The final 64 answers remained

4 Coding saturation test
Five answer texts were randomly retained for coding saturation test.

Item: The rest were collated and imported into NVivo 12 as raw data (original text) for the coding of grounded theory.

The original texts were pre-processed using the word frequency query function in NVivo 12 to obtain a high-frequency word cloud map after eliminating irrelevant words before formal coding.

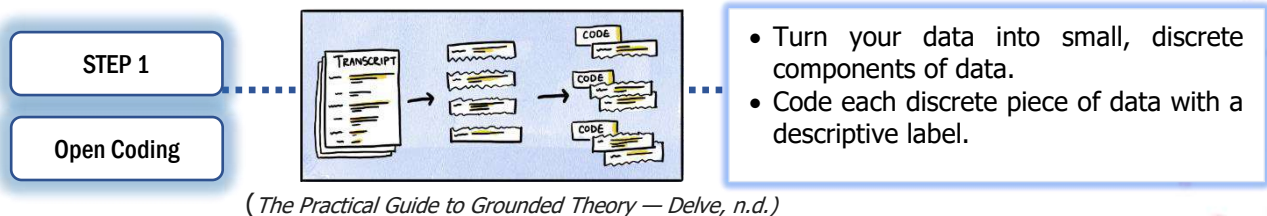High-frequency word cloud

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Data analysis
Grounded Theory Approach

The grounded theory approach is a qualitative research methodology involving open, axial, and selective coding to analyze and correct the original texts.

STEP 1

Open Coding

- Turn your data into small, discrete components of data.
- Code each discrete piece of data with a descriptive label.

(*The Practical Guide to Grounded Theory — Delve, n.d.*)

Step1: The collected self-reported texts of COVID-19 patients were analyzed word by word, and the sentences or paragraphs that can be used for coding were conceptualized and categorized.

Table 1. Open Coding (Excerpt).

Original Texts (Excerpt)	Free Node (Excerpt)
Now there are many physical sequelae, like constant headaches, dizziness, eye and orbital pain (a1),	a1 Ongoing pain
bloodshot eyes, small dark spots appear when looking at things, easily getting fatigue (a2), even waking up in the morning, tinnitus with pulse sounds and rumbling in the ears. I have	a2 Body weakness
been to the hospital many times and have had many tests done on my chest, lungs, head, nose, heart and so on (a3),	a3 Invalid medical tests
probably other tests I can't remember. I feel helpless and pain that no one can understand and nowhere to talk about (a4)!	a4 Pain inside
Feeling like a completely different person from my old self (a5)	a5 Split between past and present
and needing to readjust to my current body in order to continue living (a6).	a6 Trying to adapt to the body
When I meet colleagues, some just say hello at a far distance and walk away, some haven't spoken to me again so far, some take the mask out of their pockets as soon as they see me and put it on hastily … … (a7)	a7 "Social death"

Open Coding
Initial Category
A1 Physical abnormalities of subjective perception
A2 Medical signs of objective examination
A3 Sense of lossing control of the body
A4 The unfamiliar body
A5 Employment discrimination
A6 Social isolation
A7 Perceptions of being discriminated
A8 Internalised stigma
A9 Set new goals
A10 Change the old values
A11 Conceal the illness STEP 1
A12 Deny the sequelae
A13 Rebuild the social image
A14 Be kind to self
A15 Accept the imperfect self

1. The original texts were tagged and 47 free nodes (a1–a47) were obtained.

2. Comparison and analysis:
Some of the free nodes were merged and further categorized to obtain 15 initial categories after finding cross-semantics or identical semantics (A1-A15).
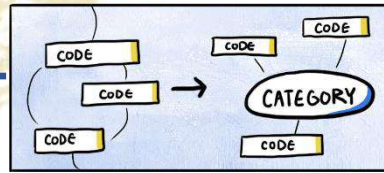
STEP 2		• Find connections and relationships between code.
Axial Coding		• Aggregate and condense codes into broader categories.

(*The Practical Guide to Grounded Theory — Delve, n.d.*)

Step 2: Axial coding is used to analyze the inner link between initial categories by regrouping them based on their logical relationships and the relevance of the open codes.

Step 3: Selective coding is used to analyze the inner link between initial categories by regrouping them based on their logical relationships and the relevance of the open codes.

Table 2. The Three-level Coding System.

Open Coding	Axial Coding	Selective Coding
Initial Category	Main Category	Core Category
A1 Physical abnormalities of subjective perception	B1 The return of sick role	
A2 Medical signs of objective examination		
A3 Sense of lossing control of the body	B2 A divergent body-self	
A4 The unfamiliar body		C1 The disordered body and life
A5 Employment discrimination		
A6 Social isolation	B3 Stigma and self-stigma	
A7 Perceptions of being discriminated		
A8 Internalised stigma		
A9 Set new goals	B4 push forward the biographical flows again	
A10 Change the old values		
A11 Conceal the illness		
A12 Deny the sequelae	B5 Impression management	C2 Reconstructing self and life
A13 Rebuild the social image	STEP 2	
A14 Be kind to self	B6 Self-compassion	STEP 3
A15 Accept the imperfect self		

With further integration of the 15 initial categories, 6 main categories (B1–B6) were obtained.

On the basis of several analyses and condensation towards open coding and axial coding, 2 core categories (C1–C2) were derived after further generalization and integration.
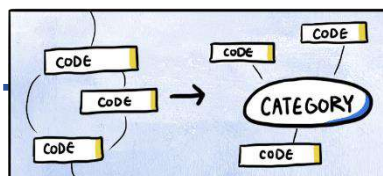
STEP 3		• Bring it together with one overarching category.
Selective Coding		• Identify the connections between this overarching category and the rest of your codes and data.
		• Remove categories or codes that don't have enough supporting data.

(*The Practical Guide to Grounded Theory — Delve, n.d.*)

STEP 4		**A coding saturation test:**
Coding Saturation Test		It was conducted on five randomly retained answer texts and considered saturated when no new concepts or categories were found after the three-level coding.

What was the finding?
Result

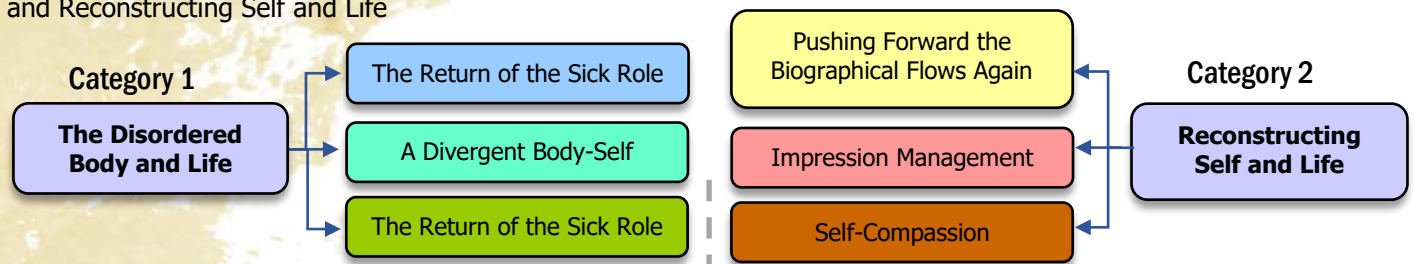After the selective coding process, there are two final categories derived from the analysis; The Disorder Body and Life and Reconstructing Self and Life

Category 1		Category 2
The Disordered Body and Life	→ The Return of the Sick Role	
	→ A Divergent Body-Self	
	→ The Return of the Sick Role	

Pushing Forward the Biographical Flows Again

Impression Management

Self-Compassion

Reconstructing Self and Life

Text Highlights

The return of sick role

- The reawakening of illnessperception is indicative of the COVID19 survivors moving from

"Thought I'd be discharged and all would be well . . . only to find out that I seem to have another disease, one for which there is no cure yet . . . ".

" . . . the doctor unilaterally felt that my headaches were just caused by stress and also suggested me to see a psychiatrist".

A Divergent Body-Self

- The patients become increasing aware that there is gap between their bodies and selves, and their body is not necessarily chang in response to their sence self.

" . . . My body no longer seems to be mine . . . My hands sometimes shake uncontrollably as if someone is

"I asked myself over and over again, is this me? Is this really me? I used to run 1km in the school sports day with ease, but now I can't even walk up the stairs without panting".

Stigma and Self-Stigma

- The self-stigma makes long COVID patients lose their self-worth and see themselves as a "nuisance" and a "burden", forgetting that they are also innocent patients and that no one has the right to discriminate or stigmatize them.

"The colleagues who were luckily recovered were basically discriminated against in the unit building, well, in a non-obvious way. And I was reassigned straight to the front line and stopped going to the building".

"My personal and family information is transparent in the community and my unit, and everyone is focusing on me and on guard against me, with frequent nucleic acid tests to prevent my retest positive."

Pushing Forward the Biographical Flows Again

- What appears to be a disruption of the life course of the patients is a reinforcement of it. The patients readjust to the changes that the illness brings to their lives, from 'loss' to 'gain', and push forward the biographical flows again.

"I used to love bungee jumping, but now I've been advised by my doctor not to try it again due to health reasons . . . As a result I'm now hooked on embroidery and find I'm quite talented, so I'd like to try out for the city's embroidery competition next!"

Impression Management

- Long COVID patients use multiple social identities and positive impression management to gain support and recognition from their respective groups. This group support reinforces their self-worth and self-identity, allowing them to move away from a single patient identity and rebuild a new social image.

"If you want to still pretend to be normal, then the most effortless and efficient way is to hide it. Either you hide your condition or hide yourself".

"When people ask me if I have any after-effects of COVID-19, I choose to deny it . . . . . . ".

Self-Compassion

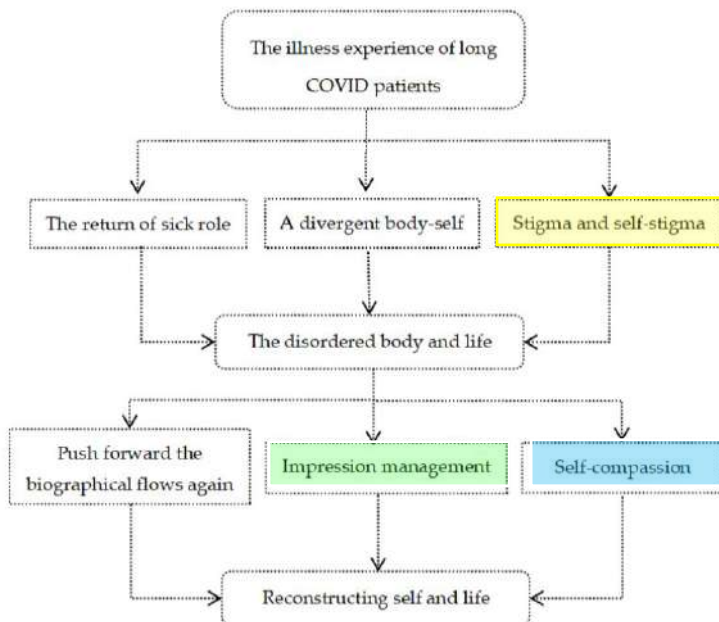- Self-compassion is an important way for long COVID patients to rebuild themselves and maintain their emotional health during the pandemic.

"It may have been hard to adjust at first . . . but in retrospect, it was no big deal. So many of our public officials and medical staff are at work to confront the epidemic, and my hard work is nothing compared to theirs, so I'm just taking it as a training".

Discussion
Findings and Suggestions

This framewok show the summary of findings in this study

Finding 1: Patients with long COVID perceived visible or non-visible discrimination at work or social isolation, which worsened their negative emotions and social avoidance.

The study addressed a crucial issue:
How to better communicate health information to the public and stop the spread of misinformation and disinformation about COVID-19.

Issue Reflection of 3.1.3: Discrimination against long COVID patients.
When the **public lack of covid knowledge:**
- they **fear** that long COVID patients will retest positive and become infectious again.
- leads to **suspicion and distance** from the patients in social interactions.
- persists at **the societal level although no evidence to prove** that long COVID patients are infectious after a positive retest.
- Led to the **uncontrolled spread of misinformation and propaganda** on social media has further increased public panic and discrimination against people with COVID-19.

Finding 2: Patients with long COVID had self-stigma that lead to avoidance-based coping strategies; and
Finding 2: There is a link between public stigma and self-stigma.

The study suggests:
- Psychological interventions are necessary for long COVID patients, such as large-scale COVID-19-related psychoeducation programs.
- Anonymous online counseling may also be a good approach due to its privacy and accessibility for patients.

Issue Reflection of 3.2.2: Coping strategies
Long COVID patients tend to use **"hiding" or "denial"** strategies in an attempt **to get rid of the patient's social image** and **to tell people around them that they are in fact healthy.**

Finding 3: "Self-compassion" played an important role in reducing negative emotions and improving.

This study suggests:
- Future psychological interventions for long COVID patients could try to improve patients' level of self-compassion.
- Carry out individualized self-compassion training, etc., to help them cope with their plight and maintain their personal emotional health during the pandemic.

This study has the limitation such as the data collection was done from only one online community, which may impact the results. So, the author suggests some future considerations as follows:
- Examine the illness experiences of long COVID patients on social media with a more diverse user composition.
- Use a mixed-method approach for data collection to ensure the rigor of the data.
- Compare the similarities and differences in patients' illness experiences across different countries and cultures to explore the underlying social and cultural factors.

In conclusion, the results showed that patients not only face the threat of pain from the illness but also social stigma and discrimination. Patients use their illness experiences as motivation to move forward and reconstruct their lives through 'pushing forward the biographical flows again', 'impression management', and 'self-compassion'. The findings can help policymakers and medical institutions provide timely and appropriate policy support and psychological assistance to patients with long COVID, create a supportive and inclusive social environment, and reduce discrimination and stigma against them.

How much can we take out from this research/paper?

This paper presents a narrative view of the experiences of long COVID-19 survivors in China, encompassing their illness journey, adaptation, and reconstruction of their lives after the situation. The study explores the intriguing process of coding the self-produced texts of long COVID patients on the Zhihu app, the largest online Q&A community in China, utilizing grounded theory for qualitative analysis. Given that long COVID is a relatively new global phenomenon, there remains much to be understood about the experiences of individuals grappling with this condition. This research offers valuable insights into the illness experiences of long COVID patients in China, thus paving the way for future research and advancements in the well-being of survivors.

As researchers, we can extract several important insights from this study. First and foremost, it provides a deeper understanding of the illness experiences of long COVID patients in China and sheds light on their coping mechanisms in the face of difficulty. Notably, the research emphasizes the challenges they encounter, including social stigma and discrimination, and how they navigate their illness journey with resilience. The findings also open opportunities for the development of interventions and support programs tailored to address the unique needs of long COVID patients. Moreover, the study emphasizes the significance of analyzing patients' narratives to offer support and recognize their current living conditions. By highlighting the challenges faced by long COVID patients and how they transform their experiences into motivation for progress and personal growth, this research promotes a sense of community and support among COVID-19 survivors.

The practical implications of this paper are far-reaching, as they can guide policy decisions aimed at improving the quality of life for those affected by long COVID. Policymakers can utilize the study's insights to provide timely and appropriate support, both psychologically and through targeted interventions, to address the needs of long COVID patients. The research supported the creation of a supportive and inclusive social environment, reducing discrimination and stigma against this long COVID-19 survivor.

However, it is crucial to acknowledge some limitations of the study. Although the readily available data from social media expedite the study, this approach lacks the potential of true qualitative research to explore any issue a more deeply. The sample population was drawn from the users of the Zhihu APP, which primarily consisted of professionals with higher education from urban areas. As a result, the findings may not be fully generalizable to other populations or contexts, particularly individuals with lower educational levels and those residing in rural areas. Thus, if this study were to be replicated, it may yield different results in such diverse settings. As suggested by the authors, further studies should consider diverse users, utilizing a mixed-method approach to ensure data rigor, and comparing experiences across various countries and cultures to understand underlying social and cultural factors.

In conclusion, this research offers valuable insights into the lives of long COVID-19 survivors in China and provides a foundation for understanding their experiences and coping strategies. By addressing the challenges, they face and promoting tailored support programs, this study contributes to improving the well-being and quality of life of long COVID patients. Furthermore, it emphasizes the importance of considering the unique perspectives of patients through their narratives, facilitating a sense of understanding and empathy among COVID-19 survivors worldwide.

References

1. A Clinical Case Definition of Post COVID-19 Condition by a Delphi Consensus. 6 October 2021. Available online: https: //www.who.int/publications/i/item/WHO-2019-nCoV-Post_COVID-19_condition-Clinical_case_definition-2021.1 (accessed on 1 August 2022).
2. The Practical Guide to Grounded Theory — Delve. (n.d.). Delve. https://delvetool.com/groundedtheory

DIETETICS' RESEARCH SHOWCASE 2023

No.	Title
1.	Prevalence of Malnutrition Using Patient-generated Subjective Global Assessment (PG- SGA) And Its Associated Factors Among Hospitalised Patients in Hospital Sultan Abdul Aziz Shah (HSAAS)
2.	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)
3.	Prevalence of Malnutrition and Its Associated Factors among Stroke Patients in Hospital Sultan Abdul Aziz Shah (HSAAS)
4.	Factors Associated with Malnutrition At-risk Cases Among Paediatric Inpatients in Hospital Sultan Abdul Aziz Shah (HSAAS)
5.	Factors Associated with Weight Status Among Pediatric Inpatient in Hospital Sultan Abdul Aziz Shah (HSAAS)
6.	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)
7.	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
8.	Factors Associated with Disordered Eating Behaviours Among 8-11 Years School Children
9.	Assessment of Dietary Adherence And Its Associated Factors Among Hemodialysis Patients in Hospital Serdang
10.	Factors Associated with Knowledge on Management of Diabetes During Ramadan Management of Diabetes During Ramadan Among Healthcare Providers among Healthcare Provider
11.	Factors Associated with Weight Loss in Patients with Metabolic Obesity
12.	Factors Associated with Muscle Mass in Patients with Metabolic Obesity
13.	Factors Associated with Falls Among Hospitalised Older Patients in Hospital Sultan Abdul Aziz Shah, UPM
14.	Factors Associated with Malnutrition Among Hospitalised Older Patients in Hospital Sultan Abdul Aziz Shah, UPM
15.	Factors Associated with Pressure Ulcer Among Hospitalised Older Patients in Hospital Sultan Abdul Aziz Shah, UPM
16.	Factors Associated with Dysphagia Among Hospitalised Older Patients in Hospital Sultan Abdul Aziz Shah, UPM
17.	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)
18.	Factors Associated with Patient's Satisfaction on Hospital Foodservice at Hospital Sultan Abdul Aziz Shah Universiti Putra Malaysia (HSAAS) UPM
19.	Inpatients Plate Waste Generation in Hospital Sultan Abdul Aziz Shah Universiti Putra Malaysia (HSAAS) UPM
20.	Nutritional Contents and Factors Associated with Attitude Towards Vending Machines at Hospital Sultan Abdul Aziz Shah (HSAAS)

PREVALENCE OF MALNUTRITION USING PATIENT-GENERATED SUBJECTIVE GLOBAL ASSESSMENT (PG- SGA) AND ITS ASSOCIATED FACTORS AMONG HOSPITALISED PATIENTS IN HOSPITAL SULTAN ABDUL AZIZ SHAH (HSASS)

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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.
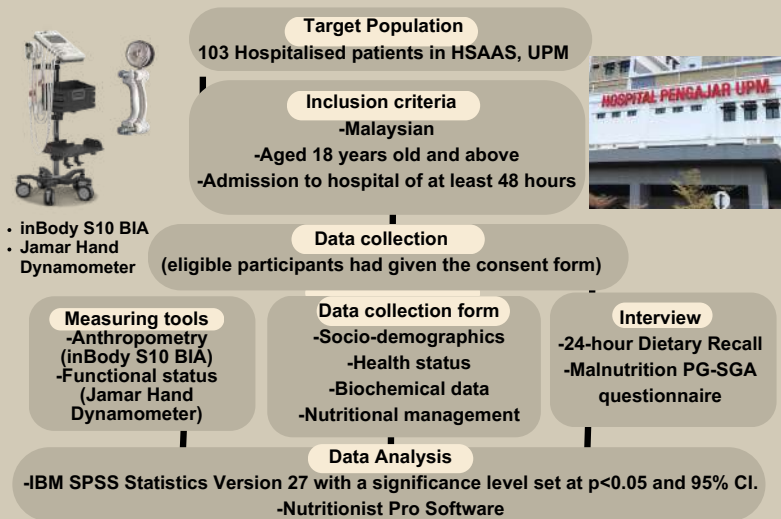
OBJECTIVE

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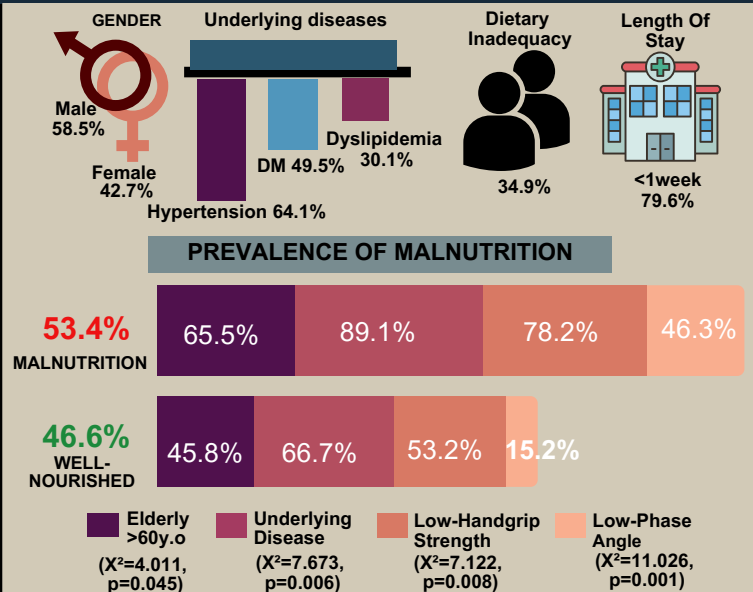
LITERATURE REVIEW

- 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)
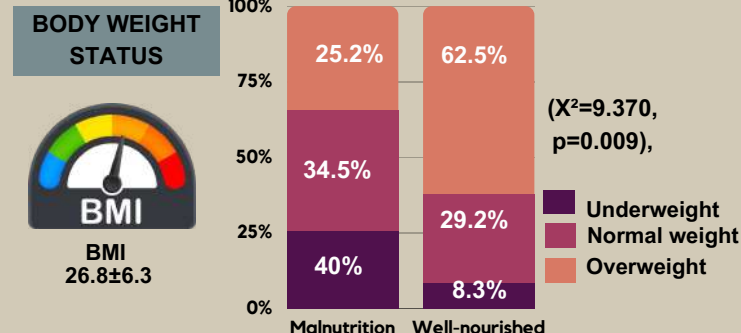
METHODOLOGY

Target Population
103 Hospitalised patients in HSAAS, UPM

Inclusion criteria
-Malaysian
-Aged 18 years old and above
-Admission to hospital of at least 48 hours

HOSPITAL PENGAJAR UPM

- inBody S10 BIA
- Jamar Hand Dynamometer

Data collection
(eligible participants had given the consent form)

Measuring tools
-Anthropometry (inBody S10 BIA)
-Functional status (Jamar Hand Dynamometer)

Data collection form
-Socio-demographics
-Health status
-Biochemical data
-Nutritional management

Interview
-24-hour Dietary Recall
-Malnutrition PG-SGA questionnaire

Data Analysis
-IBM SPSS Statistics Version 27 with a significance level set at p<0.05 and 95% CI.
-Nutritionist Pro Software

DISCUSSION

- The factors that were found associated with malnutrition were older age, presence of underlying diseases, weak hand-grip strength, BMI, and whole body phase angle.
- Phase Angle depends on cell membrane integrity and on body cell mass.
- There has been limit research on the use of inBodyS10 as body composition measuring instruments. As a result, we discovered that **Body Phase Angle had a strong correlation with malnutrition.**
- 40% of normal weight among patients were malnourished, This findings are supported by the previous study by Ellot et al. (2023) that overweight and obese patients had lower malnutrition risk profiles as well as the prevalence of malnutrition.

RESULTS

GENDER
Male 58.5%
Female 42.7%

Underlying diseases
Hypertension 64.1%
DM 49.5%
Dyslipidemia 30.1%

Dietary Inadequacy 34.9%

Length Of Stay <1week 79.6%

PREVALENCE OF MALNUTRITION

53.4% MALNUTRITION
65.5% | 89.1% | 78.2% | 46.3%

46.6% WELL-NOURISHED
45.8% | 66.7% | 53.2% | 15.2%

- **Elderly >60y.o** ($X^2=4.011$, $p=0.045$)
- **Underlying Disease** ($X^2=7.673$, $p=0.006$)
- **Low-Handgrip Strength** ($X^2=7.122$, $p=0.008$)
- **Low-Phase Angle** ($X^2=11.026$, $p=0.001$)

BODY WEIGHT STATUS

BMI 26.8±6.3

($X^2=9.370$, $p=0.009$),

	Malnutrition	Well-nourished
Overweight	25.2%	62.5%
Normal weight	34.5%	29.2%
Underweight	40%	8.3%

CONCLUSION

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.

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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Introduction

- Stroke patients are at higher risk of dietary inadequacy.
- Dietary inadequacy can cause malnutrition, increase length of stay and slower the recovery process.
- **Limited study** explore on factors associated with dietary inadequacy among stroke patients.

Objective

To determine **dietary inadequacy** and its **associated factors** with socio-demographic characteristics, medical status, anthropometry parameters, biochemical data, functional status and nutritional management among stroke patients in Hospital Sultan Abdul Aziz Shah (HSAAS), UPM.
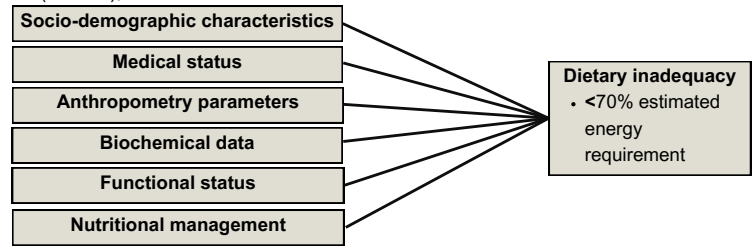
- Socio-demographic characteristics
- Medical status
- Anthropometry parameters
- Biochemical data
- Functional status
- Nutritional management

→ Dietary inadequacy
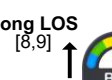- <70% estimated energy requirement

Figure 1: Conceptual framework of the study

Literature review

Different studies on dietary inadequacy

Country	Malaysia [1]	Brazil [2]	Australia [3]
Definition	≥ 75%	≥ 80%	≥ 75%
Prevalence	**67.8%**	**37.5%**	**82%**

- **Advanced age** [4,5]
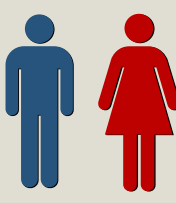- **Male** [6,7]
- **Long LOS** [8,9]
- **High BMI** [5]
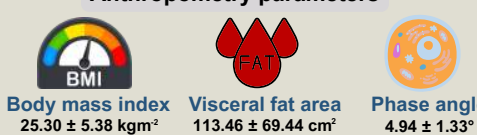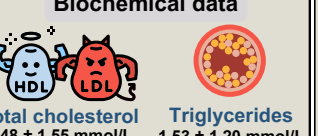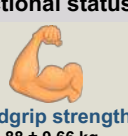- Most study done on **non-stroke patients**
- **Limited** published data in Malaysia

Methodology

Research Instrument

① Data Collection Form
- Sociodemographic characteristics
- Medical status
- Biochemical data
- Nutritional management

② InBody® S10 — Anthropometry parameters
- Body fat percentage
- Skeletal muscle index
- Phase angle
- Visceral fat area

③ Jamar® hand dynamometer — Functional status
- Handgrip strength

④ Interview-based questionnaire — Dietary inadequacy
- Feeding regime
- 24-hour dietary recall

Study Location

Inclusion criteria
- **Malaysian**
- **Adults (≥18years old)**
- **Patient admission ≥48 hours**

- **Cross-sectional study**
- Dietary inadequacy is referred to the **dietary intake <70%** of requirements
- Associations were tested with **Chi-square test**

Results

Total subjects (n=45) (20-89 years old)

53.3% **46.7%**

Anthropometry parameters

- **Body mass index** 25.30 ± 5.38 kgm^{-2}
- **Visceral fat area** 113.46 ± 69.44 cm^2
- **Phase angle** 4.94 ± 1.33°

Biochemical data
- **Total cholesterol** 5.48 ± 1.55 mmol/L
- **Triglycerides** 1.53 ± 1.20 mmol/L

Functional status
- **Handgrip strength** 18.88 ± 9.66 kg
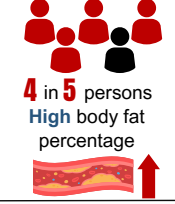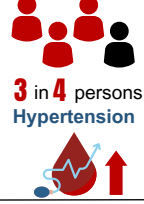
Characteristics of stroke patients

- **1 in 3 persons** dietary inadequacy
- **4 in 5 persons** High body fat percentage
- **1 in 2 persons** Low skeletal muscle index
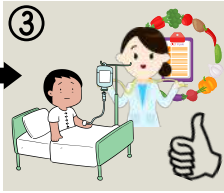- **3 in 4 persons** Hypertension

Table 2: Associations between nutritional management and dietary inadequacy (n=45)

Variables	Dietary inadequacy n (%)	
	Inadequate	Adequate
Referral to dietitian [a]		
Yes	6 (40.0)	27 (90.0)
No	9 (60.0)	3 (10.0)
Route of nutrient delivery [b]		
Tube feeding	2 (13.3)	23 (76.7)
Oral feeding	13 (86.7)	7 (23.3)

[a] Chi square test, (χ^2 = 12.78, p<0.001), [b] (χ^2 = 16.25, p<0.001)

60% of patient having **dietary inadequacy** were **not referred to a dietitian**.

86.7% of patient having **dietary inadequacy** were receiving **oral feeding**.

Discussion

① • **Significant role of healthcare practitioners** in recognizing patients at risk of dietary inadequacy and **referring the patient to a dietitian.**

② • Dietitian will manage patient's nutritional status through dietary intervention to prevent negative complications of malnutrition.

③ • Study revealed that **referral to a dietitian** can **improve dietary adequacy** and therefore **reduce prevalence of malnutrition** [10].

- **Prevalence of dietary inadequacy** from this study is **lower** than the study conducted by Kong et al. (2020) which is 67.8%, this could be due to the **difference in study population** [1].

- Majority of stroke patients with **dietary inadequacy** were **not received nutrition intervention by dietitian** via tube feeding.

- Association of dietary inadequacy and oral feeding was consistent with the findings that have showed that **tube feeding is a preferred route of feeding** to **reduce risk of dietary inadequacy** as compared to oral feeding [12].

Conclusion

Referral to dietitian and route of nutrient delivery were associated with dietary inadequacy. This highlights the **important role of dietitian** in implementing early dietary interventions among stroke patients. **Early nutrition support** needs to be implemented to prevent adverse outcome of dietary inadequacy.

References

[1] Kong, J. P., Baharom, B., Jamhuri, N., Jamli, K., Mohd Yazid, S. F. Z., Ashiquin, N., Isnin, L., Leow, C. W., & Lim, S. M. (2020). Adequacy of energy and protein intake among hospitalized patients on therapeutic diet in government hospitals. Nutrition & Food Science, 50(5), 903–920. https://doi.org/10.1108/nfs-07-2019-0221
[2] Araujo, G. T., Pereira, C., Bastos, J., Brito, T., Mituše, L., Lima, P., Farias, S., Xavier, T., Rodrigues, J., Oliveira, V., & Tepedino, J. (2021). Better nutritional adequacy is associated with lower mortality in critically ill patients with covid-19. Clinical Nutrition ESPEN, 46, S647. https://doi.org/10.1016/j.clnesp.2021.09.299
[3] Rattray, M., Desbrow, B., & Roberts, S. (2017). Comparing nutritional requirements, provision and intakes among patients prescribed therapeutic diets in hospital: An observational study. Nutrition, 39-40, 50–56. https://doi.org/10.1016/j.nut.2017.03.006
[4] Glezenaar, C., Chapman, I., Luscombe-Marsh, N., Feinle-Bisset, C., Horowitz, M., & Soenen, S. (2016). Ageing is associated with decreases in appetite and energy intake—a meta-analysis in healthy adults. Nutrients, 8(1). https://doi.org/10.3390/nu8010028
[5] Mudge, A. M., Ross, L. J., Young, A. M., Isenring, E. A., & Banks, M. D. (2011). Helping understand nutritional gaps in the elderly (HUNGER): A prospective study of patient factors associated with inadequate nutritional intake in older medical inpatients. Clinical Nutrition, 30(3), 320–325. https://doi.org/10.1016/j.clnu.2010.12.007
[6] Housni, F. E., Lanes-Michel, M., González-Flores, J. J., Ortigoza-Pantoja, K. N., & Bracamontes-del Toro, H. (2020). Dietary intake, adequacy of energy and nutrients in older working people. Journal of Behavior, Health & Social Issues, 11(1), 39. https://doi.org/10.22201/fesi.20070780.2019.11.1.75653
[7] Wei, X., Day, A. G., Ouellette-Kuntz, H., & Heyland, D. K. (2015). The association between nutritional adequacy and long-term outcomes in critically ill patients requiring prolonged mechanical ventilation. Critical Care Medicine, 43(8), 1569–1579. https://doi.org/10.1097/ccm.0000000000001000
[8] Azzolino, D., Marzetti, E., Proietti, M., Calvani, R., Souto Barreto, P., Rolland, Y., & Cesari, M. (2021). Lack of energy is associated with malnutrition in nursing home residents: Results from the INCUR study. Journal of the American Geriatrics Society, 69(11), 3242–3248.
[9] Nicolau, J., Ayala, L., Sanchís, P., Olivares, J., Dotres, K., Soler, A. G., Rodríguez, I., Gómez, L. A., & Masmiqual, L. (2021). Influence of nutritional status on clinical outcomes among hospitalized patients with COVID-19. Clinical Nutrition ESPEN, 43, 223–229. https://doi.org/10.1016/j.clnesp.2021.04.013
[10] Moisey, L. L., Pikul, J., Keller, H., Yeung, C. Y. E., Rahman, A., Heyland, D. K., & Mourtzakis, M. (2022). Adequacy of Protein and Energy Intake in Critically Ill Adults Following Liberation From Mechanical Ventilation Is Dependent on Route of Nutrition Delivery. Nutrition in Clinical Practice. https://doi.org/10.1002/ncp.10558
[11] Eglseer, D., Halfens, R. J. G., & Lohrmann, C. (2017). Is the presence of a validated malnutrition screening tool associated with better nutritional care in hospitalized patients? Nutrition, 37, 104–111. https://doi.org/10.1016/j.nut.2016.12.016

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
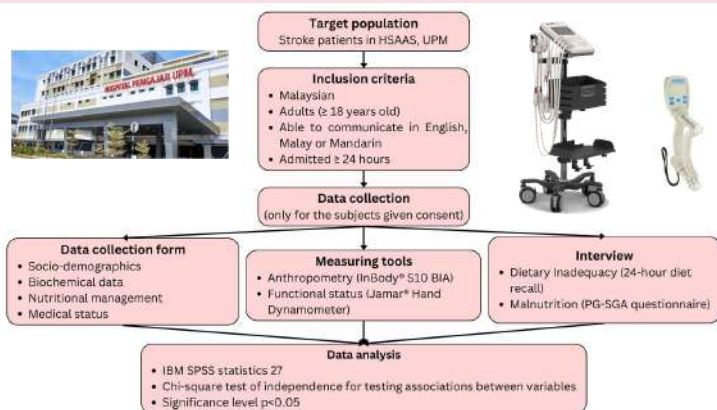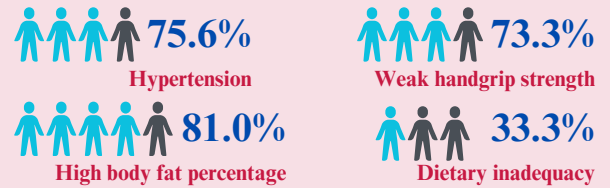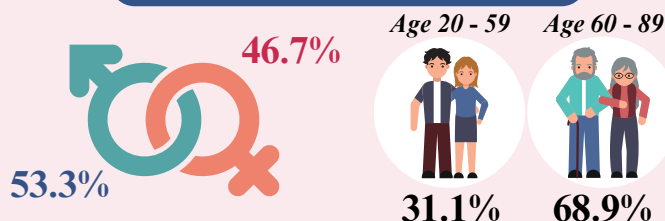
Methodology

Figure 1: Methodology of the study

Results & Discussion

Total number of subjects (n=45)

46.7%
53.3%

Age 20 - 59 31.1%
Age 60 - 89 68.9%

75.6% **Hypertension**

73.3% **Weak handgrip strength**

81.0% **High body fat percentage**

33.3% **Dietary inadequacy**

BMI
25.30 ± 5.38 kg/m2

Phase Angle
4.94 ± 1.33 °

Total Cholesterol
5.48 ± 1.55 mmol/L

Triglycerides
1.53 ± 1.20 mmol/L
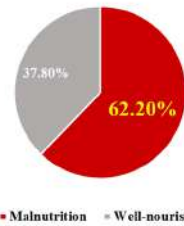
Figure 2: Prevalence of malnutrition

Figure 3: Body weight status & malnutrition

Figure 4: Phase angle & malnutrition

Figure 5: Referral to dietitian & malnutrition

- **Significant associations** were found between **body weight status** ($\chi2 = 5.803$, $p = 0.016$), **phase angle** ($\chi2 = 4.004$, $p = 0.044$), and **referral to dietitian** ($\chi2 = 4.448$, $p = 0.035$) with **malnutrition**.
- Well-nourished subjects were mostly overweight or obese, while malnourished subjects tended to have a normal weight. This aligns with previous research indicating that overweight elderly individuals are more likely to be well-nourished compared to those with a normal weight [1].
- Most well-nourished subjects had a normal phase angle, whereas the majority of malnourished subjects had a low phase angle. This finding is consistent with a previous study that also reported an association between phase angle and malnutrition in patients with acute stroke [2].
- Referral to dietitian seemed to positively affect the nutritional status of the subjects. This may be because dietitian assessment and intervention is effective in improving dietary intake and quality for patients at risk of malnutrition [3].

Conclusion

- This **high prevalence of malnutrition** reported in this study underscores the **urgent need for early malnutrition screening and dietary interventions** during admission for 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.

References

[1] Sulmont-Rossé, C., Wymelbeke-Delannoy, V., & Maître, 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] Eckert, K. F., & Cahill, L. E. (2018). Malnutrition in Canadian hospitals. *CMAJ*, 190(40), E1207-E1207. https://doi.org/10.1503/cmaj.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.[1]
- 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.[1]
- 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**.[2]

CLINICAL CHARACTERISTICS

- **Nearly half** of paediatric inpatients have a high risk of malnutrition and it was linked to longer hospitalisation period and worsening condition.[2]
- Another factor that affects malnutrition is diagnosis that can be further elaborated through **types of diseases and severity of diseases**.[3]
- 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]
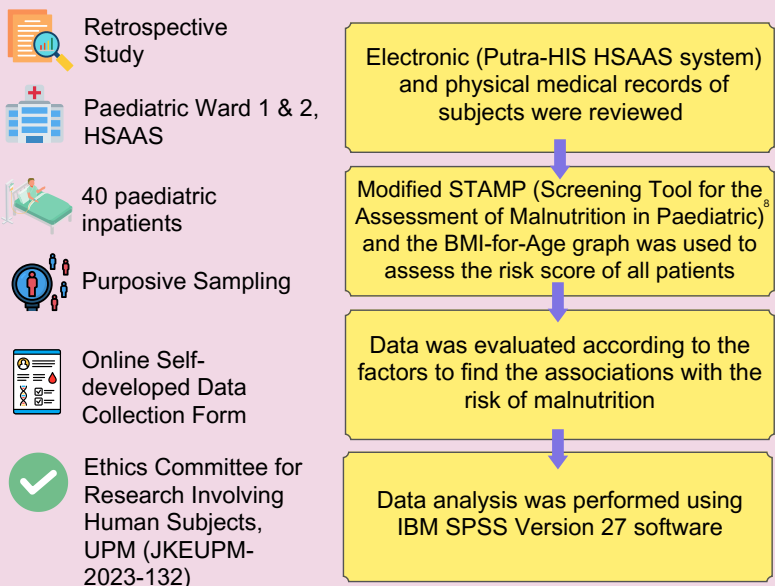
DIETARY FACTOR

- Reduced appetite, preferences of meal, food choices, picky eating, environment, stress and presence of pain may **slow down** the intake of food.[5]

GESTATIONAL FACTORS

- The relationship with low birth weight and malnourished children may be due to **exposure to infection** and **increased risk of complications**.[6]
- SGA status in infants **increases the risk of malnourishment** in later life.[7]

METHODOLOGY

- Retrospective Study
- Paediatric Ward 1 & 2, HSAAS
- 40 paediatric inpatients
- Purposive Sampling
- Online Self-developed Data Collection Form
- Ethics Committee for Research Involving Human Subjects, UPM (JKEUPM-2023-132)

Electronic (Putra-HIS HSAAS system) and physical medical records of subjects were reviewed
↓
Modified STAMP (Screening Tool for the Assessment of Malnutrition in Paediatric)[8] and the BMI-for-Age graph was used to assess the risk score of all patients
↓
Data was evaluated according to the factors to find the associations with the risk of malnutrition
↓
Data analysis was performed using IBM SPSS Version 27 software
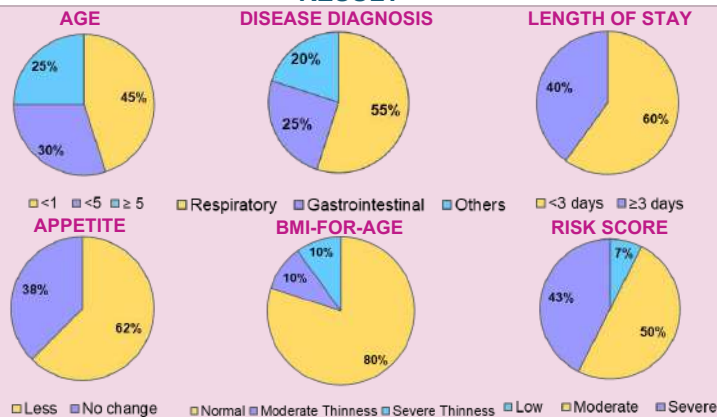
RESULT

FIGURE 1: SOCIODEMOGRAPHIC AND CLINICAL CHARACTERISTICS, DIETARY FACTOR AND RISK SCORE

TABLE 1: SOCIODEMOGRAPHIC CHARACTERISTICS (n=40)

Variables	χ^2	p value
Age [a]	2.063	0.151
Gender [a]	2.063	0.151

TABLE 2: CLINICAL CHARACTERISTICS (n=40)

Variables	χ^2 / r	p value
Length of Stay [a]	2.063	0.151
Disease Diagnosis [b]	2.283	0.131
Number of Medication [b]	-0.221	0.171
Sodium (mmol/L) [b]	-0.059	0.718
Creatinine (µmol/L) [b]	0.160	0.323
Chloride (mmol/L) [b]	-0.028	0.863
Potassium 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 AND GESTATIONAL FACTORS (n=40, n=36, n=38)

Variables	χ^2	p value
Appetite during Hospitalisation [a]	2.462	0.107
Birth Weight [c]	1.440	0.785
Gestational Age [c]	0.171	1.000

[a] Chi-square test, [b] Pearson correlation, [c] 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.[9,10]
- 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

REFERENCES

1. Dipasquale, V., Cucinotta, U., & Romano, C. (2020). Acute malnutrition in children: Pathophysiology, clinical effects and treatment. Nutrients, 12(8), 2413. https://doi.org/10.3390/nu12082413
2. Tolunay, O. (2020). Effect of malnutrition on the length of stay in hospitalized children. Türk Pediatri Arşivi. https://doi.org/10.14744/turkpediatri.2020.46354
3. Prasetya, D., Haryanti, S., & Nurani, N. (2021). Risk factors of hospital-acquired malnutrition in children: A study in a rural hospital of West Borneo, Indonesia. Malaysian Journal of Nutrition, 27(1), 169–176. https://doi.org/10.31246/mjn-2020-0083
4. Ayaz, N., Ullah, Z., & Karim, A. (2022). Biochemical profile of malnutrition patient at a tertiary care hospital. Pakistan Journal of Medical and Health Sciences, 16(6), 169–172. https://doi.org/10.53350/pjmhs22166169
5. Scaglioni, S., De Cosmi, V., Ciappolino, V., Parazzini, F., Brambilla, P., & Agostoni, C. (2018). Factors influencing children's eating behaviours. Nutrients, 10(6), 706. https://doi.org/10.3390/nu10060706
6. Rahman, M. S., Howlader, T., Masud, M. S., & Rahman, M. L. (2016). Association of low-birth weight with malnutrition in children under five years in Bangladesh: Do mother's education, socio-economic status, and birth interval matter? PLOS ONE, 11(6). https://doi.org/10.1371/journal.pone.0157814
7. Lee, W. S., & Ahmad, Z. (2017). The prevalence of undernutrition upon hospitalisation in children in a developing country: A single hospital study from Malaysia. Paediatrics & Neonatology, 58(5), 415–420. https://doi.org/10.1016/j.pedneo.2016.08.010
8. Katsagoni, C. N., Cheirakaki, O., Hatzoglou, A., Zerva, O., Koulieri, A., Loizou, K., Vasileiadi, E., Toilou, M., Poulia, K.-A., & Kontogianni, M. D. (2021). Malnutrition in hospitalised children—an evaluation of the efficacy of two nutritional screening tools. Nutrients, 13(4), 1279. https://doi.org/10.3390/nu13041279
9. Holmes, R. A. (2019). Role of dietitians in reducing malnutrition in hospital. Canadian Medical Association Journal, 191(5). https://doi.org/10.1503/cmaj.71130
10. Ndhlovu, L., & De Maayer, T. (2021). Introducing a nutritional risk screening tool in a south african hospital. South African Journal of Clinical Nutrition, 35(2), 44–50. https://doi.org/10.1080/16070658.2021.1940718

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

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INTRODUCTION

- Patients who were underweight were admitted more often than those who were normal[1].
- Numerous studies on children or adults suggest that being underweight or obese is linked to a higher risk of infection[2].
- 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[2].
- 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[3].
- 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[4].
- To assess a child's weight status, the body mass index (BMI) is frequently used[5].

OBJECTIVE

To determine the association between sociodemographic characteristics, gestational factors, clinical characteristics, dietary factors and weight status among pediatrics inpatients in HSAAS.

LITERATURE REVIEW

Sociodemographic Characteristics
Age, Gender, Birth Order, Number of Siblings

- **Girls** are **more likely to be underweight** than boys[6]. Underweight is **more common** among **boys** than girls[7].
- **Only child** has been linked to an **increased incidence** of **obesity** or **being overweight**[8].
- **Firstborns** have **BMIs that were higher** than second- and third-born children[9].

Gestational Factor
Birth Weight, Gestational Age, Maternal Medical History

- Children with **LBW** had average weights and **BMI that were greater than** those of children with **normal** birth weights[10].
- **Maternal disease** may **have an impact** on her **offspring's weight status**[11].
- **Preterm baby remain lighter** and have less body fat and **others** found them to be **more likely to exhibit obesity in childhood**, in particular with catch-up growth[12].

- Mixed Findings
- Limited local study

Clinical Characteristics
Length of stay, Medical Status, Medication & Supplements

- **ONSs** and appetite stimulants have the potential to favorably **impact** patients with **pediatric cancers' weight status**[13].
- Children with **moderate or severe anemia** were **more likely** to be malnourished and **skinny**[14].
- Children who are **overweight** may **spend longer in the hospital**[15].

Dietary Factor
Dietitian Referral

- **Dietitian counseling** resulted in **significant improvements in weight status** and other health markers compared to usual care[16].

METHODOLOGY

Retrospective study

Data is obtained from the patient's medical records physically and through system methods **(PUTRA-HIS HSAAS)**.

Pediatric Ward 1 & 2, HSAAS

Data were evaluated according to the factors to find associations with weight status.

40 subjects

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

Purposive Sampling

Data analysis was performed using **IBM SPSS Version 27 Software**.

Ethical approval from JKEUPM Number Reference: -JKEUPM-2023-132

RESULTS & DISCUSSION

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

Figure 2 Sociodemographic Characteristics
Age, Gender, Birth order, Number of siblings

Figure 4 Clinical Characteristics
Medication & Supplements, Medical status

Figure 3 Gestational Factor & Dietitian Referral
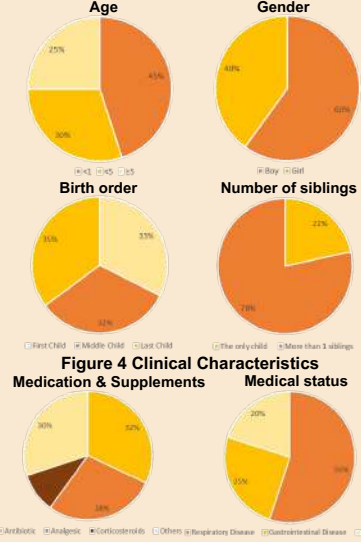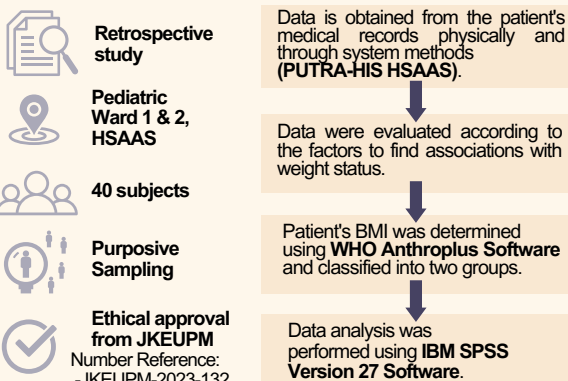Maternal medical history, Birth weight, Dietitian referral

Table 1 Association of Weight Status with Sociodemographic Characteristics and Gestational Factor (n = 40, n=36, n=38)

Variables	Weight Status	
	x^2	p-value
Age [a] (years)	3.636	0.057
Gender [a]	1.667	0.197
Birth order [a]	0.999	0.607
Number of siblings [b]	0.784	0.376
Birth weight [a]	1.20	0.549
Gestational age [b]	0.60	0.548
Maternal medical history [a]	6.144	0.013*

[a]Chi-square test, [b] Fisher's Exact Test

Table 2 Association of Weight Status with Clinical Characteristics and Dietary Factor (n= 40)

Variables	Weight Status	
	x^2	p-value
Length of stay [a]	0.000	1.000
Medical status [b]	2.305	0.371
Medication and supplements [b]	2.612	0.492
Dietitian referral [b]	1.111	0.292

[b] Fisher's Exact Test

- The mean age of patients involved in this study was 1.08 ± 0.823 years old and more than 50% were boys.
- About 73% of the patients have more than 1 siblings and only 10% of the patients have a referral to dietitian.
- The majority of patients were admitted in Pediatric Wards 1 & 2 were diagnosed with respiratory diseases and antibiotics are the most frequently administered medications to patients.
- The study identified 50% of the pediatric inpatients in were categorized as thinness.
- Maternal medical history was significantly associated with weight status (r=6.144, p=0.013).This finding was supported by previous study which identified children who born by mothers with GDM, anemia and obesity has an increase risk of being underweight, overweight and obesity[17,18,19].
- Maternal medical history can be associated with the weight status of children due to several factors such as genetic predisposition, shared environment and lifestyle, prenatal environment and maternal health behaviors[20]
- The study found that there are no association between sociodemographic characteristics, clinical characteristics, dietary factor as well as some factors under gestational factor and weight status among pediatric inpatients. This may be due to the small number of samples obtained and short length of stay of patients causing this study unable to prove the association of these factors.
- A study also proved a non-significant association between birth order and number of siblings with wasting, stunting and underweight[21]. This may be due to older siblings which serve as role models or share the caretaking role with parents[22]. In addition, there is still lack evidence of biological mechanism for the influence of family structure on children's weight status.
- In regards to birth weight, a study found there are no association with weight status[23]. This may be due to different of growth patterns which exist among the children[23].
- A study also found no associations between medication and weight status[24]. This could be due to the fact that weight status is not only influenced by type of medication alone, but also the duration taken and the amount of regime prescribed.

CONCLUSION

- Maternal medical history is significantly associated with pediatrics inpatient.
- Future studies with a larger sample size should be conducted to further confirm the findings in this study and further explore the dietary intake of patients to identify its relationship with body weight status.
- 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

REFERENCES

1. Wyrick, S., Hester, C., Sparkman, A., O'Neill, K. M., Dupuis, G., Anderson, M., Cordell, J., & Bogie, A. (2013). What role does body mass index play in hospital admission rates in the pediatric emergency department? Pediatric Emergency Care, 29(9), 974–978. https://doi.org/10.1097/pec.0b013e3182a21a23
2. Pichler, J., Hill, S. M., Shaw, V., & Lucas, A. (2014). Prevalence of undernutrition during hospitalization in a children's hospital: What happens during admission? European Journal of Clinical Nutrition, 68(6), 730–735. https://doi.org/10.1038/ejcn.2014.21
3. Irving, S. Y., Daly, B., Verger, J., Typpo, K. V., Brown, A.-M., Hanlon, A., Weiss, S. L., Fitzgerald, J. C., Nadkarni, V. M., Thomas, N. J., & Srinivasan, V. (2018). The Association of Nutrition Status expressed as body mass index z score with outcomes in children with severe sepsis. Critical Care Medicine, 46(11). https://doi.org/10.1097/ccm.0000000000003351
4. Quadros, D. R., Kamenwa, R., Akech, S., & M Macharia, W. (2017). Hospital-acquired malnutrition in children at a tertiary care hospital. South African Journal of Clinical Nutrition, 31(1), 8-13. https://doi.org/10.1080/16070658.2017.1322825
5. Centers for Disease Control and Prevention. (2022, December 14). Defining childhood weight status. Centers for Disease Control and Prevention. https://www.cdc.gov/obesity/basics/childhood-defining.html
6. Kumar, R., Abbas, F., Mahmood, T., & Somrongthong, R. (2019). Prevalence and factors associated with underweight children: A population-based subnational analysis from Pakistan. BMJ Open, 9(7). https://doi.org/10.1136/bmjopen-2019-028972
7. Lee, W. S., Jalaludin, M. Y., Khoh, K. M., Kok, J. L., Nadarajaw, T., Soosai, A. P., Mukhtar, F., Fadzil, Y. J., Anuar Zaini, A., Mohd-Taib, S. H., Rosly, R. M., Khoo, A. J., & Cheang, H. K. (2022). Prevalence of undernutrition and associated factors in young children in Malaysia: A nationwide survey. Frontiers in Pediatrics, 10. https://doi.org/10.3389/fped.2022.913850
8. Ochiai, H., Shirasawa, T., Ohtsu, T., Nishimura, R., Morimoto, A., Obuchi, R., Hoshino, H., Tajima, N., & Kokaze, A. (2012). Number of siblings, birth order, and childhood overweight: A population-based cross-sectional study in Japan. BMC Public Health, 12(1). https://doi.org/10.1186/1471-2458-12-766
9. Derraik, J. G., Ahlsson, F., Lundgren, M., Jonsson, B., & Cutfield, W. S. (2015). First-borns have greater BMI and are more likely to be overweight or obese: A study of sibling pairs among 26 812 Swedish women. Table 1. Journal of Epidemiology and Community Health, 70(1), 78–81. https://doi.org/10.1136/jech-2014-205368
10. Andriani, H. (2021). Birth weight and childhood obesity: Effect modification by residence and household wealth. Emerging Themes in Epidemiology, 18(1). https://doi.org/10.1186/s12982-021-00098-2
11. Joisy, W. J., McCullough, L. E., Hoyo, C., & Williams-DeVane, C. L. (2014). Overall gestational weight gain mediates the relationship between maternal and child DNA methylation. BMC Public Health, 14(1). https://doi.org/10.1186/s12889-015-7349-1
12. Hong, Y. H., & Chung, S. (2018, March). Small for gestational age and obesity related comorbidities. Annals of pediatric endocrinology & metabolism. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5894838/
13. Hawes, C., Gomes, A., Byham-Gray, L., & Henderson, S. (2022). The effect of oral nutrition supplements and appetite stimulants on weight status among pediatric cancer patients: A systematic review. Nutrition in Clinical Practice. https://doi.org/10.1002/ncp.10919
14. Antonucu, E. E., Roefs, A., Klemens, S. P., Jansen, A., Guddadda, J. S., Sleddens, E. F., & Thijs, C. (2016). Picky eating and child weight status: A systematic study. Journal of human nutrition and dietetics : the official journal of the British Dietetic Association, 29(3), 298–307. https://doi.org/10.1111/jhn.12322
15. Fernandes, M. T., Danti, G. V., Garcia, D. M., & Ferraro, A. A. (2015). Excess body weight in children may increase the length of hospital stay. Clinics, 70(2), 87–90. https://doi.org/10.6061/clinics/2015(02)03
16. Imsiali, O. E., Goodman, A. B., Dooyema, C. A., Park, S., Harrison, M., Lundeen, E. A., & Blanck, H. (2018). Referrals and treatment strategies for pediatric obesity—developing survey 2017. Frontiers in Pediatrics, 6. https://doi.org/10.3389/fped.2018.00367
17. Kim, S. Y., England, J. L., Sharma, J. A., & Njoroge, T. (2011). Gestational diabetes mellitus and risk of childhood overweight and obesity in offspring: A systematic review. Experimental Diabetes Research, 2011, 1–9. https://doi.org/10.1155/2011/541308
18. Zhang, S., Wang, L., Leng, J., Liu, H., Li, W., Zhang, T., Li, N., Li, W., Tian, H., Baccarelli, A. A., Hou, L., & Hu, G. (2017). Hypertensive disorders of pregnancy in women with gestational diabetes mellitus on overweight status of their children. Journal of Human Hypertension, 31(11), 731–736. https://doi.org/10.1038/jhh.2017.17
19. Catalano, P., & deMouzon, S. H. (2015). Maternal obesity and metabolic risk to the offspring: Why lifestyle interventions may have not achieved the desired outcomes. International Journal of Obesity, 39(4), 642–649. https://doi.org/10.1038/ijo.2015.15
20. Genetics: Martin, A. R. (2008). The intergenerational correlation in weight: How genetic resemblance reveals the social role of families. AJS: American journal of sociology. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2764266/
21. Jahanihashemi, H., Noroozi, M., Zavoshy, R., Afkhamrezaei, A., Jalilolghadr, S., & Esmailzadehha, N. (2017). Malnutrition and birth related determinants among children in Qazvin, Iran. European Journal of Public Health, 27(3), 559–562. https://doi.org/10.1093/eurpub/ckx043
22. Li, C. A. (n.d.). Family structure and childhood obesity, Early Childhood Longitudinal Study - kindergarten cohort. Preventing chronic disease. https://www.cdc.gov/pcd/issues/2012/11_0259.htm
23. Chen, C., Jin, Z., Yang, Y., Jiang, F., Huang, H., Liu, S., & Jin, X. (2019). Association of low birth weight with thinness and severe obesity in children aged 3-12 years: A large-scale population-based cross-sectional study in Shanghai, China. BMJ Open, 9(5). https://doi.org/10.1136/bmjopen-2018-028738
24. Carlini, M. O., Perez, M. P., Crespel, K. S., Acholonu, N. O., & Stanford, F. C. (2023). Association between weight promoting medication use and weight status among children and adolescents in the United States. Academic Pediatrics, 23(1), 102–108. https://doi.org/10.1016/j.acap.2022.04.009

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).

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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)

⚠ **There is a limited studies carried out on 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)

In Malaysia, there is about 45% malnourished surgical patients. Early postoperative outcomes were development of surgical site infection (SSI), total length of hospital stay (LOS) and 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

Sociodemographic Factors
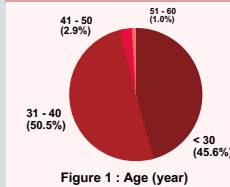
Figure 1 : Age (year)
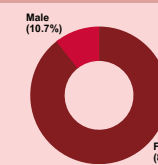
Figure 2 : Gender
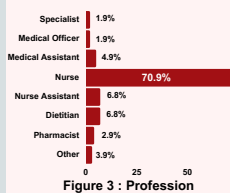
Figure 3 : Profession

Figure 4 : Trained on NST

Implementation of Nutrition Screening Tools

Figure 5 : Additional Assistance required by HCPs
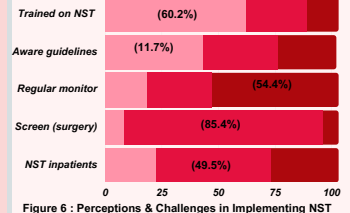
Figure 6 : Perceptions & Challenges in Implementing NST
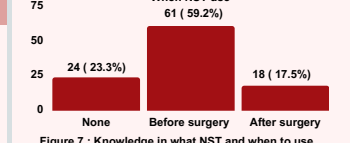
Figure 7 : Knowledge in what NST and when to use

Common NST used in HSAAS
1. MST (12.1%)
2. MUST (4.5%)
3. MNA (2.9%)
4. MNA SF (1.0%)
5. NRS (1.0%)

78.5% claimed they had never used NST.
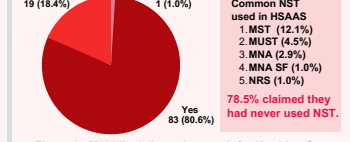
Figure 8 : Multidisciplinary Approach for Nutrition Care

Table 1 - Malnutrition in Preoperative Patients

		n (%)
Trained on NST	No	62 (60.2)
	Yes	27 (26.2)
	Unsure	14 (13.6)
Aware Malnutrition Guidelines	No	12 (11.7)
	Yes	76 (73.8)
	Unsure	15 (14.6)
Screen patients using NST	No	43 (42.2)
	Yes	33 (32.4)
	Unsure	26 (25.5)
Patients regularly monitored by NST	No	18 (17.5)
	Yes	29 (28.2)
	Unsure	56 (54.4)
Screened before surgery	No	8 (7.8)
	Yes	88 (85.4)
	Unsure	7 (6.8)
NST for inpatients	No	22 (21.4)
	Yes	51 (49.5)
	Unsure	30 (29.1)
Patient at risk of malnutrition	No	12 (11.7)
	Yes	48 (47.0)
	Unsure	42 (41.2)

Table 2 : Challenges in Implementing NST

Unsure	27.1%
No answer	20.3%
Time constraint	3.8%
Patient refuse to refer	2.9%
Patient's BMI still normal	11.6%
Unsure referrals to Dietitian	5.8%
Not perceived Doctor's order	28.2%

Figure 9 : Knowledge and Perception on Implementing Nutrition Screening Tools in Preoperative Patients
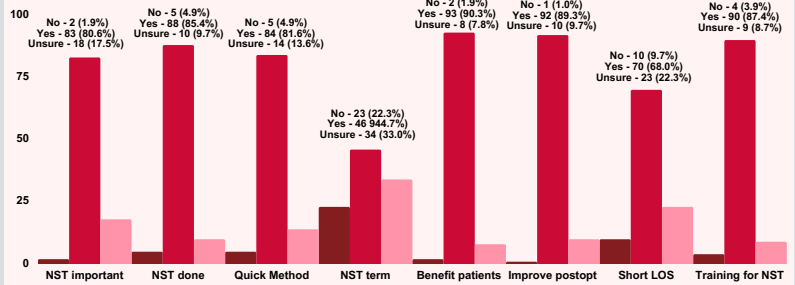
- About 75% (n=76 respondents) are aware on the malnutrition guidelines but there is only 32% (n=33 respondents) screened the patients using Nutrition Screening Tools before any surgical procedures. Meanwhile, implementation of NST is only about 33% only which is not significant.
- Common reported challenge 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.

REFERENCE -
A'zim, A.Z.A., Zaid, Z.A., Yusof, B.N.M. et al. Effectiveness of intensive perioperative nutrition therapy among adults undergoing gastrointestinal and oncological surgery in a public hospital: study protocol for a pragmatic randomised control trial. Trials, 22, 961. https://doi.org/10.1186/s13063-021-05859-5
Argerinou, C., Bhanu, C., Walters, K., Croker, H., Tuijt, R., Rea, J.& Kharicha, K. (2020). Supporting nutrition in frail older people: a qualitative study exploring views of primary care and community health professionals. British Journal of General Practice, 70(691), e138-e145.
Burden, S., Todd, C., Hill, J., & Lal, S. (2012). Pre-operative Nutrition Support in Patients Undergoing Gastrointestinal Surgery. Cochrane Database of Systematic Reviews. https://doi.org/10.1002/14651858.cd008879.pub2
Beattie, A. H. (2000). A randomized controlled trial evaluating the use of enteral nutritional supplements postoperatively in malnourished surgical patients. Gut, 46(6), 813–818. https://doi.org/10.1136/gut.46.6.813
Cass, A. R., & Charlton, K. E. (2022). Prevalence of hospital-acquired malnutrition and modifiable determinants of nutritional deterioration during inpatient admissions: A systematic review of the evidence. Journal of Human Nutrition and Dietetics, 35(6), 1043–1058. https://doi.org/10.1111/jhn.13009
Taipa-Mendes, A., Amaral, T., & Gregório, M. (2021). Undernutrition risk and nutritional screening implementation in hospitals: Barriers and time trends (2019–2020). Clinical Nutrition ESPEN, 45, 192–199. https://doi.org/10.1016/j.clnesp.2021.08.029
Powell- Tuck, J. (2006). Perioperative nutritional support: does it reduce hospital complications or shorten convalescence? Gut, 46(6), 760–762. https://doi.org/10.1136/gut.46.6.740
Hm, W. W., Koo, C., Lim, Y. Y., Iyer, P., Ong, C., Tong, J. W., & Chan, M. Y. (2021). Implementation of a nutrition screening tool to improve nutritional status of children with cancer in Singapore's single paediatric hospital. BMJ Open Nutrition, 1(1), e000944. https://doi.org/10.1136/bmjnph-2020-000944
Shpata, V., Prenushi, X., Kreka, M., Kola, I., Kurti, F., & Ohri, I. (2014). Malnutrition at the time of surgery negatively affects the clinical outcome of critically ill patients with gastrointestinal cancer. Medical Archives, 68(4), 263.

Shpata, V., Prenushi, X., Kreka, M., Kola, I., Kurti, F., & Ohri, I. (2014). Malnutrition at the time of surgery negatively affects the clinical outcome of critically ill patients with gastrointestinal cancer. Medical Archives, 68(4), 263.
Sobotka, L. (2019). Basics in clinical nutrition. 4. Galen.
Sowerbutts, A. M., Knight, S. R., Lapitan, M. C. M., Qureshi, A. U., Maimbo, M., Yenli, E. M. T. A., ... & Burden, S. T (2022). A Qualitative Exploration of Nutrition Screening, Assessment and Oral Support Used in Patients Undergoing Cancer Surgery in Low-and Middle-Income Countries. Nutrients, 14(4), 863.
Venianaki, M., Andreou, A., Nikolouzakis, T. K., Chrysos, E., Chalkiadakis, G., & Lasithiotakis, K. (2021). Factors associated with malnutrition and its impact on postoperative outcomes in older patients. Journal of clinical medicine, 10(12), 2550.
Waldberg, D., L., Seto, H., Plank, L. D., Jamieson, G. G., Jagannath, P., Hwang, T. L., ... & Bihari, D. (2006). Postsurgical infections are reduced with specialized nutrition support. World journal of surgery, 30(8), 1592-1604.
Weimann, A., Braga, M., Carli, F., Higashiguchi, T., Hübner, M., Klek, S., ... & Singer, P. (2017). ESPEN guideline: clinical nutrition in surgery. Clinical nutrition, 36(3), 623-650.
Zarinsefat, A., Terjimanian, M. N., Sheetz, K. H., Stein, I. C., Mazurek, A. A., Waits, S. A., Sullivan, J. A., Wang, S. C., & Englesbe, M. J. (2014). Perioperative changes in trunk musculature and postoperative outcomes. Journal of Surgical Research, 191(1), 106–112. https://doi.org/10.1016/j.jss.2014.03.056

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

29.1% Prevalence of **malnutrition among surgical patients** (Khan et al., 2015)

28% Malnourished surgical patients who were screened (Williams and Wischmeyer, 2017)

POST SURGICAL OUTCOMES of patients with low nutritional status

- higher **mortality risk**
- **longer hospital stay** (LOS)
- higher **surgical site infection** risk (SSI)
- increased **treatment costs**
- **poorer quality of life** (QoL)

(A'ishah Zafirah et al., 2022)

with PREOPERATIVE administration of

ORAL NUTRITION SUPPLEMENTS (ONS)

- reduce mortality risk
- shorter hospital stay (LOS)
- reduce surgical site infection risk (SSI)
- reduce treatment costs
- improve quality of life (QoL)
- enhance postoperative nutritional intake and status

(Williams et al., 2019)

Among 28% screened malnourished patients, **1 in 5 received nutritional supplement**.
(Williams and Wischmeyer, 2017)

OBJECTIVES

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, Perceptions and Challenges of HCPs on Malnutrition in Pre-operative Patients	Khan et al., 2015	Malaysia	29.1% preoperative patients are undernourished
	Castro et al., 2020	Ireland	19.5% GPs have no understanding about nutritional screening
	Avgerinou et al., 2020	United Kingdom	Challenge for GPs to address malnutrition is due to lack of training
Knowledge, Perceptions and Challenges of HCPs on ONS prescription.	Shafiee et al., 2017	Iran	<9% patients receive ONS prior to surgery
	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 on HCPs on Dietitians' Involvement.	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
	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

RESULTS AND DISCUSSION

SOCIODEMOGRAPHIC

Female, 89.3% / Male, 10.7%

Figure 1. Sex

Unsure, 16.5% / Yes, 24.3% / No, 59.2%
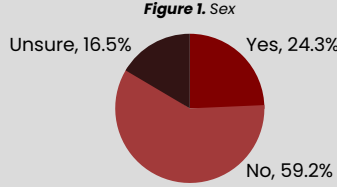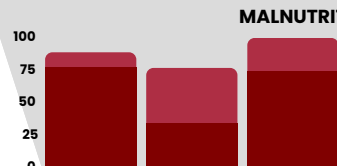
Figure 3. Trained in ONS Prescription

Profession	%
Specialist	1.9%
Medical Officer	1.9%
Medical Assistant	3.9%
Dietitian	6.8%
Nurse	70.9%
Healthcare Assistant	7.8%
Pharmacist	3.9%
Others	2.9%
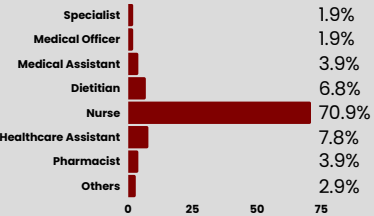
Figure 2. Profession

MALNUTRITION IN PREOPERATIVE PATIENTS
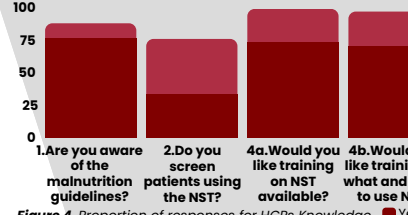
Figure 4. Proportion of responses for HCPs Knowledge, Perceptions and Challenges on Malnutrition

1. Are you aware of the malnutrition guidelines?
2. Do you screen patients using the NST?
4a. Would you like training on NST available?
4b. Would you like training on what and when to use NST?

Table 1. Proportion of responses for HCPs Knowledge, Perceptions and Challenges on Malnutrition

Question	Strongly Agree, n (%)
Nutrition screening is not important to every patient's postoperative recovery	20 (19.4)
Malnutrition among surgical patients is a high priority at the hospital	43 (42.6)
Implementing NST in surgical patients will enhance their post surgical recovery	45 (44.1)
I know when a patient is at risk of malnutrition or is malnourished	24 (23.5)

- 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

Question	Most Answered, n
Which ONS do you regularly prescribe?	Standard formula (10) Semi-elemental formula (10) Disease specific formula (6)
Who starts the prescription?	Dietitian (64) MO (45) Specialist (27)
In what circumstances would you start a patient on sip feeds?	Poor appetite (71) Weight loses (22) Post operation (8)
When should ONS be initiated?	After surgery (13) Malnutrition (8) Before surgery (7)
When do you prescribe ONS to patients?	Before surgery (54) After surgery (33) Before and after surgery (10)

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

Question	Yes, n (%)
Should ONS be initiated when MUST score +2?	30 (31.3)
Do you feel that ONS prescription preoperatively improves patients' postoperative recovery?	75 (72.8)
Do you feel that training should be provided to HCPs to prescribe ONS to patients?	75 (72.8)
Do you think patients undergoing surgery should be prescribed ONS?	58 (56.3)

- 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

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

Question	Strongly Agree, n (%)
All malnourished surgical patients require individualised treatment by dietitian	62 (60.8)
I know how to refer to a dietitian	12 (11.7)
	Yes, n (%)
I know the availability of dietitian referral	74 (71.8)
Do you think that a multidisciplinary approach is important for better care of patients' nutrition?	83 (80.6)

No referral from Specialist/ MO — Pt not at malnutrition risk — Pt have normal BMI — Others
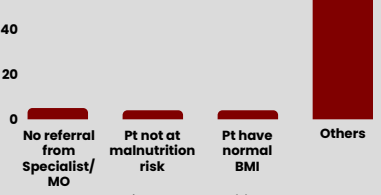
Figure 5. Q11. What is/are the reason(s) for not referring a dietitian before prescribing preoperative ONS to patients?

- **~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

- 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

- Shakhshir, M., & Alkaiyat, A. (2023). Healthcare providers' knowledge, attitude, and practice on quality of nutrition care in hospitals from a developing country: a multicenter experience. Journal of health, population, and nutrition, 42(1), 15.
- Paulo, D. A., Oliveira, B. M. R. D., Wang, D. W. M., Guimarães, M. P., Cukier, C., & Lopes Filho, G. D. J. (2013). Surgeons' knowledge and attitude regarding concepts of nutritional therapy. Revista do Colégio Brasileiro de Cirurgiões, 40, 409-419.
- Weimann, A., Braga, M., Carli, F., Higashiguchi, T., Hübner, M., Klek, S., ... & Singer, P. (2017). ESPEN guideline: clinical nutrition in surgery. Clinical nutrition, 36(3), 623-650.
- Avgerinou, C., Bhanu, C., Walters, K., Croker, H., Tuijt, R., Rea, J., ... & Kharicha, K. (2020). Supporting nutrition in frail older people: a qualitative study exploring views of primary care and community health professionals. British Journal of General Practice, 70(691), e138-e145.
- A'zim, A.Z.A, Zaid, Z.A., Yusof, B.N.M. et al. (2022). Effectiveness of intensive perioperative nutrition therapy among adults undergoing gastrointestinal and oncological surgery in a public hospital: study protocol for a pragmatic randomized control trial. Trials, 23, 961.
- Castro, P. D., Reynolds, C. M. Kennelly, S., Clyne, B., Bury, G., Hanlon, D., ... & Corish, C. A. (2020). General practitioners' views on malnutrition management and oral nutritional supplementation prescription in the community: a qualitative study. Clinical nutrition ESPEN, 36, 116-127.
- Shafiee, M., Belghaisi-Naseri, M., Seifi, N., Arabi, S. M., & Norouzy, A. (2016). An audit to evaluate the knowledge and attitude of Iranian medical specialists towards Oral Nutritional Supplements. Journal of Nutritional Sciences and Dietetics.
- Mawardi, F., Lestari, A. S., Kusnanto, H., Sasongko, E. P., & Hilmanto, D. (2021). Malnutrition in older adults: how interprofessional teams see it? A systematic review of the qualitative research. Family Practice, 38(1), 43-48.
- Browne, S. Kelly, L., Geraghty, A. A. Reynolds, C. M. McBean, L., McCallum, K., ... & Corish, C. A. (2021). Healthcare professionals' perceptions of malnutrition management and oral nutritional supplement prescribing in the community: a qualitative study. Clinical Nutrition ESPEN, 44, 415-423.
- Sowerbutts, A. M., Knight, S. R., Lapitan, M. C. M., Qureshi, A. U., Maimbo, M., Yenli, E. M. T. A., ... & Burden, S. T. (2022). A Qualitative Exploration of Nutrition Screening, Assessment and Oral Support Used in Patients Undergoing Cancer Surgery in Low-and Middle-Income Countries. Nutrients, 14(4), 863.
- Williams, D. G., Molinger, J., & Wischmeyer, P. E. (2019). The malnourished surgery patient: a silent epidemic in perioperative outcomes?. Current opinion in anaesthesiology, 32(3), 405.
- Williams, J. D., & Wischmeyer, P. E. (2017). Assessment of perioperative nutrition practices and attitudes—A national survey of colorectal and GI surgical oncology programs. The American Journal of Surgery, 213(6), 1010-1018.

Factors associated with Disordered Eating Behaviours among 8-11 Years School Children

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Introduction

- According to Academy of Nutrition and Dietetics Disordered eating behaviours (DEBs) 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 community-based particularly among school children in Malaysia.
- 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 socio-demography (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 Covid-19 pandemic. There are still limited updated school-based studies to identify underlying causes of disordered eating among children.[3]
- The potential protective factors of eating behaviours such as family mealtime and children feeding practices, as family connectedness promoting children's psychological developement and positive behavioural outcomes.[2]

Methodology

- A cross-sectional study among 3 primary school (240 students with mothers).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.

Figure 1: Sampling Design

Table 1: Summary of assessment

Results

Figure 2 : DEBs (n=240)

- DEBs 40.8%
- No DEBs 59.2%
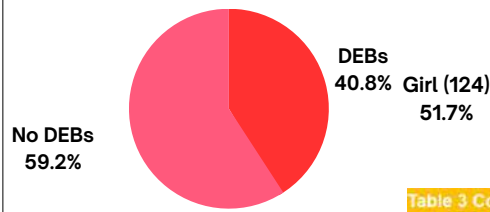
Figure 3: Gender (n=240)

- Girl (124) 51.7%
- Boy (106) 48.3%
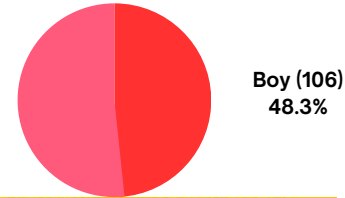
Table 2 Correlation between associated factors with DEBs (n=240)

	VARIABLES	x^2	p-value
1.	Ethnicity	7.19	0.019*
2.	Gender	0.10	0.748
3.	Household Income	0.52	0.918
4.	Maternal age	6.82	0.091
5.	Maternal education level	6.82	0.078
6.	Screen Time	6.81	0.003*

Table 3 Correlation between associated factors with DEBs (n=240)

	VARIABLES	r-value	p-value
1.	Age	0.130	0.045*
2.	BMI-for-age z-scores	-0.079	0.226
3.	Family Mealtime		
	i. Television Mealtime Use	-0.011	0.861
	ii. Family Mealtime Routine	0.073	0.116
4.	Child Feeding Practices		
	i. Pressure to eat	0.089	0.861
	ii. Perceived Responsibility	0.057	0.116
	iii. Restriction to eat	0.090	0.164
	iv. Monitoring	0.111	0.086
	v. Parent concerned about child weight	0.064	0.326
	vi. Parent perceived weight	-0.051	0.433
	vii. Children perceived weight	-0.065	0.316

Discussion

- This study findings have shown a higher percentage DEBs compared to the existing local study which found only 30.8%.[1] Age, ethnicity and screen time is associated with DEBs. It is in line with previous study,[1] 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[1] 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.[1] The excessive screen time use is unavoidable since post-covid pandemic.[3] 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 small sample size and generalized to Malaysia's context. Also, possibly due to lack awareness or socially desirable 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

1. 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
2. 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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INTRODUCTION

81.4% prevalence of non-compliance rates among hemodialysis patients and diet restrictions.[1]

- A prior study found that patients frequently failed to follow recommendations on fluid intake.[1,2]
- However, there is a lack of information about adherence to other treatment regimens, such as dietary intake during dialysis.[2]

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 [2]
- Single marital status and male sex were independent predictors for non-adherence to fluid. [3]

Medical history

- One study discovered that patients with longer dialysis vintage were linked to higher nutrition literacy, regardless of the age factor. [4]

Dietary knowledge

- The evidence on whether improved adherence arises from greater knowledge is inconsistent. [4]

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
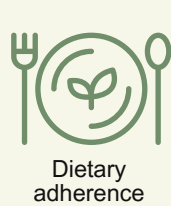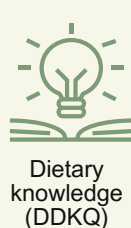
Socio-demographics   Medical history   Dietary knowledge (DDKQ)   Dietary adherence

RESULTS

Sociodemographic

Figure 1: Sociodemographics factors of hemodialysis patient in Hospital Serdang

Gender: Male 52.2%, Female 47.8%

Ethnicity: Malay 54.4%, Chinese 33.3%, Indian 12.2%

Marital status: Married 85.6%, Single 11.1%, Others 3.3%

Age 54.9 ± 12.0 years

Income: <RM1000 55.6%, >=RM1000 44.4%

Dietary knowledge

64.04±21.490
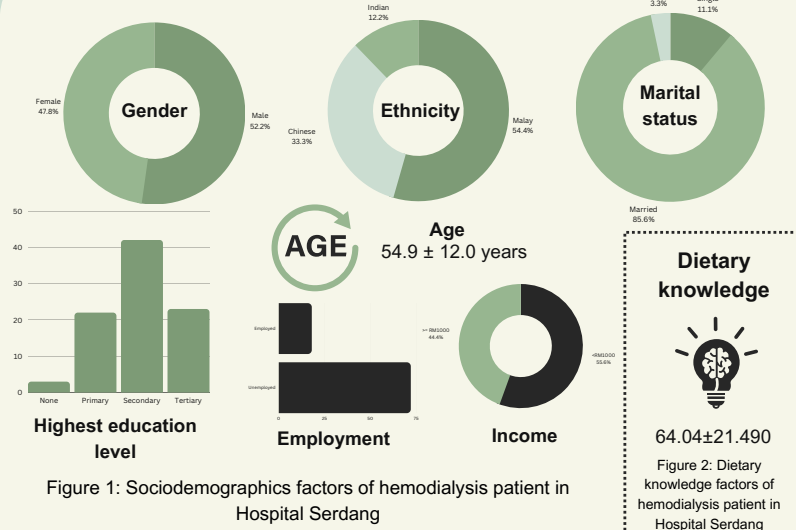
Figure 2: Dietary knowledge factors of hemodialysis patient in Hospital Serdang

Medical history

Dialysis vintage 64.422 ± 47.2662 months

Figure 3: Medical history factors of hemodialysis patients in Hospital Serdang

Dietary Adherence

$\beta= -.133, P= 0.102$ $\beta= .114, P= 0.028*$

$\beta = .488, P= 0.003*$ $\beta= -.133, P= 0.016*$
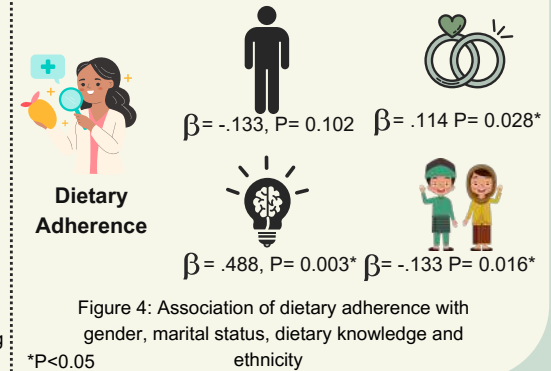
Figure 4: Association of dietary adherence with gender, marital status, dietary knowledge and ethnicity

*P<0.05

DISCUSSION

- Married marital status has higher dietary adherence compare to single, divorced or widowed may due to psychosocial factors that will lead to changes in food ingestion.[5]
- 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

1. 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
2. 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
3. Non-adherence in patients on chronic hemodialysis: an international comparison study
4. 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
5. 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 Mediterranean 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

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[1].
- **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[4].
- 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 diabetes during Ramadan fasting.
- Must work at least 6 months in healthcare.

Study duration
March to May 2023

Sample size
73 respondents

Sampling method: Convenience sampling

Study instrument
- A self-administered questionnaire by adapting a previous similar study[5] and referring to Practical Guidelines of Diabetes and Ramadan[1].
  - 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

RESULTS AND DISCUSSION

Figure 1: Type of HCP (n=73)

Doctor	Pharmacist
Medical officer	Medical assistant
Nurse	Dietitian

Figure 2: Experience in healthcare (years) (n=73)

1-5, 6-10, 11-15, >15
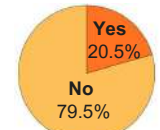
Figure 3: Awareness of IDF-DAR app (n=73)

Figure 5: Knowledge level of HCPs (n=73)
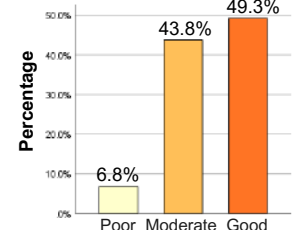
Figure 4: Attitude of HCPs (n=73)

- 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[6].
- Compared to a previous study conducted among Sudanese pharmacists[6], 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

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/10.2337/diacare.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. (2018). 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.2017.12.025
6. Abdelaziz, T. A., Abdulraheem, M. A., Badi, S. 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 WEIGHT LOSS IN PATIENTS WITH METABOLIC OBESITY

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INTRODUCTION

- **Metabolic obesity** is body mass index (BMI) ≥30 kg/m² accompanied by metabolic comorbidities due to the accumulation of excess body fat, which increased the risk of cardiovascular diseases [2].
- **Malaysia** had the highest rate of obesity (19.7%) among Asian nations [10].
- Modest weight loss (5-10%) through diet and activity level can improve obesity-related comorbidities [6].
- Study focuses on identifying the various factors associated with weight loss among patient with metabolic obesity (PWMO).

World Obesity Atlas 2022

Increase 3.3% annually
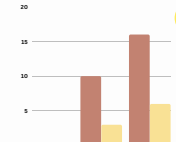
Figure 1: Prevalence of obesity (2010)
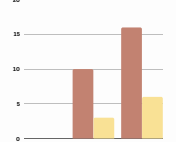
Figure 2: Prevalence of obesity (2025)

OBJECTIVES

General

To determine the association of **knowledge, attitude and practices towards obesity practices**, **clinical nutritional status**, **barriers of adherence** and **sociodemographic factors** with weight loss in patients with metabolic obesity (PWMO) at Hospital Sultan Abdul Aziz (HSAAS).

Specific

- To determine the **knowledge, attitude and practices** (dietary intake and physical activity level), **clinical nutritional status** (anthropometric data and biochemical data), **barriers of adherence** and **sociodemographic factors** (age, gender, employment status, education level, income) with weight loss in patients with metabolic obesity (PWMO) at Hospital Sultan Abdul Aziz Shah (HSAAS).
- To determine the **weight changes** in patients with metabolic obesity (PWMO) at Hospital Sultan Abdul Aziz (HSAAS).

LITERATURE REVIEW

Clinical Nutritional Status

Iran (Type 2 diabetes patients)
Weight loss >5% provide effective effects on HbA1c, lipids and blood pressure which required vigorous interventions such as energy restriction, regular physical activity, and frequent contact with health professionals [7].

Knowledge, Attitude and Practices

Somalia (Type 2 diabetes patients)
The application of adequate information in overcoming chronic disease could result in a rapid improvement of life expectancy and quality of life [12].

Limited study on PWMO in western & local research papers

Sociodemographic Factors

Somalia (Type 2 diabetes patients)
Low income level affect practices due to inability to afford a well-balanced diet and exercise equipment which leads to the disease progression [12].

Barriers of adherence

India (NAFLD patients)
Challenges to adhere dietary and physical activity prescriptions influenced the success in targeting weight loss due to patients' intrapersonal, interpersonal, and societal aspects [3].

METHODOLOGY

Study design
Cross-sectional study

Study location
Metabolic clinic at HSAAS

Study population
35 patients aged **≥18 years old** of BMI≥30 kg/m² with **at least two metabolic comorbidities**

Variables	Instruments	Data analysis	
		Descriptive data	Association data
Sociodemographic factors	Self-administered questionnaire from Stos et al. (2020)	Frequencies, percentages, means and standard deviations	Chi-square test of independence
Clinical nutritional status	Medical record		
Knowledge and attitude	Adapted questionnaire from Moorthy et al. (2022)		
Physical activity	Self-administered questionnaire from NHIS (1975)		
Barriers of adherence	Adapted questionnaire from Arora et al. (2021)		
Weight loss category	Adapted questionnaire from Fruh et al. (2017)		
Weight loss (%)	Weight change (%) formula: $\frac{Previous\ weight - Current\ weight}{Previous\ weight} \times 100\%$		
Dietary intake	Food history	Nutritionist Pro	

CONCLUSION

- Weight loss 5-10% can reduce the progression of chronic disease (eg: It lowers the LDL levels which decreases the deterioration of dyslipidemia).
- Having adequate knowledge, positive attitude and reduce calorie intake can help to achieve the weight loss target.

RESULT AND DISCUSSION

Weight Loss (%)		
	n (%)	*Mean ± SD*
<5	26 (74.3)	3.46 ± 2.94
5-10	9 (25.7)	

Table 1: Weight Loss (%) (n=35)

	Weight Loss (%)	
	X	p - value
Age	2.658	0.617
Gender	0.277	0.599

Table 2: Association of Sociodemographic Factors with Weight Loss (n=35)

	Weight Loss (%)	
	$\bar{x}$	p - value
Blood pressure (BP) (mmHg)	5.075	0.608
HbA1c (%)	0.473	0.492
Low Density Lipoprotein (LDL) (mmol/L)	6.033	**0.014***

Table 3: Association of Clinical Nutritional Status with Weight Loss (n=35)

Variables	Weight Loss (%)	
	X^2	p - value
Knowledge	5.072	**0.034***
Attitude	5.075	**0.036***
Energy (kcal)	6.008	**0.049***

Table 4: Association of Barriers of Adherence with Weight Loss (n=35)

	Weight Loss (%)	
	X^2	p - value
Work-related barriers	0.005	0.944
Psychological barriers	0.368	0.544

Table 5: Association of Barriers of Adherence with Weight Loss (n=35)

Figure 3: Sociodemographic (n=35)
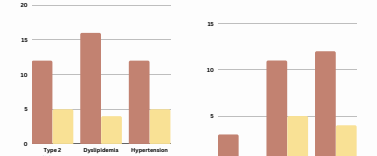
Figure 4: Medical history (n=35)
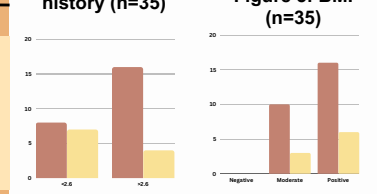
Figure 5: BMI (n=35)
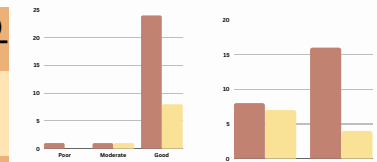
Figure 6: Weight Loss (%) (n=35)
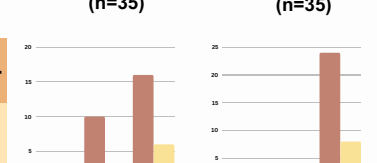
Figure 7: Duration Gap of Consultation (n=35)
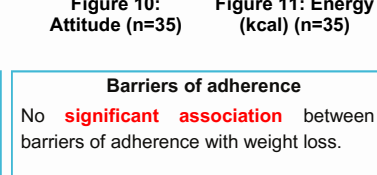
Figure 8: Knowledge (n=35)
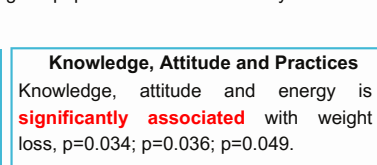
Figure 9: LDL (n=35)
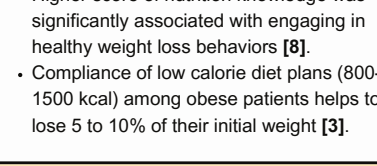
Figure 10: Attitude (n=35)
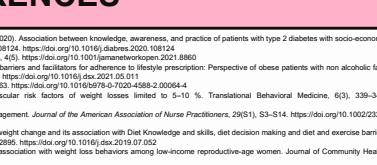
Figure 11: Energy (kcal) (n=35)

Sociodemographic Factors
No **significant association** between sociodemographic factors with weight loss.

Barriers of adherence
No **significant association** between barriers of adherence with weight loss.

- Small sample size and low diversity among the population reduce the ability to detect association [9].

Clinical Nutritional Status
Low density lipoprotein (LDL) is **significantly associated** with weight loss, p=0.014.

Patients who lost 5-10% of their starting weight showed significant reductions in total cholesterol, LDL cholesterol, and triglycerides [5].

Knowledge, Attitude and Practices
Knowledge, attitude and energy is **significantly associated** with weight loss, p=0.034; p=0.036; p=0.049.

- Higher score of nutrition knowledge was significantly associated with engaging in healthy weight loss behaviors [8].
- Compliance of low calorie diet plans (800-1500 kcal) among obese patients helps to lose 5 to 10% of their initial weight [3].

REFERENCES

1. Abdulrahman, M., Husain, Z. S. M., Abdouli, K. A., Kazim, M. N., Sayed Mahdi Ahmad, F., & Carrick, F. R. (2020). Association between knowledge, awareness, and practice of patients with type 2 diabetes with socio-economic status, adherence to medication and disease complications. Diabetes Research and Clinical Practice, 163, 108124. https://doi.org/10.1016/j.diabres.2020.108124
2. April-Sanders, A. K., & Rodriguez, C. J. (2021). Metabolically healthy obesity redefined. JAMA Network Open, 4(5). https://doi.org/10.1001/jamanetworkopen.2021.8860
3. Arora, C., Malhotra, A., Ranjan, P., Vikram, N. K., Dwivedi, S. N., Singh, N., & Shalimar. (2021). Perceived barriers and facilitators to adherence to lifestyle prescription: Perspective of obese patients with non alcoholic fatty liver disease from North India. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 15(4), 102138. https://doi.org/10.1016/j.dsx.2021.05.011
4. Bohannon, R. W. (2014). Overweight and obesity. A Comprehensive Guide to Geriatric Rehabilitation, 461–463. https://doi.org/10.1016/b978-0-7020-4588-2.00064-4
5. Brown, J. D., Buscemi, J., Milsom, V., Malcolm, R., & O'Neil, P. M. (2015). Effects on cardiovascular risk factors of weight losses limited to 5–10 %. Translational Behavioral Medicine, 6(3), 339–346. https://doi.org/10.1007/s13142-015-0353-9
6. Fruh S. M. (2017). Obesity: Risk factors, complications, and strategies for sustainable long-term management. Journal of the American Association of Nurse Practitioners, 29(S1), S3–S14. https://doi.org/10.1002/2327-6924.12510
7. Jalilian, H., Pezeshki, M. Z., Janati, A., Najafipour, F., Sarbakhsh, P., & Zarnaq, R. K. (2019). Readiness for weight change and its association with Diet Knowledge and skills, diet decision making and diet and exercise barriers in patients with type 2 diabetes. Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 13(5), 2889–2895. https://doi.org/10.1016/j.dsx.2019.07.052
8. Laz, T. H., Rahman, M., Pohlmeier, A. M., & Berenson, A. B. (2014). Level of nutrition knowledge and its association with weight loss behaviors among low-income reproductive-age women. Journal of Community Health, 40(3), 542–548. https://doi.org/10.1007/s10900-014-9969-9
9. Moorthy, S. B., Subbaiahgari, H., Sibbala, P., Kola, S., & Kareem, L. (2022). Knowledge, attitude, and practice towards obesity among the general public in community settings of Tirupati: A cross-sectional study. International Journal of Advances in Medicine, 9(7), 783. https://doi.org/10.18203/2349-3933.ijam20221704
10. NIK, K. (2020). NHMS 2019. Institute for Public Health. https://iku.gov.my/nhms-2019
11. World Obesity Federation. 2022. (ii) World Obesity Atlas 2022. https://data.worldobesity.org/publications/WorldObesity-Atlas-2022-updated.pdf
12. Yusuf Mohamud, M. F., & Omar Jeele, M. O. (2022). Knowledge, attitude, and practice regarding lifestyle modification among type 2 diabetes patients with cardiovascular disease at a tertiary hospital in Somalia. Annals of Medicine and Surgery, 79, 103883. https://doi.org/10.1016/j.amsu.2022.103883

FACTORS ASSOCIATED WITH MUSCLE MASS IN PATIENTS WITH METABOLIC OBESITY

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Introduction

- **Metabolic obesity** is body mass index (BMI) **≥30 kg/m²** accompanied by **metabolic comorbidities** due to the accumulation of excess body fat, which increased the risk of cardiovascular diseases [1].
- In Malaysia, the prevalence of metabolic obesity is on the rise, further exacerbating the country's existing burden of non-communicable diseases [2].
- A factor that could play a critical role in metabolic obesity but is often overlooked is **muscle mass** [3].
- Study focuses on **identifying the various factors associated with muscle mass** among **patient with metabolic obesity (PWMO)**.

General Objectives

To determine the **association** of **sociodemographic factors, food intake, health behaviour** and **metabolic parameters** with muscle mass in patients with metabolic obesity (PWMO) at HSAAS.

Specific Objectives

- To **determine** the **sociodemographic factors, health behaviour, food intake, metabolic parameters** in **PWMO**.
- To **identify** the factors associated with muscle mass of patients with metabolic obesity which are the sociodemographic factors, health behaviour, food intake, metabolic parameters.

Literature Review

Sociodemographic Factors

Italy (Obesity, community)
- Older adults with obesity have been observed to carry a greater amount of muscle mass [4]

U.S.A (Hypertension, community)
- Men have more muscle mass compared to women [5]

Health Behaviour

U.S.A (Type 2 Diabetes Patients)
- Short sleep duration has been linked to obesity & metabolic dysfunction [6]

Limited study on PWMO in western & local research papers

Food Intake

USA (Obesity patients)
- A higher protein intake (1.2 and 1.6 g/kg/d) can promote satiety and facilitate fat loss while preserving muscle mass during weight management [7]

UK (Obesity community)
- low-carbohydrate diet led to significant reductions in lean mass in PLwO [8]

Metabolic Parameters

China (Type 2 Diabetes Patients)
- With an increase of BMI, the body fat, body fat percentages, skeletal muscle mass is increased

*PWMO=Patient with Metabolic Obesity *PLwO=Patient living with obesity

Research Methodology

35 patients aged ≥18 years old of BMI≥30 kg/m² with at least 2 metabolic comorbidities

Cross-sectional study

Metabolic Clinic, HSAAS

Convenience Sampling

Variables	Instruments	Data Analysis	
		Descriptive data	Association data
Sociodemographic factors	Medical record	Frequencies, percentages, means and standard deviations	Chi-square test of independence
Smoking & Alcohol Consumption	Self-administered questionnaire from Hindawi (n.d.)		
Physical activity level	Self-administered questionnaire from NHIS (1975)		
Metabolic Parameters	Medical record	Nutritionist Pro	
Dietary intake	Food history		Pearson Correlation
Sleep duration	Self-administered questionnaire from Stanford HealthCare (n.d.)		

Results & Discussion

Figure 1: Medical History (n=35)

Figure 2: Obesity Class (n=35)

Figure 3: Duration Gap during Visit (n=35)

Variables	n		Mean ± SD	Min-Max
	Muscle loss	Muscle gain		
muscle mass	20	15	-2.277 ± 1,734	-4.10 - 5.40

Table 1: Descriptive Data on Muscle Mass (n=35)

Variables	Muscle Mass		
	X^2	r - value	p - value
Age	5.635		0.343
Gender	0.020		0.886
Ethnicity	3.011		0.222
Physical Activity	3.973		0.137
Sleep Durations (hrs)		-0.120	0.493

Table 2: Association of Muscle Mass with Sociodemographic Factor & Health Behaviour (n=35)
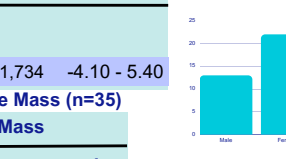
Figure 4: Gender (n=35)
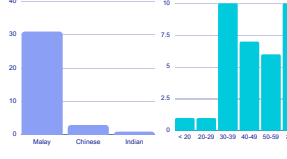
Figure 5: Ethnicity (n=35)
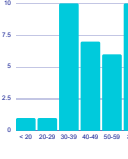
Figure 6: Age (n=35)
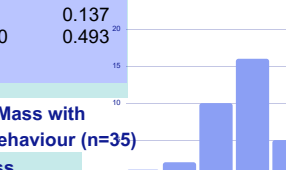
Figure 7: Sleep Duration (n=35)
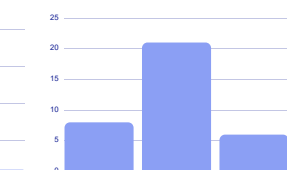
Figure 8: Health Behaviour (n=35)

Variables	Muscle Mass	
	X^2	p - value
Carbohydrates	0.432	0.806
Protein	0.302	0.583
Fats	2.172	0.338
Energy (kcal)	1.003	0.606

Table 3: Association of Muscle Mass with Food Intake (n=35)

Variables	Muscle Mass	
	X^2	p - value
BMI	1.176	0.555
Weight Changes	1.373	0.241
HbA1c (%)	4.880	**0.027***
Triglycerides (mmol/L)	0.432	**0.036***

Table 4: Association of Muscle Mass with Metabolic Parameters (n=35)
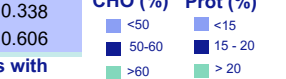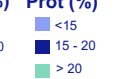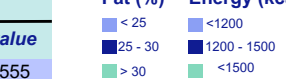
Figure 9: Food Intake (n=35)

CHO (%): <50 | 50-60 | >60
Prot (%): <15 | 15 - 20 | > 20
Fat (%): < 25 | 25 - 30 | > 30
Energy (kcal): <1200 | 1200 - 1500 | <1500
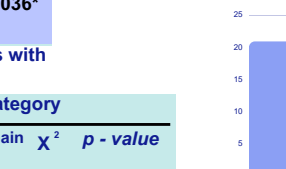
Figure 10: Muscle Mass Change (n=35)

Figure 11: Weight Change (n=35)

Variables	Muscle Mass Category			
	Muscle Loss n (%)	Muscle Gain n (%)	X^2	p - value
Weight loss	12 (60)	6(40)	1.373	0.241
Weight gain	8 (40)	9 (60)		

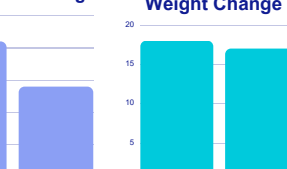Table 5: Association of Muscle Mass with Weight changes (n=35)

Sociodemographic factors
No **significant association** between sociodemographic factors & muscle mass of PWMO

Health behaviour
No **significant association** between health behaviour & muscle mass of PWMO

May due to **small sample size** and **less diverse population** during data collection & possible on **real-world relationship** between these factors and muscle mass change in this specific population is **weak or non-existent**.

Food intake
No **significant association** between sociodemographic factors & muscle mass of PWMO

Could be **measurement errors** - mean total energy intake of our sample is relatively low compared to standard recommendations for adults, suggesting that these patients might be **under-reporting their intake**, a common occurrence in dietary surveys [10], or may be in an **energy-deficit state**.

Weight Changes
No **significant association** between weight changes & muscle mass of PWMO

Weight change and muscle mass change **does not have association**, but with a larger sample size, a significant relationship might emerge.

Metabolic Parameters
Biochemical Data

HbA1c (%) and Triglycerides level (TG) (mmol/L) is **significantly associated** with muscle mass of PWMO

1. TG levels linked to **decreased muscle mass** [11]
2. **Higher HbA1c** levels lead to insulin resistance - has been linked with **muscle mass loss** [12]

Conclusion

- Findings found that sociodemographic factors, health behaviors, and food intake & certain metabolic parameters did not significantly correlate with muscle mass. However, the metabolic parameters, specifically HbA1c & triglycerides, did show a significant association with muscle mass.
- Thus, metabolic control may play an essential role in muscle mass among patients with metabolic obesity.
- Nonetheless, due to some limitations like a small sample size and potential for measurement inaccuracies, further research with a larger, diverse sample and more accurate measurements is warranted to validate these findings.

References

1. April-Sanders, A. K., & Rodriguez, C. J. (2021). Metabolically healthy obesity redefined. JAMA Network Open, 4(5). https://jamanetwork.com/
2. Institute for Public Health (IPH) 2015. National Health and Morbidity Survey 2015 (NHMS 2015). Vol. II: Non-Communicable Diseases, Risk Factors & Other Health Problems.
3. Srikanthan, P., & Karlamangla, A. S. (2011). Relative muscle mass is inversely associated with insulin resistance and prediabetes. Findings from the third National Health and Nutrition Examination Survey. The Journal of Clinical Endocrinology & Metabolism, 96(9), 2898-2903. https://pubmed.ncbi.nlm.nih.gov/21778224/
4. Mingrone, G., Marino, S., DeGaetano, A., Capristo, E., Heymsfield, S. B., Gasbarrini, G., & Greco, A. V. (2001). Different limit to the body's ability of increasing fat-free mass. Metabolism: clinical and experimental, 50(9), 1064–1067. https://doi.org/10.1053/meta.2001.29650
5. Srikanthan, P., Karlamangla, A. S. (2014). Muscle Mass Index as a Predictor of Longevity in Older Adults. American Journal of Medicine, 127(6), 547-553. https://pubmed.ncbi.nlm.nih.gov/24561114/
6. Knutson, K. L. (2007). Impact of sleep and sleep loss on glucose homeostasis and appetite regulation. Sleep Medicine Clinics, 2(2), 187-197. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2084401/
7. Leidy, Heather J., et al. "The role of protein in weight loss and maintenance." The American Journal of Clinical Nutrition, 101.6 (2015): 1320–1329.
8. Gardner, C.D., Offringa, L.C., Hartle, J.C. Kapphahn, K. and Cherin, R. (2016). Weight loss on low-fat vs. low-carbohydrate diets by insulin resistance status among overweight adults and adults with obesity: A randomized pilot trial. Obesity, 24: 79-86. https://doi.org/10.1002/oby.21331
9. Liang, Zhanlong, et al. "Neck circumference and insulin resistance in Chinese adults: The Cardiometabolic Risk in Chinese (CRC) Study." Diabetes Care, 35.10 (2012): e141–e141.
10. Maurer, J., Taren, D. L., Teixeira, P. J., Thomson, C. A., Lohman, T. G., Going, S. B., & Houtkooper, L. B. (2006). The psychosocial and behavioral characteristics related to energy underreporting. Nutrition Reviews, 64(2), 53-66. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2084401/
11. Moon, S. S. (2018). Low skeletal muscle mass is associated with insulin resistance, obesity, and metabolic syndrome in the Korean population: the Korea National Health and Nutrition Examination Survey (KNHANES) 2009-2010. Endocrine Journal, 61(1), 61-70. https://www.jstage.jst.go.jp/article/endocrj/61/1/61_EJ13-0246/_article
12. Srikanthan, P. & Karlamangla, A. S. (2011). Relative muscle mass is inversely associated with insulin resistance and prediabetes. Findings from the Third National Health and Nutrition Examination Survey. The Journal of Clinical Endocrinology & Metabolism, 96(9), 2898–2903. https://academic.oup.com/jcem/article/96/9/2898/2834854

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

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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.**[1]
- **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.

METHODOLOGY

STUDY DESIGN
Cross-sectional study

STUDY LOCATION
Hospital Sultan Abdul Azizz Shah, UPM

INCLUSION CRITERIA
- Malaysian
- Aged 60 years and above

SAMPLE SIZE
98 subjects

EXCLUSION CRITERIA
- Mentally unstable
- Admitted to hospital with terminal illness (<6 months)
- Hospitalised for <48 hours

SAMPLING DESIGN
Purposive sampling

DATA ANALYSIS
- SPSS version 27
- Chi-square test
- Statistical significance $p<0.05$

INSTRUMENTS

Self-developed questionnaire
- Sociodemographic
- Medical background

Body Mass Index
- Anthropometry measurement

24-hour diet recall (2 days)
- Dietary intake

MNA-SF questionnaire
- Risk of malnutrition

Jamar Plus+Digital Handgrip Dynamometer
- Functional status

RESULTS

Objective 1 :
To assess falls among older patients in HSAAS

Figure 1: Incidence of falls (n=98)

- Yes — 35%
- No — 65%
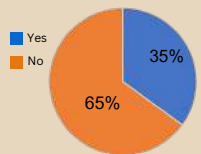
Figure 2: Sociodemographic (n=98)
Mean±SD : 69.61±6.74

Age	n (%)
60-74	75 (76.5)
75 and above	23 (23.5)
Gender	
Male	58 (59.2)
Female	40 (40.8)
Ethnicity	
Malay	73 (74.5)
Chinese	17 (17.3)
Indian	8 (8.2)
Marital Status	
Single/Widowed	3 (3.1)
Married	95 (95.9)
Living arrangement	
Alone	4 (4.1)
With family	94 (95.9)

Figure 3: Medical background (n=98)

Presence of Comorbidities

Number of Medication Taken by Subjects

Figure 4: Anthropometry (n=98)

- 37.8%
- 35.7%
- 26.5%

Underweight (<24) Normal (24-30) Overweight (>30)
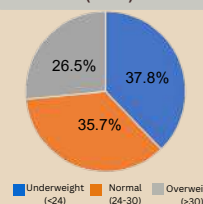
Figure 5: Risk of malnutrition (n=98)

- 15.3%
- 58.2%
- 26.5%

Normal At risk Malnourished
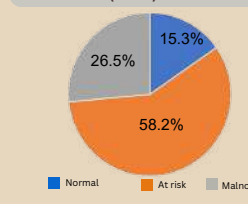
Figure 6: Functional status (n=98)

- 22.4%
- 77.6%

At risk Normal
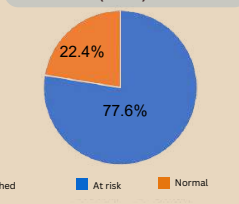
Objective 2 : To determine sociodemographic factors, medical background, anthropometry, risk of malnutrition and functional status

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

Variables	χ^2	p-value
Age	0.000	0.992
Gender	0.144	0.705
Ethnicity	0.362	0.834
Marital status	**5.825**	**0.039***
Living status	2.990	0.119

Table 2: BMI and falls

Variables	χ^2	p-value
BMI	0.723	0.697

Table 3: Dietary intake and falls

Variables	χ^2	p-value
Energy adequacy	0.074	0.785
Protein adequacy	0.235	0.628
Dietitian referral	**19.527**	**0.003***

Table 4: Medical background and falls

Variables	χ^2	p-value
Comorbidity	0.094	0.468
Diabetes Mellitus	1.601	0.206
Hypertension	1.414	0.332
Chronic Kidney Disease	0.381	0.537
Dyslipidemia	0.518	0.472
Cardiovascular Disease	0.005	1.000
Polypharmacy	**5.712**	**0.041***

Table 5: Risk of malnutrition and falls

Variables	χ^2	p-value
MNA-SF Nutritional Status	**7.869**	**0.023***

Table 6: Functional status and falls

Variables	χ^2	p-value
Hangrip strength	0.035	0.852

DISCUSSION

- **Significant association (p<0.05)** were found between marital status, ($\chi^2=5.825$, p=0.039), polypharmacy ($\chi^2=5.712$, p=0.041), referral of dietitian ($\chi^2=19.527$, p=0.003), and **risk of malnutrition** ($\chi^2=7.869$, 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.[2]
- **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.[3]
- The use of **multiple medications** lead to drug interactions, adverse effects, dizziness, impaired balance **increase the risk of falls**[4] 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]

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.

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 olderpersons 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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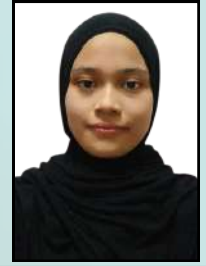
INTRODUCTION

- The prevalence of malnutrition in older adults are 46% (worldwide)[1] and 23.5% (Malaysia)[2].
- Among the hospitalised older patients, the prevalence range from 6% – 74.5% (globally)[3] and 21.0–34.7% (Malaysia)[4].
- Leads to worsen quality of life by increasing mortality, morbidity, and infection rate, extending the hospital stay, and increasing both the re-hospitalization rate and health expenditure[5].
- Despite the relevance and the prevalence of the problem, malnutrition frequently remains underdiagnosed and undertreated[5].

OBJECTIVE

To determine the associated factors of malnutrition among the older patients in HSAAS.

LITERATURE REVIEW

Association between sociodemographic background, medical background, anthropometry, dietary assessment, functional status and hospital foodservice factor of the hospitalised older patients [2][6][7].

METHODOLOGY

Study design
Cross-sectional study.

Sample & location
103 older patients from medical, surgical and orthopedic wards HSAAS.

Statistical analysis
IBM SPSS version 27 ($p<0.05$), descriptive & Chi-square test.

Inclusion criteria
Malaysian & 60 years old.

Ethics
National Medical Research Register (NMRR) & JKEUPM.

Sampling design
Convenience sampling and purposive sampling.

Variables	Instruments
Sociodemographic & medical background. Anthropometry. Dietary assessment. Handgrip strength. Hospital foodservice factor. Malnutrition assessment.	Questionnaire. BMI, Omron HBF-302. 2-days 24-hour diet recall. Jamar Plus+ handgrip dynamometer. Mealtime Audit Tool (MAT). Mini-Nutritional Assessment Short Form (MNA-SF).

RESULTS

Objective 1 : To determine the factors of malnutrition among hospitalised older patients in HSAAS

Figure 1: Sociodemographic data
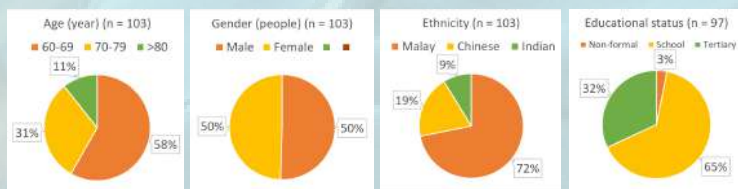
Table 1 : Medical background

Medical background	n (%)
LOS (n = 102)	
<1 week	78 (76.5)
1-4 weeks	24 (23.5)
Comorbidity (n = 102)	
Yes	99 (97.1)
No	3 (2.9)
Polypharmacy (n = 102)	
Yes (≥5 unit/d)	85 (83.3)
No (<5 unit/d)	17 (16.7)

Figure 2 : Medical background
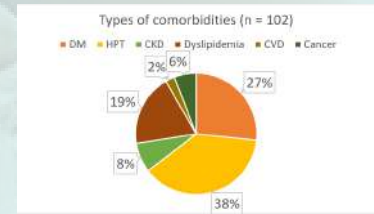
Figure 3 : Anthropometry & dietary assessment
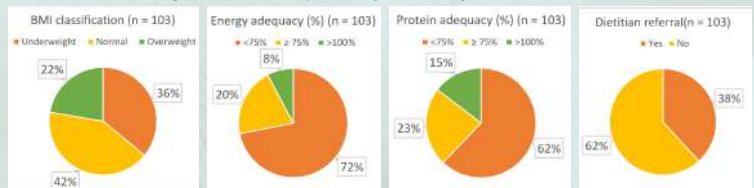
Objective 2 : Association between the factors and malnutrition.

Figure 4 : Prevalence of malnutrition
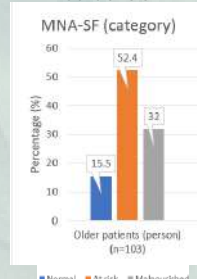
Table 2 : Significant associations of BMI classification, protein adequacy & dietitian referral.

Characteristics	x^2	p-value
BMI classification Underweight Normal Overweight	13.316	0.010
Protein adequacy Inadequate (< 75%) Adequate (≥75%) Excessive (>100%)	18.305	0.019
Dietitian referral Yes No	14.334	0.001

DISCUSSION

- Descriptive results show that most of the older adults in HSAAS were 60 to 69 years olds, Malay and have primary/secondary education background (Figure 1).
- 97.1% of them have comorbidities but among the comorbidities, hypertension (38%) dominated followed by diabetes mellitus (27%) (Table 1, Figure 2).
- Both energy and protein were inadequate which was <75% of the requirements (Figure 3).
- More than 50% of them were not referred to dietitians (Figure 3).

There is a significant association between BMI classification and malnutrition.
The elderly with body mass index (BMI) below 18.5 kgm-2 were about six times more likely to be at risk of malnutrition or malnourished [2].

There is a significant association between protein adequacy with malnutrition.
Lack of protein intake is still a challenge as they were physically inactive which leads to reduce in food intake [8][9].

There is a significant association between dietitian referral and malnutrition.
Dietitian are specialized to focus on assessing and identifying patients at risk of malnutrition and improving nutrition status [10].

CONCLUSION

- This study found that BMI classification, protein adequacy and dietitian referral are associated with malnutrition among hospitalised older patients in HSAAS.
- However, there are no associations found between sociodemographic, medical background, handgrip strength and mealtime barrier with malnutrition.
- The effectiveness of individualized nutrition care by dietitian in hospital to prevent malnutrition shows the importance of the role of dietitian to combat this issue.

REFERENCES:

1. Bellanti F., lo Buglio A., Quiete S., Pellegrino G., Dobrakowski M., Kasperczyk A., Kasperczyk S., Vendemiale G. Comparison of three nutritional screening tools with the new glim criteria for malnutrition and association with sarcopenia in hospitalized older patients. J. Clin. Med. 2020;9:1898
2. Ahmad, M. H., Salleh, R., Siew Man, C., Pardi, M., Che Abdul Rahim, N., Shahril, N., Abdul Mutalib, M. H., Shahar, S., & Ahmad, N. A. (2021). Malnutrition among the Elderly in Malaysia and its Associated Factors: Findings from the National Health and Morbidity Survey 2018. Journal of Nutrition and Metabolism, 2021, 1–8. https://doi.org/10.1155/2021/6639935
3. Krishnamoorthy, Y., Vijayageetha, M., Kumar, S. G., Rajaa, S., & Rehman, T. (2018). Prevalence of malnutrition and its associated factors among elderly population in rural Puducherry using mini-nutritional assessment questionnaire. Journal of Family Medicine and Primary Care, 7(6), 1429–1433. https://doi.org/10.4103/jfmpc.jfmpc_22_18
4. Thiam, C. N., Mathavan, S., Abdullah, A., & Chong, E. G. M. (2022). Malnutrition among patients admitted to the subacute geriatric ward during the COVID-19 pandemic era: A cross-sectional study in a tertiary hospital in Malaysia. Med. J. Malays, 77, 313-319.
5. Bellanti, F., lo Buglio, A., Quiete, S., & Vendemiale, G. (2022). Malnutrition in Hospitalized Old Patients: Screening and Diagnosis, Clinical Outcomes, and Management. Nutrients, 14(4), 910. https://doi.org/10.3390/nu14040910
6. Thiam, C. N., Mathavan, S., Abdullah, A., & Chong, E. G. M. (2022). Malnutrition among patients admitted to the subacute geriatric ward during the COVID-19 pandemic era: A cross-sectional study in a tertiary hospital in Malaysia. Med. J. Malays, 77, 313-319.
7. Akbar, F, & Setiati, S. (2018). Correlation between hand grip strength and nutritional status in elderly patients. Journal of Physics: Conference Series, 1073, 042032. https://doi.org/10.1088/1742-6596/1073/4/042032
8. Weijzen, M. E. G., Kouw, I. W. K., Geerlings, P., Verdijk, L. B., & Loon, L. J. C. (2020). During Hospitalization, Older Patients at Risk for Malnutrition Consume <0.65 Grams of Protein per Kilogram Body Weight per Day. Nutrition in Clinical Practice, 35(4), 655–663. https://doi.org/10.1002/ncp.10542
9. Kruizenga, H. M., Schager, M., van Dronkelaar, C., & Naumann, E. (2022). Protein intake during hospital admission; Dutch national data on protein intake in 339,720 malnourished patients from 2009–2019. Clinical Nutrition Open Science, 41, 74–81. https://doi.org/10.1016/j.nutos.2021.12.001
10. Holmes, R. A. (2019). Role of dietitians in reducing malnutrition in hospital. Canadian Medical Association Journal, 191(5), E139–E139. https://doi.org/10.1503/cmaj.71130
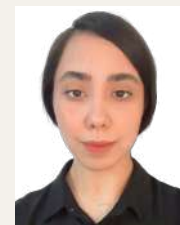
Factors Associated with Pressure Ulcer Among Older Patients in Hospital Sultan Abdul Aziz Shah, UPM

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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 <u>strongly associated</u> with pressure ulcer among older adults.

OBJECTIVE

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

METHODS

Study design
Cross-sectional study

Study location
Hospital Sultan Abdul Aziz Shah

Sample size
114 subjects

Sampling Design
Purposive and convenience

Inclusion criteria
- Malaysian citizen
- ≥ 60 years old
- Admitted for more than 48 hr

Study instruments
- Self-administered questionnaire
- Anthropometry measurements
- 2 day diet recall
- MNA-SF

Statistical analysis
- IBM SPSS statistics version 27, $p<0.05$
- Descriptive analysis
- Chi-square test

RESULTS

1. To assess the sociodemographic, medical background, anthropometry, dietary intake, risk of malnutrition and mobility status among older patients in HSAAS

Fig. 1 Sociodemographic Background

Fig 2. Types of Comorbidities

Fig 3. Nutritional Status

Fig 4. Mobility Status

Dietary Characteristics

Variable	n (%)
Dietitian Referral (n=103)	
Yes	41 (39.8)
No	62 (60.1)
Energy Adequacy (n=102)	
Inadequate	69 (67.6)
Adequate	25 (24.5)
Excessive	8 (7.8)
Protein Adequacy (n=102)	
Inadequate	59 (57.8)
Adequate	28 (27.4)
Excessive	15 (14.7)
Fluid Adequacy (n=103)	
Inadequate	67 (65)
Adequate	36 (34.9)

Table 1

BMI Classification

Variable	n (%)
Body Mass Index (n=102)	
Underweight (Below 23)	37 (36.2)
Normal (24 – 30)	44 (43.1)
Overweight (Above 30)	21 (20.5)

Table 2

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

Fig 5. Pressure ulcer — 4.8% Yes, 95.1% No

3. To determine the associated factors with pressure ulcer among older patients in HSAAS

Sociodemographic and pressure ulcer

Variable	X^2	p-value
Age	18.18	0.71
Gender	0.27	0.68
Ethnicity	4.86	0.09
Religion	2.22	0.46
Educational status	2.59	0.52
Marital status	0.32	1.00
Living status	3.10	0.28
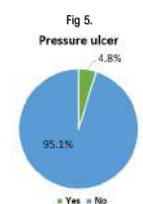
Table 3

Medical background and pressure ulcer

Variable	X^2	p-value
Multimorbidity	1.08	0.58
Diabetes Mellitus	3.62	0.08
Hypertension	0.08	0.56
Chronic Kidney Disease	1.07	0.28
Dyslipidemia	0.0	1.0
Cardiovascular Disease	6.98	0.05
Cancer	1.13	0.57

Table 4

Dietary intake and pressure ulcer

Variable	X^2	p-value
Dietitian referral	5.20	0.03
Energy adequacy	3.60	0.12
Protein adequacy	2.15	0.49
Fluid adequacy	1.25	0.40

Table 5

Mobility status and pressure ulcer

Variable	X^2	p-value
Mobility status	9.25	0.009

Table 6

DISCUSSION

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].

The results indicate that **early referral to a dietitian** can yield 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

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

REFERENCES

[1] Allman R. M. (1997). Pressure ulcer prevalence, incidence, risk factors, and impact. Clinics in geriatric medicine, 13(3), 421–436.
[2] Afzali Borojeny L, Albatineh AN, Hasanpour Dehkordi A, Ghanei Gheshlagh R. The incidence of pressure ulcers and its associations in different wards of the hospital: A systematic review and meta analysis. Int J Prev Med 2020;11:171
[3] Khor, H. M, Tan, J., Saedon, N. I., Kamaruzzaman, S. B., Chin, A. V., Poi, P. J., & Tan, M. P. (2014). Determinants of mortality among older adults with pressure ulcers. Archives of Gerontology and Geriatrics, 59(3), 536–541.
[4] Azhar, Wahyuni & Khuzaimah, Siti & Ahmad Sharoni, Siti & Fauzi, Rosuzeita & Isa, Roslinda & Shohor, Norhafizatul & Seman, Nordianna. (2022). Knowledge, Attitude and Perceived Barrier Towards Pressure Ulcer Prevention Among Critical Care Unit Nurses in Klang Valley Public Hospitals. Malaysian Journal of Medicine and Health Sciences. 59-65.
[5] Allman, Richard M "Pressure Ulcer Risk Factors among Hospitalized Patients with Activity Limitation." JAMA: The Journal of the American Medical Association, vol. 273, no. 11, 1995, p. 865.,
[6] Brem, H., Maggi, J., Nierman, D., Rolnitzky, L., Bell, D., Rennert, R., Golinko, M., Yan, A., Lyder, C., & Vladeck, B. (2010). High cost of stage IV pressure ulcers. American journal of surgery, 200(4), 473–477.
[7] Lenche, N., Katerina, D., Nikolchev, A., Lidija, P., Biljana, P. Z., & Milenko, K. (2016). The influence of comorbidity on the prevalence of pressure ulcers in geriatric patients. Global Dermatology, 3(3), 319–322.
[8] Amir, Y., Lohrmann, C., Halfens, R. J., & Schols, J. M. (2017). Pressure ulcers in four Indonesian hospitals: prevalence, patient characteristics, ulcer characteristics, prevention and treatment. International wound journal, 14(1), 184–193.
[9] Saghaleini SH, Dehghan K, Shadvar K, Sanaie S, Mahmoodpoor A, Ostadi Z. Pressure ulcer and nutrition. Indian J Crit Care Med 2018;22:283-9.
[10] Lindgren, M., Unosson, M., Fredrikson, M., & Ek, A. C. (2004). Immobility - a major risk factor for development of pressure ulcers among adult hospitalized patients: a prospective study. Scandinavian Journal of Caring Sciences, 18(1), 57–64.
[11] Shahin, E. S., Dassen, T., & Halfens, R. J. (2008). Pressure ulcer prevalence and incidence in intensive care patients: a literature review. Nursing in critical care, 13(2), 71–79.

ETHICAL APPROVAL

FACTORS ASSOCIATED WITH DYSPHAGIA AMONG OLDER PATIENTS IN HOSPITAL SULTAN ABDUL AZIZ SHAH, UPM

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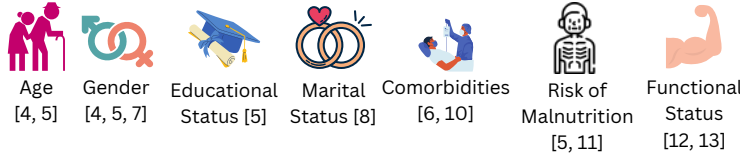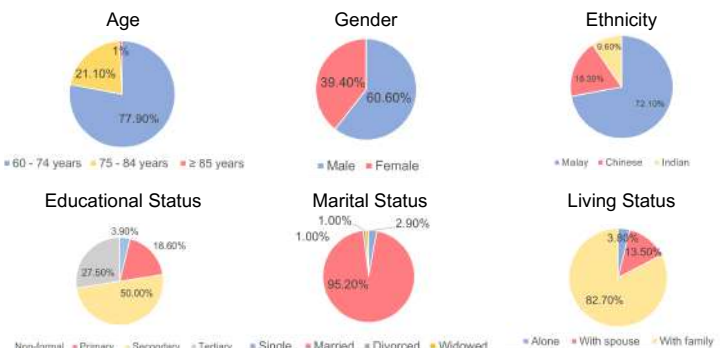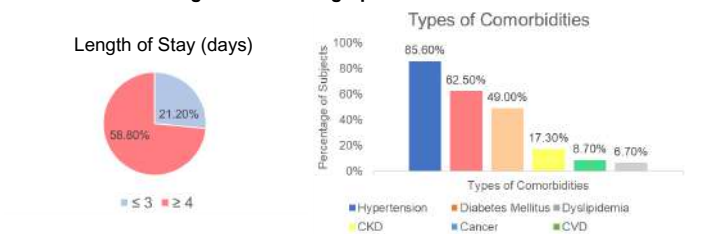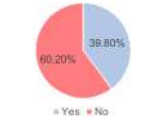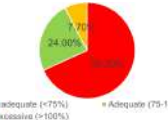
INTRODUCTION

- The prevalence of hospitalized older adults with dysphagia were **16 to 57%** [1,2].
- Consequences of dysphagia include **longer hospitalized period**, **higher hospital cost**, **health complications**, **impaired social and psychological well-being**, and eventually **death** if left untreated [3].
- **Limited data** on its prevalence and factors associated in Malaysia.

OBJECTIVE

To determine the factors associated between sociodemographic, medical background, anthropometry, dietary intake, risk of malnutrition and functional status with dysphagia among older patients in Hospital Sultan Abdul Aziz Shah (HSAAS), UPM.

LITERATURE REVIEW

Age [4, 5] · Gender [4, 5, 7] · Educational Status [5] · Marital Status [8] · Comorbidities [6, 10] · Risk of Malnutrition [5, 11] · Functional Status [12, 13]

Consistent findings were found between these factors with dysphagia, except for gender.

METHODOLOGY

Study design
Cross-sectional study

Sampling Design
Purposive

Study location
HSAAS, UPM

Sample Size
108 subjects

Instruments
Self-administered questionnaire
- Sociodemographic
- Medical background

Body Mass Index
- Anthropometry measurement

24-hour diet recall (2 days)
- Dietary intake

Handgrip-strength test
- Functional Status

Inclusion criteria:
- Malaysia citizens
- ≥ 60 years old

Exclusion criteria
- Mental disabilities and/or unconscious
- Admitted for terminal illness
- Hospitalized for less than 48 hours

🔍 **Presence of Dysphagia**
- Reported from medical record

Statistical Analysis
- IBM SPSS Statistics version 26, p<0.05
- Descriptive analysis
- Chi-square test

RESULTS

Obj 1: To assess the sociodemographic, medical background, anthropometry, dietary intake, risk of malnutrition and functional status among older patients in HSAAS.

Age — 60 - 74 years 77.90%, 75 - 84 years 21.10%, ≥ 85 years 1%
Gender — Male 60.60%, Female 39.40%
Ethnicity — Malay 72.10%, Chinese 18.30%, Indian 9.60%
Educational Status — Non-formal 3.90%, Primary 18.60%, Secondary 27.50%, Tertiary 50.00%
Marital Status — Single 1.00%, Married 95.20%, Divorced 1.00%, Widowed 2.90%
Living Status — Alone 3.80%, With spouse 13.50%, With family 82.70%

Fig 1: Sociodemographic characteristics

Length of Stay (days) — ≤ 3: 58.80%, ≥ 4: 21.20%

Types of Comorbidities — Hypertension 85.60%, Diabetes Mellitus 62.50%, Dyslipidemia 49.00%, CKD 17.30%, Cancer 8.70%, CVD 6.70%

Fig 2: Medical Background

Dietitian Referral — Yes 60.20%, No 39.80%
Energy Adequacy — Inadequate (<75%) 24.00%, Adequate (75-100%), Excessive (>100%) 7.70%
Protein Adequacy — Inadequate (<75%) 14.40%, Adequate (75-100%), Excessive (>100%) 26.80%
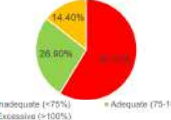
Fig 3: Dietary Intake
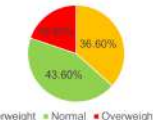
Fig 4: BMI Classification — Underweight, Normal 43.60%, Overweight/obese 36.60%
Fig 5: Risk of Malnutrition — Normal 16.80%, At risk 51.50%, Malnourished
Fig 6: Handgrip-strength — Lower 76.40%, Normal 23.60%
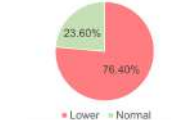
Obj 2: To determine the prevalence of dysphagia among older patients in HSAAS.

Yes 11.50%, No 88.50%
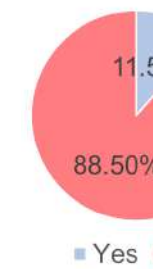
Fig 7: Prevalence of dysphagia

Obj 3: To determine association factors with dysphagia among older patients in HSAAS.

Table 1: Associated factors and dysphagia

Variable	x^2	p-value
Age	3.494	0.226
Sex	2.031	0.211
Ethnicity	0.415	0.876
Educational Status	1.544	0.813
Marital Status	17.310	0.011*
Living Status	2.668	0.219
Comorbidity	2.001	0.227
Diabetes Mellitus	0.074	1.0
Hypertension	1.505	0.208
Chronic Kidney Disease	0.533	0.436
Dyslipidemia	0.335	0.760
Cardiovascular Disease	0.051	0.591
Cancer	1.285	0.593
Polypharmacy	0.688	0.683
BMI	7.586	0.028*
Dietitian Referral	20.539	>0.001*
Energy Adequacy	9.461	0.008*
Protein Adequacy	13.917	0.004*
Risk of Malnutrition	10.047	0.008*
Handgrip-strength	0.365	1.0

DISCUSSION

The **prevalence** of subjects reported to have dysphagia were 12 (11.5%) subjects which is lower compared to past literatures [1, 2]. This may be due to the differences in sociodemographic background and settings of the study.

Marital status is related to dysphagia as it may affect the motivation to eat impacting the nutritional intake causing overall muscle weakening including the muscles responsible for swallowing [7].

Difficulty in swallowing can also impact the dietary intake leading to **inadequate energy** and **protein intake** [12]. This may then lead to **malnutrition** and weight loss causing most subjects with dysphagia to be **underweight** [1, 12].

Dietitian referral is related to dysphagia as dietitian is one of the healthcare professionals that are in the multidisciplinary team in dysphagia management for dietary modification [3].

CONCLUSION

- Marital status, BMI, dietitian referral, energy adequacy, protein adequacy and risk of malnutrition were significantly associated with dysphagia among older patients in HSAAS.
- This study prove the importance of early nutrition screening during admission for early dietitian referral to treat patients with dysphagia to provide optimum nutrition care for positive health outcome.

References

1. Tran, T. P., Nguyen, L. T., Kayashita, J., Shimura, F., & Yamamoto, S. (2019). Dysphagia Prevalence among Elderly in Some Vietnamese Hospitals. Asian Journal of Dietetics, 1(3), 48–52.
2. Neelagandan, A. I., Tuin, E., Tay, C. Y., & Muniandy, R. K. (2021). An Audit of Dysphagia Patients Attending Speech Therapy Clinic at a Tertiary Hospital in Malaysia. Borneo Journal of Medical Sciences, 15(1), 21–29.
3. Thiyagalingam, S., Kulinski, A. E., Thorsteinsdottir, B., Shindelar, K. L., & Takahashi, P. Y. (2021). Dysphagia in Older Adults. In Mayo Clinic Proceedings (Vol. 96, Issue 2, pp. 488–497). Elsevier Ltd. https://doi.org/10.1016/j.mayocp.2020.08.001
4. Bomze, L., Dehom, S., Lao, W. P., Thompson, J., Lee, N., Cragoe, A., Luceno, C., & Crawley, B. (2021). Comorbid Dysphagia and Malnutrition in Elderly Hospitalized Patients. Laryngoscope, 131(11), 2441–2447. https://doi.org/10.1002/lary.29329
5. Lim, Y., Kim, C., Park, H., Kwon, S., Kim, O., Kim, H., & Lee, Y. (2018). Socio-demographic factors and diet-related characteristics of community-dwelling elderly individuals with dysphagia risk in South Korea. Nutrition Research and Practice, 12(5), 406–414. https://doi.org/10.4162/nrp.2018.12.5.406
6. Wolf, U., Eckert, S., Walter, G., Wienke, A., Bartel, S., Plontke, S. K., & Naumann, C. (2021). Prevalence of oropharyngeal dysphagia in geriatric patients and real-life associations with diseases and drugs. Scientific Reports, 11(1). https://doi.org/10.1038/s41598-021-99858-w
7. Chen, S., Cui, Y., Ding, Y., Sun, C., Xing, Y., Zhou, R., & Liu, G. (2020). Prevalence and risk factors of dysphagia among nursing home residents in eastern China: a cross-sectional study. https://doi.org/10.1186/s12877-020-01752-z
8. Nagayoshi, M., Higashi, M., Takamura, N., Tamai, M., Koyamatsu, J., Yamanashi, H., Kadota, K., Sato, S., Kawashiri, S. Y., Koyama, Z., Saito, T., & Maeda, T. (2017). Social networks, leisure activities and maximum tongue pressure: cross-sectional associations in the Nagasaki Islands Study. BMJ Open, 7(12). https://doi.org/10.1136/BMJOPEN-2016-014878
9. Matsuo, H., Yoshimura, Y., Ishizaki, N., & Ueno, T. (2017). Dysphagia is associated with functional decline during acute-care hospitalization of older patients. Geriatrics and Gerontology International, 17(10), 1610–1616. https://doi.org/10.1111/ggi.12941
10. da Silva, A. F., Moreira, E. A. M., Barni, G. C., Panza, V. S. P., Furkim, A. M., & Moreno, Y. M. F. (2020). Relationships between high comorbidity index and nutritional parameters in patients with Oropharyngeal Dysphagia. Clinical Nutrition ESPEN, 38, 218–222. https://doi.org/10.1016/j.clnesp.2020.04.008
11. Byun, S. E., Kwon, K. B., Kim, S. H., & Lim, S. J. (2019). The prevalence, risk factors and prognostic implications of dysphagia in elderly patients undergoing hip fracture surgery in Korea. BMC Geriatrics, 19(1). https://doi.org/10.1186/s12877-019-1382-X
12. Ko, D., Oh, J., Joo, S., Park, J. Y., & Cho, M. S. (2022). Dietary Habits, Food Product Selection Attributes, Nutritional Status, and Depression in Middle-Aged and Older Adults with Dysphagia. Nutrients, 14(19), 4045. https://doi.org/10.3390/nu14194045
13. Matsuo, H., Yoshimura, Y., Ishizaki, N., & Ueno, T. (2017). Dysphagia is associated with functional decline during acute-care hospitalization of older patients. Geriatrics and Gerontology International, 17(10), 1610–1616. https://doi.org/10.1111/ggi.12941
14. Poisson, P., Laffond, T., Campos, S., Dupuis, V., & Bourdel-Marchasson, I. (2016). Relationships between oral health, dysphagia and undernutrition in hospitalised elderly patients. Gerodontology, 33(2), 161–168. https://doi.org/10.1111/GER.12123

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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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 Malaysia [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 questionnaire [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 out-patients 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

RESULTS AND DISCUSSION

Socio-demographics (N = 137)
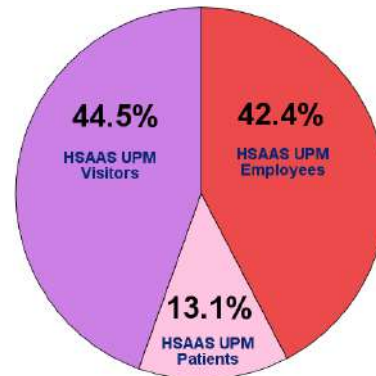
Figure 1. Distribution of Respondents (N = 137)

- Majority of respondents aged **18-24 years old**
- Approximately **70%** of respondents were **women**
- Approximately **75%** of respondents were **Malays**
- Approximately **90%** of respondents were **tertiary educated**
- Approximately **60%** of respondents were **employed**
- Approximately **75%** of respondents had **used vending machines** before in HSAAS UPM

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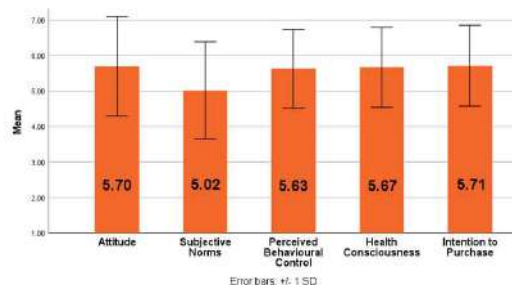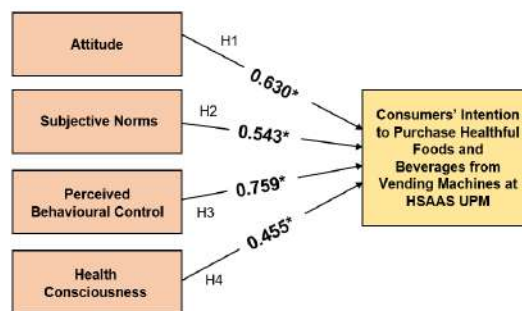

Note. Attitude = ATT; Subjective Norms = SN; Perceived Behavioural Control = PBC; Health Consciousness = HC; Intention to Purchase = PI

Figure 2. Level of Agreement on ATT, SN, PBC, HC, and PI of Consumers (N = 137)

- 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 ± 1.37 to 5.71 ± 1.14.
- **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.

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

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)

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

CONCLUSION

- 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.
- 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/hbe2.195
[2] Blake, M., Boelsen-Robinson, T., Hanna, L., Ryan, A., & Peeters, A. (2021). Implementing a healthy food retail policy: A mixed-methods investigation of change in stakeholders' perspectives over time. Public Health Nutrition, 24(9), 2669-2680. doi:10.1017/S1368980020002214
[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/fpsyg.2022.910041
[4] Grech, A., & Allman-Farinelli, M. (2015). A systematic literature review of nutrition interventions in vending machines that encourage consumers to make healthier choices. Obesity Reviews, 16(12), 1030– 1041. https://doi.org/10.1111/obr.12311
[5] Lambert, 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/10.1080/19325037.2020.1767003
[6] Mamun, A. A., Hayat, N., & Zainol, N. R. B. (2020). Healthy eating determinants: A study among Malaysian young adults. Foods, 9(8), 974. https://doi.org/10.3390/foods9080974
[7] Wang, X., Pacho, F., Liu, J., & Kajungiro, R. (2019). Factors influencing organic food purchase intention in developing countries and the moderating role of knowledge. Sustainability, 11(1), 209. https://doi.org/10.3390/su11010209

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

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Introduction

- Adequate nutrition is very crucial to improve patient's health along the hospital stay.
- Patient's dissatisfaction towards hospital foodservice might influence their well-being [2].
- Recognizing the factors that affect the patient's satisfaction, help the foodservice and management teams to enhance its quality improvement to meet patient's demand [4,7,8].

Objectives

General:
To examine the factors associated with patient's satisfaction on hospital foodservice at Hospital Sultan Abdul Aziz Shah Universiti Putra Malaysia (HSAAS UPM).

Specific:
1. To determine the sociodemographic groups (sex, age, race, educational level, marital status, occupational status, length of stay, type of ward) of patient in HSAAS UPM.
2. To determine the average score of patient agreement level on food quality, meal service quality, service or staff issues, physical environment and patient satisfaction.
3. To assess the association between foodservice dimension factors (food quality, meal service quality, staff or service issues and physical environment) with patient foodservice satisfaction at HSAAS UPM.

Literature Review

Food quality, meal service quality, staff or service issue and physical environment has significant association with patient foodservice satisfaction [1,5,7,8].

Inconsistent findings from the previous studies, some studies reported that:

- Previous studies reported that **food quality** was the least satisfied dimension on hospital foodservice satisfaction among patient [2,8].
- Previous study reported that **meal service quality** was the least satisfied dimension on hospital foodservice satisfaction among patient [6].
- Previous study reported that **staff or service issues** was the least satisfied dimension on hospital foodservice satisfaction among patient [5].
- Previous study reported that **physical environment** was the least satisfied dimension on hospital foodservice satisfaction among patient [1].

Methodology

Study design:
Quantitative cross-sectional study

Location & participants:
Hospital Sultan Abdul Aziz Shah (HSAAS) UPM inpatients that eat orally, ≥18 years old and understand Malay and English

Sample size and sampling design:
N= 102; Purposive sampling

Ethical approval
JKEUPM and HSAAS

Data collection:
March to May 2023
Method 1: Online survey by using Google form

Study instrument:
Section A:
- Sociodemographic factors

Section B:
- Acute Care Hospital Foodservice Patient Satisfaction Questionnaire (ACHFPSQ) [3]
  - Food quality components (7 questions)
  - Meal service quality components (3 questions)
  - Staff or service issues components (3 questions)
  - Physical environment components (3 questions)
  - Measurement: 5-point Likert scale (1 = strongly disagree to 5 = Strongly agree)
- Overall patient foodservice satisfaction
  - Rated from 1 = very poor to 1 = very good

Data analysis:
- Software: IBM SPSS Statistics Version 27
  - Univariate analysis for the descriptive data (sociodemographic factors)
  - Pearson-moment correlation coefficient for testing association between FQ, MSQ, SSI and PE with patient's satisfaction on hospital foodservice
  - Significance level $p<0.05$

Result and Discussion

Sociodemographic

Figure 1: Distribution of ward (N=102)

Obstetric 9.8%, Medical 34.3%, Surgical 27.5%, Orthopedic 28.4%
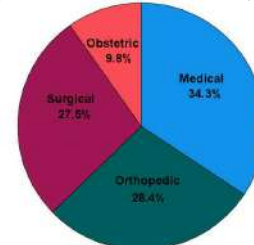
Figure 2: Distribution of length of stay during hospitalization (N=102)

>7 days 12.7%, 4 - 7 days 35.3%, 1 - 3 days 52%

- 63.7% of respondents were males
- 46.1% of the respondents were >60 years old
- 83.3% of the respondents were Malays
- 87.3% of the respondents were married
- 42.2% respondents had secondary education
- 62.7% of the respondents were unemployed, students and retired
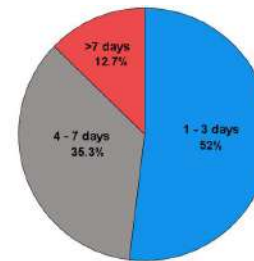
Figure 3: Patient satisfaction level according to ACHFPSQ

Foodservice dimension	Mean score
Food quality	3.48
Meal service quality	3.98
Staff or service issues	4.22
Physical environment	4.72

Most of the inpatients were **strongly agreed (M=5)** that physical environment give the **highest satisfaction level**. Inpatients were **dissatisfied** with the food quality as it scored the **lowest (M=3.48)**. This was similar with previous studies which conclude that physical environment had higher satisfaction level compared to staff or service issues, meal service quality and food quality [2]

Figure 4: Foodservice dimension factors & patient foodservice satisfaction

Food quality — r = **0.702 → Patient's foodservice satisfaction
Meal service quality — r = **0.520
Staff or service issues — r = **0.462
Physical environment — r = **0.339
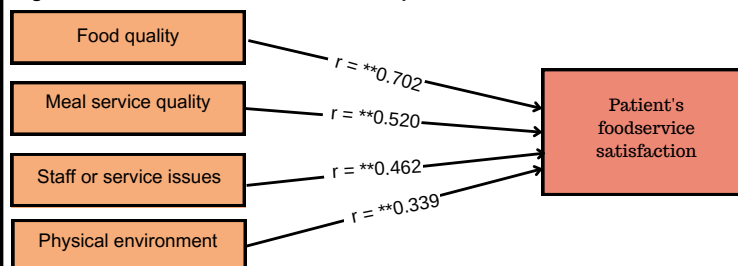
**Correlation is significant at the p-value 0.01 level (2-tailed)

- **Majority (72.5%)** rated an overall foodservice satisfaction as **"good"** or **"very good"**.
- All the foodservice satisfaction dimensions are shown to have **strongest association** with patient's foodservice satisfaction.
- These result suggest that **success in those items may increase the overall patient satisfaction score especially in food quality.** These results were align with previous research from previous studies [2,5,8].

Conclusion

- By recognizing the factors that associate the most satisfaction and dissatisfaction on hospital foodservice, makes the hospital and foodservice teams more aware on their priority in planning more improvement acts that can improve their foodservice quality and patient satisfaction in the future.
- This finding is significant to act as baseline data for the future studies especially patient satisfaction-related research in Malaysia.

References

1) Abdullah, N., Abdullah, S. S., & Ghazali, H. (2013). Customer satisfaction as benchmark for contract catering performance within the Army Basic Recruit Training Centre (PUSASDA).
2) Aminuddin, N. F., Vijayakumaran, R. K., & Abdul Razak, S. (2018). Patient satisfaction with hospital foodservice and its impact on plate waste in public hospitals in East Malaysia. *Hospital Practices and Research, 3*(3), 90-97.
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 foodservices. *Foodservice Research International, 16*(1-2), 1-14. https://doi.org/10.1111/j.1745- 4506.2005.00006.x
4) Dijxhoorn, 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 Fayoum Hospitals. *EC Nutr, 9*(2), 94-104.
6) Esau, K. (2020). *My culture, my plate: an exploration of the cultural food and meal preferences of Māori, Pacific, 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.

INPATIENTS PLATE WASTE GENERATION IN HOSPITAL SULTAN ABDUL AZIZ SHAH UNIVERSITI PUTRA MALAYSIA (HSAAS UPM)

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"WITH KNOWLEDGE, WE SERVE"

INTRODUCTION

- Plate waste is the leftover generated by the consumer [15].

30%
Acceptable food waste should be <30% [1].

>50% of food served is wasted in most public hospitals in Malaysia [5].

- Effect of having high plate waste are;

Poor nutritional status among inpatients [13].

Increase financial burden to the hospital [2].

Deteriorating environment by emission of greenhouse gas [7].

OBJECTIVES

General Objective
To assess the significant difference in plate waste generation between groups of inpatients' sociodemographic and characteristics at HSAAS.

Specific Objectives
- To examine inpatients' sociodemographic and characteristics at HSAAS.
- To measure the amount of inpatients' plate waste generation at HSAAS.
- To compare the significant difference in plate waste generation between inpatients' sociodemographic and characteristics groups at HSAAS.

LITERATURE REVIEW

There were **mixed findings** in terms of difference in plate waste generation among inpatient's sociodemographic factors [5,12].

There were **mixed findings** in terms of difference in plate waste generation among inpatient's characteristics factors [11,12].

Absence of plate waste data making it difficult for the hospital management and foodservice provider to observe their performance and predict the nutritional status of the inpatients during the hospital stay [13].

METHODOLOGY

Study Design
Cross-sectional study

Sampling Design, Sample Size & Criteria
- Purposive sampling
- 400 respondents
- Local patients who can eat orally.
- 18 years old.

Location
Hospital Sultan Abdul Aziz Shah (HSAAS)

Data Analysis
- IBM SPSS ver. 27
- Univariate analysis was conducted to analyse descriptive data.
- Test used: Independent T-test and One way Anova.
- Significant level at $p \leq .05$.

Study Instruments
- Self-Admistered survey via Google Form.
- Comstock 6-point scale - To estimate overall plate waste [3].
- Modified Comstock 6-point scale - To estimate the waste of each food group [9].

Ethical Approval
JKEUPM & HSAAS

Data Collection
March 2023 until May 2023

100% remained | 90% remained | 75% remained | 50% remained | 25% remained | 0% remained

RESULT & DISCUSSION

113 RESPONDENTS   **122 RESPONDENTS**

>60 years old **44.7%** | Malay **83.1%** | Married **83.6%** | Normal BMI **34.8%** | Tertiary **57.5%**

239 PLATE WASTE COLLECTED

51.9% Consumed / Wasted

48% FROM THE TOTAL FOOD SERVED IS WASTED
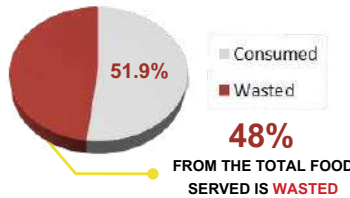
% of food Wasted based on Food Group
- CHO 43.3%
- Protein 45.5%
- Vegetable 47.3%
- Fruit/dessert 40.8%
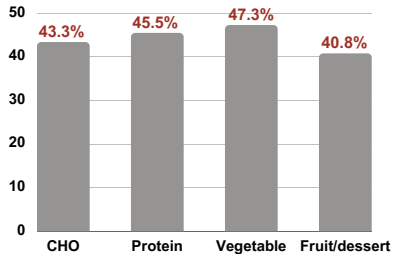
WHY vegetable is the most wasted?
- General lower liking to vegetables [15].
- Poor cooking practice and did not meet consumer expectations [14].

WHY protein is second most wasted?
- Low quality and unpleasant smell.
- Treatment-related LOA [10].
- Personal preferences related-to diseases [6].

Table 1: Comparison of mean food wastage according to inpatient sociodemographic and characteristics

Study Characteristics		N	Food Wastage (%) Mean (±SD)	p-value[a]
Marital status	Single	10	21.5 (±29.5)	*0.006[b]
	Married	61	54.3 (±33.6)	
	Divorced	2	12.5 (±17.7)	
Nutritional status	Underweight	11	73.2 (±30.3)	*0.014[b]
	Normal	24	55.4 (±32.1)	
	Overweight	11	34.1 (±40.7)	
	Obese I	16	35.3 (±34.2)	
	Obese II	7	32.1 (±18.9)	
Types of diet	Standard diet	70	44.6 (±36.2)	*0.042[b]
	Therapeutic diet	145	47.1 (±33.5)	
	Texture modified diet	24	64.4 (±28.0)	

Marital Status
- Married inpatients produce more food waste.
- Significantly different between married and single group.
- Family members bring more appealing and tasty food [16].

Nutritional Status
- Underweight inpatients produce more food waste.
- Significantly different between underweight and obese group.
- Inpatient with at nutritional risk often experienced lethargy and unpredictable desire to eat [8].

Types of Diet
- Inpatients receiving-texture modified diet produce the highest food waste.
- Significantly different between inpatient receiving-texture modified diet and standard diet.
- Less attractive, texture and taste [4,11].
- Inpatient receiving double diet tends to reject their food [5].

CONCLUSION

- **Plate waste generation in HSAAS is high** and more research on intervention shall be done.
- Dietitian and foodservice provider should work together to provide high quality and appealing diet and initiating intervention that can increase the patient's appetite.
- Plate waste issue should be addressed and tackled effectively, if not adverse impact awaits the patient, hospital and environment sustainability.

REFERENCES

1. Edwards, J., & Nash, A. (1997). Catering services. Measuring the wasteline. *The Health Service Journal, 107*(5579), 26-27.
2. Chik, T. C., Zulkiply, N. A., Bachok, S., Mohi, Z., & Mohd Shahril, A. (2019). Plate waste in public hospitals foodservice management in Selangor, Malaysia. *Indian J Sci Technology, 11*(36), 1-5.
3. Comstock, E. M., St Pierre, R. G., & Mackiernan, Y. D. (1981). Measuring individual plate waste in school lunches. Visual estimation and children's ratings vs. actual weighing of plate waste. *Journal of the American Dietetic Association, 79*(3), 290-296.
4. Gomes, A., Saraiva, C., Esteves, A., & Gonçalves, C. (2020). Evaluation of Hospital Food Waste—A Case Study in Portugal. *Sustainability, 12*(15), 6157.
5. Jamhuri, N., Mohd Yazid, S. F. Z., Baharom, B., Leow, C. W., Isnin, L., Ashiquin, N., Jamli, K., Kong, J. J. P. & Lim, S. M. (2019). Evaluation of Factors Affecting Food Wastage among Hospitalized Patients on Therapeutic Diet at Ministry of Health (MOH) Hospitals. *Asian Journal of Dietetics, 111-120.*
6. Kong, J. J. P., Baharom, B., Jamhuri, N., Jamli, K., Mohd Yazid, S. F. Z., Ashiquin, N., & Lim, S. M. (2020). Adequacy of energy and protein intake among hospitalized patients on therapeutic diet in government hospitals: A preliminary study. *Nutrition & Food Science, 50*(5), 903-920.
7. Meier, T., von Borstel, T., Welte, B., Hogan, B., Finn, S. M., Bonaventura, M., ... & Dräger de Teran, T. (2021). Food waste in healthcare, business and hospitality catering: composition, environmental impacts and reduction potential on company and national levels. *Sustainability, 13*(6), 3288.
8. Osman, N. S., Md Nor, N., Md Sharif, M. S., Hamid, S. B., & Rahamat, S. (2021). Hospital food service strategies to improve food intakes among inpatients: A systematic review. *Nutrients, 13*(10), 3649.
9. Parent, M., Niezgoda, H., Keller, H. H., Chambers, L. W., & Daly, S. (2012). Comparison of visual estimation methods for regular and modified textures: real-time vs digital imaging. *Journal of the Academy of Nutrition and Dietetics, 112*(10), 1636-1641.
10. Rattray, M., Desbrow, B., & Roberts, S. (2017). Comparing nutritional requirements, provision and intakes among patients prescribed therapeutic diets in hospital: an observational study. *Nutrition, 39,* 50-56.
11. Razalli, N. H., Chui, F. C., Mohammad, N. H. A., & Abdul Manaf, Z. (2021). Plate waste study among hospitalised patients receiving texture-modified diet. *Nutrition research and practice, 15*(5), 655-671.
12. Schiavone, S., Pelullo, C. P., & Attena, F. (2019). Patient evaluation of food waste in three hospitals in southern Italy. *International journal of environmental research and public health, 16*(22), 4330.
13. Simzari, K., Vahabzadeh, D., Nouri Saeidlou, S., Khoshbin, S., & Bektas, Y. (2017). Food intake, plate waste and its association with malnutrition in hospitalized patients. *Nutr. hosp, 34*(6), 1376-1381.
14. Valero Díaz, A., & Caracuel García, A. (2013). Evaluation of factors affecting plate waste of inpatients in different healthcare settings. Nutricion hospitalaria.
15. Williams, P., & Walton, K. (2011). Plate waste in hospitals and strategies for change. *e-SPEN, the European e-Journal of Clinical Nutrition and Metabolism, 6*(6), 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,* 84-89.

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

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INTRODUCTION

- 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 **overweight and obesity** [4].
- VM is common in institutional organizations including **hospitals** [10].

Figure 1: Vending Machines at HSAAS

OBJECTIVES

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	• Limited studies conducted to access the healthfulness of vending machines' foods and beverages [11,13]. • No known study conducted in Malaysia about that.
Gender	• Inconsistence findings about the attitudes toward vending machine between gender [5].
Health concsiousness	• Health consciousness showed a positive result on health, life goals and perceived behavioral control [12]. • Health consciousness of people will give a significant impact on them to choose healthier food options [16]. • Health consciousness and attitudes are squared correlate (r^2= 0.202) [6].

METHODOLOGY

Study Design
Cross-sectional study

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

Study Instrument
- Nutritional contents:
  - Nutrient profiling
  - Comparison with Malaysian Vending Machine Guidelines 2011
- Attitudes towards VM: Google Form
  - Section A: Sociodemographic [11]
  - Section B: Individual characteristics [5].
  - Section C: Health consciousness [9] and attitudes [4] (7-point Likert Scale; 1 = Strongly disagree to 7 = Strongly agree)

Data Collection
February until March 2023
- Method 1: Scanned QR code for visitors and outpatients during on-site visits.
- Method 2: Emailed online invitations to HSAAS's employees.

Data Analysis
- IBM SPSS Statistics 27
- Chi-squared Test and Pearson correlation coefficient
- *Correlation is significant at the p-value ≤ 0.05 level

RESULTS AND DISCUSSION

Nutritional Contents

Figure 2: Compliance of Food Products to Malaysian Guidelines of Vending Machine 2011 (N = 10)

- Comply
- Not comply (flour confections)
- Not comply (not labelled 'whole grains')
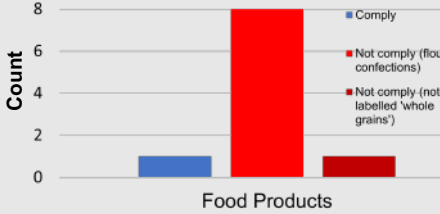
Figure 3: Compliance of Beverage Products to Malaysian Guidelines of Vending Machine 2011 (N = 19)

- Comply
- Not comply (high sugar)
- Not comply (carbonated)
- Not comply (high sugar and fat)

- 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'.
- **84.3% of the beverage** products offered are not following the guideline as all carbonated drinks are prohibited even if labeled as low calories and all ready-to-drinks (except milk) should be low sugar (≤ 2.5 g per 100 ml) and low fat (≤ 1.5 g per 100 ml).

Sociodemographic

Participants (N = 150)	N = 66 (44%)	N = 21 (14%)	N = 63 (42%)
	HSAAS Employees	HSAAS Outpatients	HSAAS Visitors

- 68% of respondents are female
- 98% of respondents are Malaysian
- 71.2% of respondents are Malays
- 53.3% of respondents aged 18-30 years old.

Gender and Attitudes

Table 1: The Difference between Male and Female Attitudes Towards Vending Machines

Attitudes (Vending machines products ...)	Disagree N (%)	Neutral N (%)	Agree N (%)	p-value
keep me healthy.	113 (76.9)	19 (12.9)	15 (10.2)	
Male	29	8	10	0.004*
Female	84	11	5	
are nutritious.	113 (75.3)	20 (13.3)	17 (11.3)	
Male	30	9	9	0.038*
Female	83	11	8	
take no time to prepare my meals.	40 (26.7)	30 (20.0)	80 (53.3)	
Male	6	10	32	0.021*
Female	34	20	48	
are easily available.	11 (7.3)	28 (18.7)	111 (74)	
Male	0	9	39	0.058
Female	11	19	72	

- Current study showed that **more than 70%** of participants agreed the current vending machine options were **unhealthy and not nutritious**.
- VM users think that VM is **not healthy** and **want healthier options** [5].
- VM usually offer unhealthy products such as **snacks and sugary beverages** [13].
- **Over half** of participants agreed that HSAAS's VM are **easily accessible** and **time saving**.
- **Convenience** and **lack of time** were the most common reasons for purchasing from VM [5].
- **Strategic location of VM** and **quick process for on-the-go 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* / p-value = 0.02 (2-tailed) → **Attitudes**
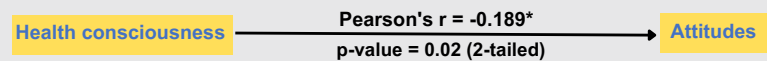
- **Health consciousness** has **negative correlation** with **attitudes** toward current VM.
  - The higher health consciousness, the lesser attitudes toward current VM.
- A previous study revealed an association of **health consciousness and intention to purchase healthy food options** [7].
- The perception 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
3. Faris, M. a. E., Al-Bakheit, A., Hasan, H., Ismail, L. C., Jahrami, H., Rajab, D., Almashgouni, A. A., Alshehhi, A., Aljabry, A. S., Aljarwan, 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/10.1108/bfj-07-2020-0601
4. Godin, K. M., Hammond, D., Chaurasia, A., & Leatherdale, S. T. (2018).Examining changes in school vending machine beverage availability and sugar-sweetened beverage intake among Canadian adolescents participating in the compass study: A longitudinal assessment of provincial school nutrition policy compliance and effectiveness. *International Journal of Behavioral Nutrition and Physical Activity, 15*(1). https://doi.org/10.1186/s12966-018-0754-5
5. Hasan, H., Faris, M. a. E., Mohamad, M. N., Dhaheri, A. S. A., Hashim, M., Stojanovska, L., Daour, R. A., Rashid, M., El-Farra, L., Alsuwaidi, A., Altawfiq, H., Erwa, Z., & Ismail, L. C. (2021). Consumption, Attitudes, and Trends of Vending Machine Foods at a University Campus: A Cross-Sectional Study. *Foods, 10*(9), 2122. https://doi.org/10.3390/foods10092122
6. Hoque, M. M., Alam, N., & Nahid, K. A. (2018). Health Consciousness and Its Effect on Perceived Knowledge, and Belief in the Purchase Intent of Liquid Milk: Consumer Insights from an Emerging Market. *Foods, 7*(9), 150. https://doi.org/10.3390/foods7090150
7. Iqbal, J., Yu, D., Zubair, M., Rasheed, M., Khizar, H. M. U., & Imran, M. (2021). Health Consciousness, Food Safety Concern, and Consumer Purchase Intentions Toward Organic Food: The Role of Consumer Involvement and Ecological Motives. *SAGE Open, 11*(2), 215824402110157. https://doi.org/10.1177/21582440211015727
8. Ng, K. R., Sangster, J., & Priestly, J. R. (2018). Assessing the availability, price, nutritional value and consumer views about foods and beverages from vending machines across university campuses in regional New South Wales, Australia. *Health Promotion Journal of Australia, 30*(1), 76–82. https://doi.org/10.1002/hpja.34
9. 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). *Foods, 9*(1), 24. https://doi.org/10.3390/foods9010024
10. 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
11. 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
12. Pu, B., Zhang, L., Tang, Z., & Qiu, 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. https://doi.org/10.3390/ijerph17165693
13. Rozman, U., Mis, N. F., Kupirovič, U. P., Pravst, I., Kocbek, P., Strauss, M., & Turk, S. Š. (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/s41043-021-00250-1
14. 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/s40292-020-00397-8
15. Whatnall, M. C., Patterson, A. J., & Hutchesson, M. J. (2020). Effectiveness of Nutrition Interventions in Vending Machines to Encourage the Purchase and Consumption of Healthier Food and Drinks in the University Setting: A Systematic Review. *Nutrients, 12*(3), 876. https://doi.org/10.3390/nu12030876
16. Yadav, R., & Pathak, G. S. (2016). Intention to purchase organic food among young consumers: Evidences from a developing nation. *Appetite, 96,* 122–128.https://doi.org/10.1016/j.appet.2015.09.017
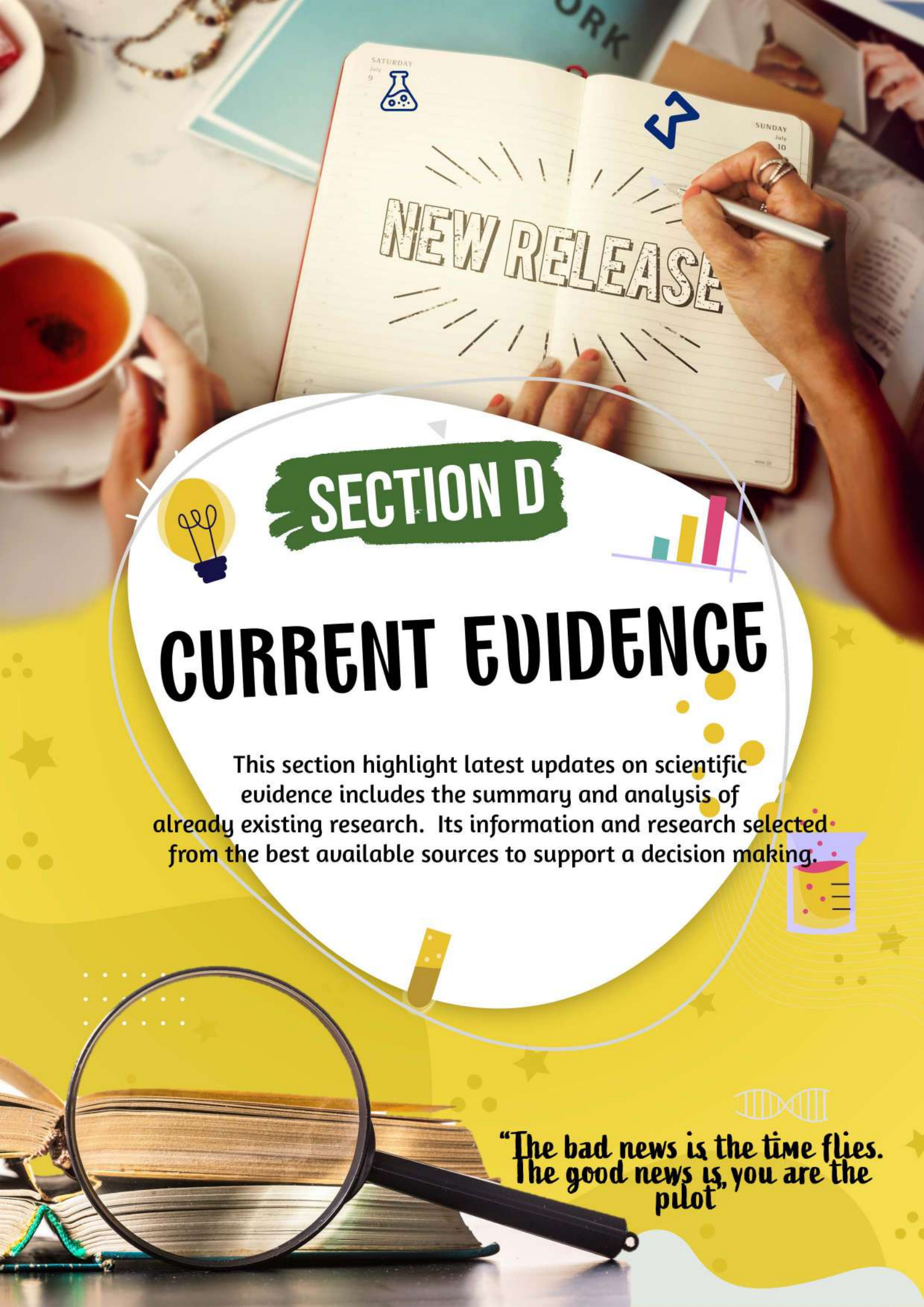
SECTION D

CURRENT EVIDENCE

This section highlight latest updates on scientific evidence includes the summary and analysis of already existing research. Its information and research selected from the best available sources to support a decision making.

"The bad news is the time flies. The good news is, you are the pilot"

An Introduction to Bayesian Statistic: Embracing the Power of Probability

By Dr Nur Aazifah[1] Dr Hani Syahida[2] Associated Prof Dr Chew Boon How[1,3]

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What is Bayesian Statistic:

It is a branch of statistical inferences that revolves around probability. The core of Bayesian statistics lies in Bayes' theorem which helps us to understand and utilise conditional probability. The conditional probability will become the basis of prior information. One famous use in the health science of the theorem is in the calculation of positive and negative predictive values. Readers are encouraged to read: What clinician should Know about Sensitivity, specificity and predictive value? It provides sufficient knowledge to understand the concept of the theorem.

What is the goal of Bayesian Statistics?

To represent prior uncertainty about model parameters with a probability distribution and to update this prior uncertainty with observed/current data to produce a **posterior distribution** of the parameter with the belief it will produce less uncertainty. Inference from Bayesian analysis produces from the posterior distribution. Bayes' theorem for a probability distribution is often stated as :

Posterior distribution is proportional to Likelihood X Prior

What is the main difference between Bayesian statistics and Frequentist statistics?

In Bayesian, the parameter is treated as a random variable which will be translated as probability distribution. While frequentist statistic treats parameter as fixed quantities which means it has a constant value and is not subject to any uncertainty across different sample. Others different illustrated in the next section.

Prior Information translated into Prior distribution is the belief held by the researcher/expert/prior to a research about the parameter before observed data available in a statistical model expressed in the probability distribution

Distribution of Data or Likelihood

Bayes' Theorem

Posterior Distribution : What is known about a set of parameters based on the collected/updated data and prior distribution

HOW BAYESIAN STATISTICS DIFFER FROM THE FREQUENTIST STATISTICS?

Aspect	Bayesian Statistics	Frequentist Statistic
Philosophical Approach	Subjective and incorporates prior belief.	Objective and does not use prior belief
Treatment to parameter and data	Treat parameter and data as random	Treat parameter as fixed while data is random.
Hypothesis testing	Bayes factor which is the ratio of the marginal likelihood of the observed data under the two hypothesis.	Relies on significant level or P-value
Sample size	Can be beneficial for small sample size	Use the Laws of Large numbers and Central limit theorem, ideally, large sample size is preferred. The minimal sample size requires typically depends on the minimal different effect sizes, level of significance , power and type of statistical analysis use.
Interpretation	Produces probability distributions for parameters,	Produced point estimates and confidence interval
Inferences	Make from posterior distribution	Make from likelihood
Prior information	Utilizes prior knowledge /belief about parameter usually define by hyperparameter.	Does not incorporate prior information. It solely relies on the observed data
Parameter estimation	Involve computing the posterior distribution of the parameter given the data and prior distribution.	Estimation commonly using likelihood estimation for non-normal distribution while for normal distribution usually using ordinary least square
Interval estimation	Credible intervals - Range of value of parameter that most likely to lie within interval that reflect the uncertainty in its estimation.	Confidence interval - Range of values base on repeated sampling from the same population that reflect the precision.
Likelihood usage	Incorporated data likelihood distribution to update belief into posterior distribution	Likelihood distribution used for estimation of parameter to form inferences
Computation	May involve complex computation especially with high dimensional parameter and complex distribution typically involve computational method Markov Chain Monte Carlo	Usually straight forward and computationally efficient
Decision making	Bayesian decision theory which involve Prior probability, likelihood function, Posterior probability, Bayes factor, Utility Function and Loss Function.	Usually using combination of point estimate, parameter, confident interval, clinical and statistically significant for decision making
Software	WinBUGS, JASP, BIEMS, AND SPSS, R and STATA in the latest version.	SPSS,SAS, R,STATA, Phyton

OPTIMAL SCENARIOS FOR BAYESIAN ANALYSIS: WHEN SHOULD WE USE IT?

In a complex models for examples :

- High-dimensional integration needed
- Multilevel latent variable model including those with random effect factor loadings, and random slopes when observe variables are categorical
- Three-level latent variable models that have categorical variable

Background knowledge can be incorporated in the analysis

- The notion of using prior research of other information and to produce updated prior is very reasonable. It will show the progression of the research toward a more refined knowledge.

Good for small sample size

- Bayesian analysis not based on large sample hence large sample is not a perquisite criteria for the math to work.
- With the advancement of software that able to integrated simulation the issue with sampling even for complex distribution can be solved.
- Many papers have shown the benefits of Bayesian statistic in the context of small data set. (Zhang et.al 2007)

REFERENCES:
1)Van de Schoot, R., Depaoli, S., King, R. *et al.* Bayesian statistics and modelling. *Nat Rev Methods Primers* 1, 1 (2021). https://doi.org/10.1038/s43586-020-00001-2
2)John W Stevems What Is Bayesian Statistic (2009)
3) Van de Schoot, R., & Depaoli, S. (2014). Bayesian analyses: where to start and what to report. *The European Health Psychologist, 16*(2), 75-84. Retrieved from http://www.ehps.net/ehp/index.php/contents/issue/view/ehp.v16.i2/showToc
4) Zhang et al (2007) Bayesian Analysis of Longitudinal data using growth curve model

EXAMPLE:

Click here

STATISTICAL MODELLING OF THE CONSISTENCY OF SYMPTOMS REPORTED DURING HYPOGLYCEMIA FOR INDIVIDUAL PATIENTS

- The research focuses on the development of Bayesian **latent variable statistical models** for evaluating the consistency of hypoglycemia symptoms in individual diabetes patients.

- The models in the paper are built using Bayesian methodology and Markov chain Monte Carlo techniques.

- Bayesian statistics is especially beneficial when dealing with complex distributions and limited sample sizes since it allows previous information and uncertainty to be incorporated into the analysis.

- Frequentist statistics, on the other hand, rely on high sample sizes and presume that the data is derived from a fixed distribution.

- As a result, the use of the Bayesian approach in this study is reasonable given the data's complicated distribution and small sample size.

- The findings of the study show the efficacy of Bayesian methodology in building statistical models for assessing the consistency of hypoglycemia patients.

References: HS Zulkifli Statistical Modelling of The consistency of symptoms reported during hypoglycemia for individual patient (2017)
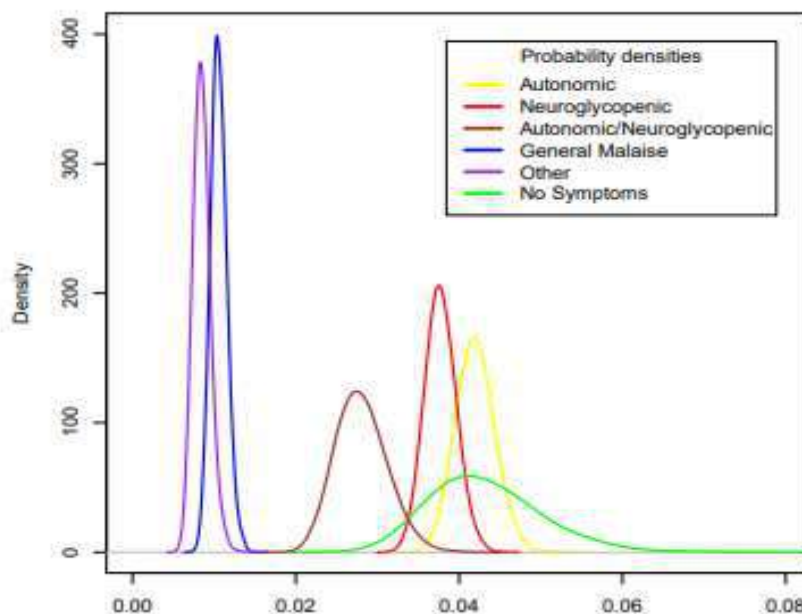
Figure 5.12: Posterior distributions of mean group propensity, u_l in hierarchical model.

Key Points:

Hybrid Seminar

QUESTIONNAIRE DEVELOPMENT &
CULTURAL ADAPTATION OF QUESTIONNAIRE

SPEAKERS:
ASSOC. PROF. DR. CHEW BOON HOW
DR. YEW SHENG QIAN

Article by: Nurfaizah Saibul

What is a good and high-quality questionnaire?

1. **Scientific content**
2. **Aesthetic perspective**
3. **Administrative aspect**
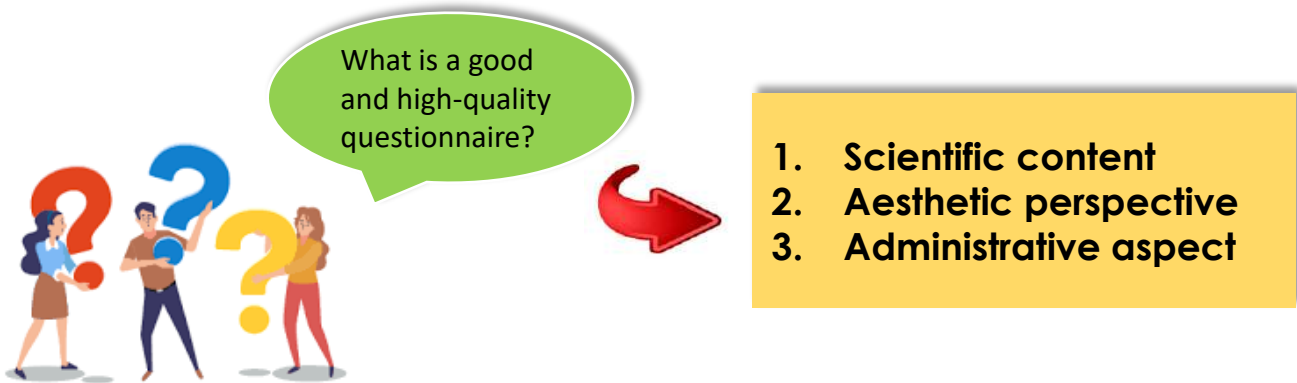
Validity and reliability?

- Validity and reliability related to the **interpretation of scores** from **psychometric instruments.**
- The degree to which a score can be interpreted as representing the intended underlying construct.

VALIDITY

"The degree to which evidence and theory support the interpretations of test scores entailed by the proposed uses of tests".

- Validity is **not a property of the instrument**, but of the **instrument's scores and their interpretations**.

2 threats to validity

1. Inadequate sampling of the content domain (construct underrepresentation)
2. Factors exerting non-random influence on scores (bias, or construct-irrelevant variance)

RELIABILITY

The **reproducibility** or **consistency of scores** from one assessment to another.
- **Intra-rater** (different time points) or **inter-rater**, or both.
- Is a necessary but not sufficient component of validity.
  - Structural reliability or internal consistency of the items.
- A property of the score and not the instrument itself.
  - The **same instrument**, used in a different setting or with different subjects, can demonstrate **wide variation** in reliability.

Key Points:

QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

Translation and cross-cultural adaptation

The translation, adaptation and validation process

Validity?

- "the degree to which evidence and theory support the interpretations of test scores entailed by the proposed uses of tests"
- Validity is *not a property of the instrument*, but of the *instrument's scores* and their interpretations
- Not categorical and not perfect
- Evidence to support the validity argument from 5 sources:
  1. **Content**: do instrument items completely represent the construct?
  2. **Response process**: the relationship between the intended construct and the thought processes of subjects or observers
  3. **Internal structure**: acceptable reliability and factor structure
  4. **Relations to other variables**: correlation with scores from another instrument assessing the same construct
  5. **Consequences**: do scores really make a difference?

- **Reconciliation** is a process whereby two or more independent forward translations are merged into a single translation.
- **Harmonization** is the step in which all new translations are compared with each other and the source version.
- **Cognitive debriefing** allows researchers to check for misunderstandings, incomplete concept coverage, and inconsistent interpretations.
- **Content validity** includes face validity
- **Construct validity** includes structural validity, hypotheses testing and cross-cultural validity.
- **Responsiveness** refers to the ability of an instrument to detect change over time.

Flowchart: Original Questionnaire → Forward translation 1 by medical professional A / Forward translation 2 by professional linguist A → Reconciliation → Back translation 1 by medical professional B / Back translation 2 by professional linguist B → version 1 / version 2 → Translations review and harmonization in a meeting of an expert committee comprising researchers, translators, health professionals, methodologists/psychometrician and lay people (content and face validities with experts) → Cognitive interview and/or debriefing (content and face validities with patients) → Review of cognitive debriefing and finalization of the questionnaire in a meeting of an expert committee → Proof-reading by all investigators → Validation → Test-retest reliability → Responsiveness

Key Points: QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

The steps and their essential concepts in translation and cross-cultural adaptation of questionnaires

Translator → Translation → Adaptation → Pilot/ Initial Testing → Validation

Translator

Qualified translators:
- **Bilingual** - Fluent in both source and target languages.
- **Bicultural** - Familiar with both cultures.
- Knowledgeable of the content of the instrument.

Translation

- Multiple translators in **forward and backward translation**.
- **A panel or committee of translators is better than individuals**.
- Back translation should not be mandatory but can be useful as a communication tool with the author of the original questionnaire - unnecessary if the adaptation team speaks both source and target languages.
- Reconciliation, harmonization and review of the translated versions can be better done by an expert committee that is composed of researchers, translators, health professionals, methodologists, and lay people.

Adaptation

- A process of considering differences between the source and the target culture to maintain equivalence in the questionnaire.
- Involves input from qualified translators, clinicians, and patients in checking for content validity, with focus groups and/or committees.

Pilot/ Initial Testing

- The examiner is fluent in the target language.
- Examinees from different social economic backgrounds and relevant geographic regions.
- Focus groups (6 – 10 people) or one-to-one cognitive debriefing interviews.
- Cognitive interviews should be used as a follow-up to focus groups.
- Assessment of face and content validity of the adapted questionnaire during the focus groups and/or cognitive interviews.

Validation

Reliability:	Validity:	
▪ Internal consistency ▪ Reliability ▪ Measurement error	▪ Content validity ▪ Construct validity ▪ Criterion validity	**Responsiveness**

Key Points:

QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

Adaptation is not a way to improve a questionnaire, researchers should choose a good and quality questionnaire for further use.

Herdman's concepts of equivalence between the original and translated questionnaires:

Concepts of equivalent	Definition
Conceptual equivalence	Domains have the same relevance, meaning, and importance regarding the explored concept in both cultures.
Item equivalence	Items are as relevant and acceptable in both cultures.
Semantic equivalence	The meaning of the items is the same in both cultures.
Operational equivalence	The questionnaire can be used in the same way by its target population in both cultures.
Measurement equivalence	No significant difference in psychometric properties (construct validity, reliability, responsiveness, and so forth) of the two versions.
Functional equivalence	A summary of the preceding five equivalences: both versions of the questionnaire "do what they are supposed to do equally well."

Validity Constructs for Questionnaires & Tools

Reliability: The degree to which the measurement is **free from measurement error**, and it contains the measurement properties **internal consistency, reliability**, and **measurement error**.

QUALITY of a HR-PRO

https://www.cosmin.nl/tools/cosmin-taxonomy-measurement-properties/

COSMIN initiative
(COnsensus-based Standards for the selection of health Measurement Instruments)

Validity: The degree to which an outcome measure measures the construct it purports to measure and contains the measurement properties: **content validity** (including face validity), **construct validity** (including structural validity, hypotheses testing, and cross-cultural validity/ measurement invariance), and **criterion validity.**

Responsiveness: The ability of an **outcome measure to detect change over time in the construct to be measured**. It refers to the validity of a change score, following an intervention.

*HR-PRO = health-related patient-reported outcomes (instruments)

Key Points:

QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

Cronbach's Alpha

- A **measure of scale reliability** – internal consistency.
- How closely related a set of items are as a group.
- A **low** may mean:
  - ✓ not enough questions on the test.
  - ✓ poor interrelatedness between test questions.
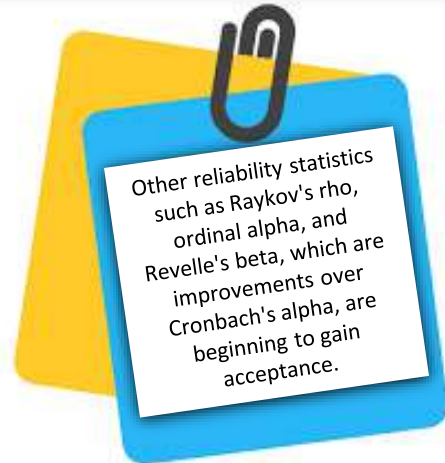
Alpha Cronbach Value	Interpretation
0.91 – 1.00	Excellent
0.81 – 0.90	Good
0.71 – 0.80	Good and Acceptable
0.61 – 0.70	Acceptable
0.01 – 0.60	Non-acceptable

Other reliability statistics such as Raykov's rho, ordinal alpha, and Revelle's beta, which are improvements over Cronbach's alpha, are beginning to gain acceptance.

Confirmatory Factor Analysis (CFA)

A special form of factor analysis to test whether measures of a construct are consistent with a researcher's understanding of the nature of that construct.

DEVELOPING A NEW QUESTIONNAIRE

Developing a new questionnaire
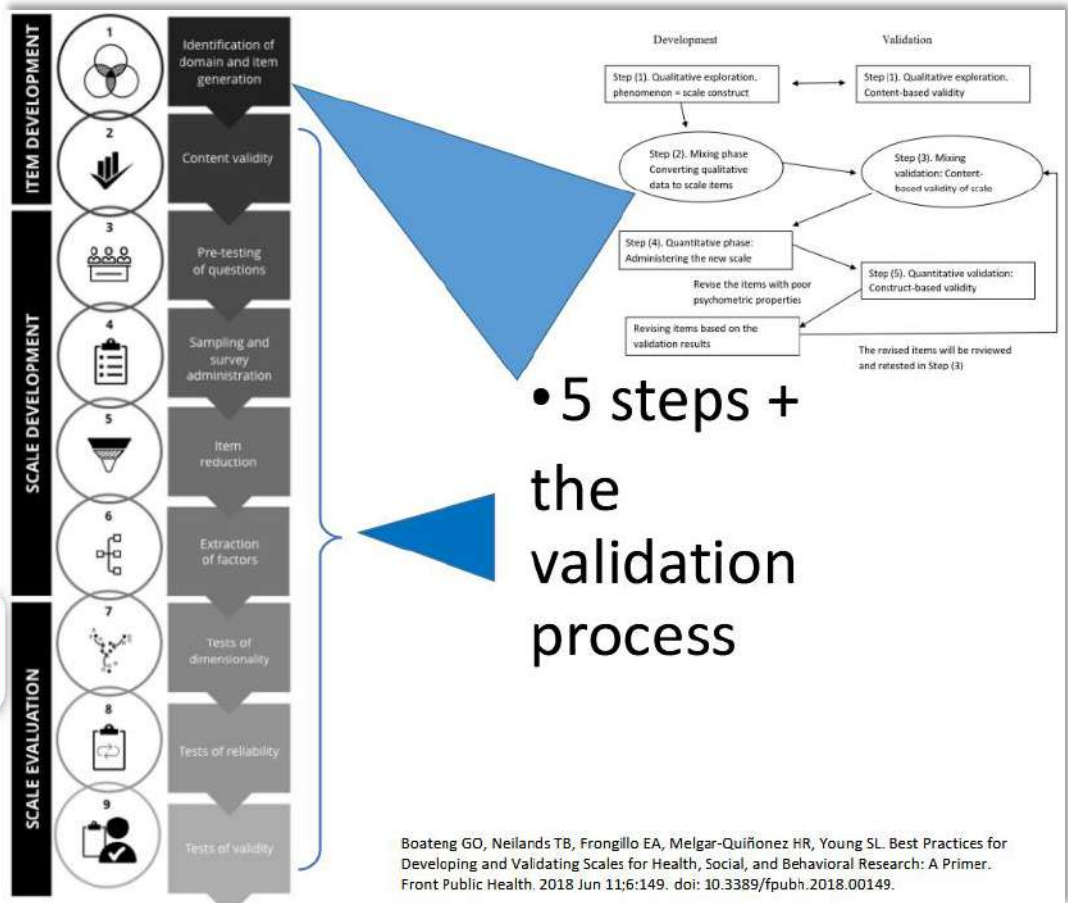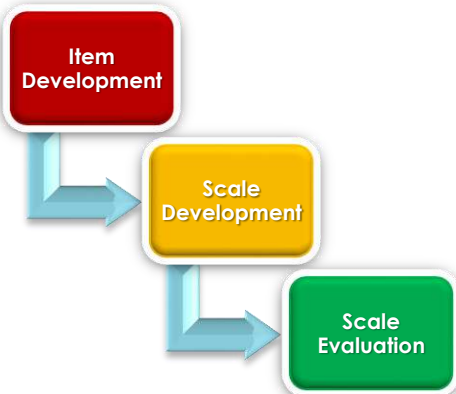
- Item Development
- Scale Development
- Scale Evaluation

- 5 steps + the validation process

Boateng GO, Neilands TB, Frongillo EA, Melgar-Quiñonez HR, Young SL. Best Practices for Developing and Validating Scales for Health, Social, and Behavioral Research: A Primer. Front Public Health. 2018 Jun 11;6:149. doi: 10.3389/fpubh.2018.00149.

Key Points:

QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

DEVELOPING A NEW QUESTIONNAIRE

5 STEPS + THE VALIDATION PROCESS

1

Deductive methods

Inductive methods

What **information*** are to be collected?
Conducting a formal scoping exercise to:
- Clarify goals
- Agreed with the compromise of the stated study objectives and amount the researchers.
- Assist in deciding the length of the questionnaire
- How the questionnaire might be administered.

*Conceptualization & definition of the domain

Qualitative approach: To explore the research area with a particular population subgroup would help to understand the range of possible responses and focus key areas for the study.

✓ *The initial pool of items developed should be at minimum twice as long as the desired final scale.*

2

Questionnaire items: Open or closed-ended.

- Questions must be phrased and **be careful with certain words** that have **many interpretations** such as frequently, regularly, commonly, usually, many, some, and hardly ever. These words must be matched to the possible response options.
- **Open-ended:** Insert a free text box at the end of the questionnaire for inviting further responses.
- **Instructions** (perhaps with examples) should be stated for both open and closed-ended questions.

3

Ensure that the questions **do not reveal or being suggestive** of the purpose of the study. Respondents may out of courtesy or to be socially acceptable shape their answer to what they perceive to be your needs.

Respondents can be less thoughtful about the meaning of a question, search their memories less comprehensively, integrate retrieved information less carefully, or even select a less precise response choice.

➡️ *Questions should be kept simple, straightforward, and should follow the conventions of normal conversation.*

4

Include **at least a verification question to another question that is perceived to be important** but may be taken lightly or overlooked by the respondents.

5

- Questions should be **short and to the point** (around **12 words or less**) as the **physical layout of the questionnaire might affect response rates.**
- A **sensitive questions or those enquiring about personal issues**, longer sentences are preferred to avoid- being regarded as too abrupt and threatening.

Key Points:

QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

DEVELOPING A NEW QUESTIONNAIRE

Mixed Methods Model of Scale Development and Validation Analysis.
Adapted from Zhou, 2019

Development | Validation

Step (1). Qualitative exploration. phenomenon = scale construct

Step (1). Qualitative exploration. Content-based validity

Step (2). Mixing phase Converting qualitative data to scale items

Step (3). Mixing validation: Content-based validity of scale

Step (4). Quantitative phase: Administering the new scale

Step (5). Quantitative validation: Construct-based validity

Revise the items with poor psychometric properties

Revising items based on the validation results

The revised items will be reviewed and retested in Step (3)

	1	2	3	4	5
I feel that training for GDM is lacking among clinicians. (survey item from quotation)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Validation of a newly translated questionnaire is an ongoing procedure that requires the performance of the questionnaire in a range of settings, patient groups and quantifying its changes after certain intervention over specified periods of time.

Key Points:

QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

Checklist for preparing a Questionnaire or Survey form

Section	Quality Criterion
Title	▪ Is it clear and unambiguous? ▪ Does it indicate accurately what the study is about? ▪ Is it likely to mislead or distress participants?
Introductory letter, information sheet or opening instruction	▪ Does it provide an outline of what the study is about and what the overall purpose of the research is? ▪ Does it say how long the questionnaire should take to complete? ▪ Does it adequately address issues of anonymity and confidentiality? ▪ Does it inform participants that they can ask for help or stop completing the questionnaire at any time without having to give a reason? ▪ Does it give clear and accurate contact details of whom to approach for further information? ▪ If a postal questionnaire, do participants know what they need to send back?
Overall layout	▪ Is the font size clear and legible to an individual with 6/12 vision? (Retype rather than photocopy if necessary) ▪ Is graphics, illustrations and colour used judiciously to provide a clear and professional overall effect? ▪ Are the pages numbered clearly and stapled securely? ▪ Are there adequate instructions on how to complete each item, with examples where necessary?
Demographic information	▪ Has all information necessary for developing a profile of participants been sought? ▪ Are any questions in this section irrelevant, misleading or superfluous? ▪ Are any questions offensive or otherwise inappropriate? ▪ Will respondents know the answers to the questions?
Measures (main body of questionnaire)	▪ Are any items unnecessary or repetitive? ▪ Is the questionnaire of an appropriate length? ▪ Could the order of items bias replies or affect participation rates (in general, put sensitive questions towards the end)?
Closing comments	▪ Is there a clear message that the end of the questionnaire has been reached? ▪ Have participants been thanked for their participation and co-operation?
Accompanying materials	▪ If the questionnaire is to be returned by post, has a stamped addressed envelope (with the return address on it) been included? ▪ If an insert (eg leaflet), gift (eg book token) or honorarium is part of the study protocol, has this been included?

Key Points:

QUESTIONNAIRE DEVELOPMENT & CULTURAL ADAPTATION OF QUESTIONNAIRE

9 Tips in Developing and Validating Questionnaire

For students

- Choose the right supervisor
- Know your study population well
- Do It Yourself (DIY)
- Utilise Technologies
- Be Professional
- Build Strong Professional Networks
- Confident with Your Own Decisions
- Look for Good Resources
- Expect the Unexpected

References:

1. Cook DA, Beckman TJ. Current concepts in validity and reliability for psychometric instruments: theory and application. Am J Med. 2006 Feb;119(2):166.e7-16. doi:10.1016/j.amjmed.2005.10.036. https://doi.org/10.1016/j.amjmed.2005.10.036
2. Flake, J. K., et al. (2022). Construct validity and the validity of replication studies: A systematic review. American Psychologist, 77(4), 576–588. https://doi.org/10.1037/amp0001006
3. https://www.cosmin.nl/tools/cosmin-taxonomy-measurement-properties/
4. Mokkink LB, et al. The COSMIN study reached international consensus on taxonomy, terminology, and definitions of measurement properties for health-related patient-reported outcomes. J Clin Epidemiol. 2010 Jul;63(7):737-45. doi: 10.1016/j.jclinepi.2010.02.006. https://www.sciencedirect.com/science/article/pii/S0895435610000909?via%3Dihub
5. Boateng GO, Neilands TB, Frongillo EA, Melgar-Quiñonez HR, Young SL. Best Practices for Developing and Validating Scales for Health, Social, and Behavioral Research: A Primer. Front Public Health. 2018 Jun 11;6:149. doi: 10.3389/fpubh.2018.00149.

Advancing Open Science

We are in the 10th year of a system-wide effort to proactively reform the norms and reward system in science and elevate rigor, transparency, sharing, and reproducibility. Change is hard, particularly in a decentralized system like science. And, scaling sustainable change is even harder, especially with the persistence of dysfunctional incentives that reward exciting over accurate, novel over rigorous, and tidy over transparent.

But the reform movement has made remarkable progress, primarily because of grassroots actors changing norms despite the dysfunctional reward systems, and because of actions by progressive leaders at journals, funders, societies, and institutions that are changing incentives and policies directly.

Strategy for Culture Change

COS's Theory of Change recognizes that academic research is a social system, and that starting and scaling behavior change requires a systems-based intervention strategy. That means that every organization and participant in the research culture is an agent of stasis or change. And, to succeed in aligning scholarly practices with scholarly values, we must solve the coordination problem and ultimately activate everyone. But, no realistic strategy for behavior change can expect to activate everyone all at once.

COS's strategy is to catalyze innovators and early adopters as the beachhead for change in a scholarly community by providing tools to make it possible to do the new behaviors. Then, making early adopters' behavior visible and aspirational initiates changing community norms about how science should be done. That, combined with training and ensuring that the behaviors are fit for purpose, brings the behaviors into the mainstream. To scale and sustain those emerging norms, publishers, funders, and institutions align their incentives and policies so that researchers are rewarded and ultimately required to do the behaviors.

5. Make it Required
The Transparency and Openness Promotion (TOP) Guidelines provide and promote a policy framework for aligning values, incentives and policies for journal, funders and institutions.

4. Make it Rewarding
Journals and funders to realign incentives with Rigor and Transparency Initiatives using Registered Reports, a publishing format where peer review happens prior to data collection.

3. Make it Normative
Grassroots organizing activates champions to adopt new practices and engage their community. Targeted communications such as badges make their new behaviors visible to others.

2. Make it Easy
OSF is constantly evolving with user-centered product development to integrate into researchers' daily workflows. Training and customization ensures that the tools are fit-for-purpose for all kinds of research.

1. Make it Possible
The open-source Open Science Framework (OSF) makes it possible for researchers to improve rigor, transparency, and sharing of all their work across the research lifecycle.

For further reading, click [HERE]

The Transparency and Openness Promotion (TOP) Guidelines

Transparency, openness, and reproducibility are commonly acknowledged as essential aspects of science. The majority of scientists readily accept these elements as inherent norms and values within their field. Consequently, it would be reasonable to assume that these esteemed characteristics would be regularly incorporated into their daily work. However, mounting evidence indicates that this is not the prevailing situation.

The Transparency and Openness Promotion (TOP) Committee has developed shared standards for open practices across journals, hoping to translate scientific norms and values into concrete actions and change the current incentive structures to drive researchers' behavior toward more openness. The TOP Guidelines (PDF and HTML) include eight modular standards, each with three levels of increasing stringency. Journals select which of the eight transparency standards they wish to implement and select a level of implementation for each. These features provide flexibility for adoption depending on disciplinary variation, but simultaneously establish community standards.

Summary of the eight standards and three levels of the TOP guidelines

Levels 1 to 3 are increasingly stringent for each standard. Level 0 offers a comparison that does not meet the standard.

	LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3
Citation standards	Journal encourages citation of data, code, and materials—or says nothing.	Journal describes citation of data in guidelines to authors with clear rules and examples.	Article provides appropriate citation for data and materials used, consistent with journal's author guidelines.	Article is not published until appropriate citation for data and materials is provided that follows journal's author guidelines.
Data transparency	Journal encourages data sharing—or says nothing.	Article states whether data are available and, if so, where to access them.	Data must be posted to a trusted repository. Exceptions must be identified at article submission.	Data must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.
Analytic methods (code) transparency	Journal encourages code sharing—or says nothing.	Article states whether code is available and, if so, where to access them.	Code must be posted to a trusted repository. Exceptions must be identified at article submission.	Code must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.
Research materials transparency	Journal encourages materials sharing—or says nothing	Article states whether materials are available and, if so, where to access them.	Materials must be posted to a trusted repository. Exceptions must be identified at article submission.	Materials must be posted to a trusted repository, and reported analyses will be reproduced independently before publication.
Design and analysis transparency	Journal encourages design and analysis transparency or says nothing.	Journal articulates design transparency standards.	Journal requires adherence to design transparency standards for review and publication.	Journal requires and enforces adherence to design transparency standards for review and publication.
Preregistration of studies	Journal says nothing.	Journal encourages preregistration of studies and provides link in article to preregistration if it exists.	Journal encourages preregistration of studies and provides link in article and certification of meeting preregistration badge requirements.	Journal requires preregistration of studies and provides link and badge in article to meeting requirements.
Preregistration of analysis plans	Journal says nothing.	Journal encourages preanalysis plans and provides link in article to registered analysis plan if it exists.	Journal encourages preanalysis plans and provides link in article and certification of meeting registered analysis plan badge requirements.	Journal requires preregistration of studies with analysis plans and provides link and badge in article to meeting requirements.
Replication	Journal discourages submission of replication studies—or says nothing.	Journal encourages submission of replication studies.	Journal encourages submission of replication studies and conducts blind review of results.	Journal uses Registered Reports as a submission option for replication studies with peer review before observing the study outcomes.

Source: 10.1126/science.aab3847

READ MORE

CURRENT EVIDENCE

Introduction to

OPEN SCIENCE FRAMEWORK (OSF)

CENTER FOR OPEN SCIENCE

Open Science Framework

Article by: **Nurfaizah Saibul**

OSF is a **free** and **open-source project management tool** that supports researchers throughout their entire project lifecycle. As a collaboration tool, OSF helps research teams work on projects privately or make the entire project publicly accessible for broad dissemination.

Enables researchers to **plan, collect, analyze** and **share** their works transparently throughout the entire research lifecycle.

✔ **Report**

✔ **Support**

✔ **Formulate**

✔ **Share**

✔ **Plan**

Publish Report
Search and Discover
Write Report
Develop Idea
Interpret Findings
OSF
Design Study
Analyze Data
Acquire Materials
Store Data
Collect Data

✔ **Implement**
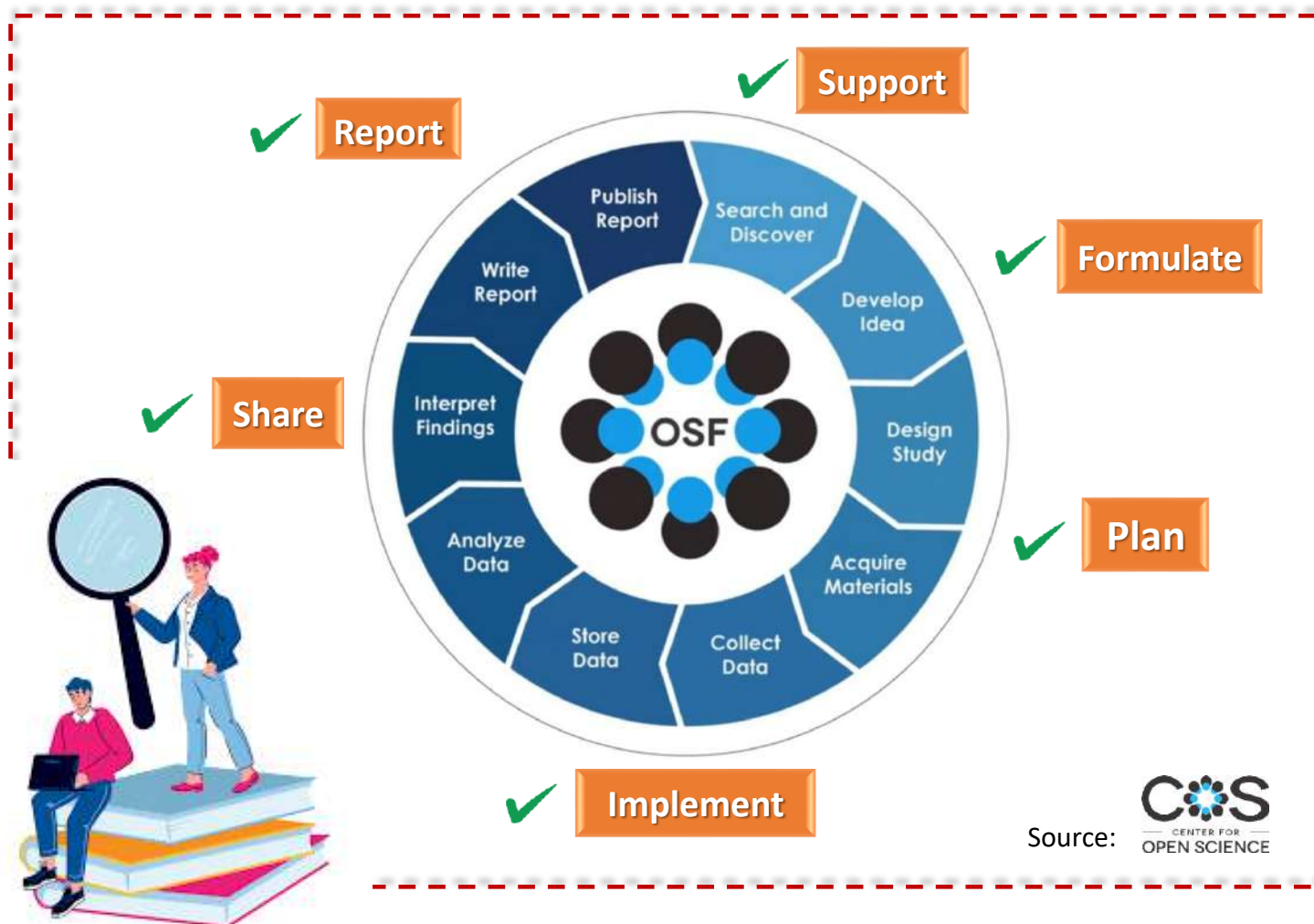
Source:

CℴS CENTER FOR OPEN SCIENCE

CURRENT EVIDENCE

Introduction to

OPEN SCIENCE FRAMEWORK (OSF)

OSF tool helps break down **common problems** researchers face at each stage of the research lifecycle.

HOW

1

RESEARCH PROBLEM #1

SEARCH AND DEVELOP IDEAS

Evaluate the research landscape → OSF → **Identify existing research even before finalizing a research idea**

OSF HOME

Search   Support   Donate   Sign Up   Sign In

The place to share your research

OSF is a free, open platform to support your research and enable collaboration.

Get started

Discover public research

Discover projects, data, materials, and collaborators on OSF that might be helpful to your own research.

Q Search discipline, author...

CURRENT EVIDENCE

OPEN SCIENCE FRAMEWORK (OSF)

RESEARCH PROBLEM #2

2

Design study, acquire materials and collect data

OSF Registries

Add New Registration

You are submitting to OSF Registries. Click here to learn more about other hosted registries.

STEP 1
Do you have content for registration in an existing OSF project?

YES   NO

STEP 2
Which type of registration would you like to create? *

Qualitative Preregistration

Create draft

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REGISTRATION
- Transparent documentation
- Future reference

Research plan → OSF Preregistration → OSF Registries → Private for up to 4 years

RESEARCH PROBLEM #3

3

Analyze data, store data and collect data

OSF Project = Centralized project

Private ↔ Public
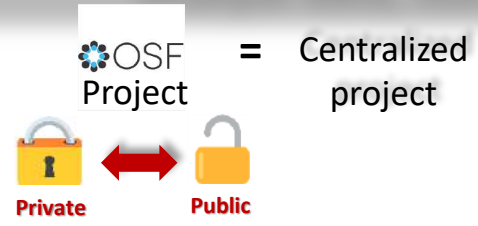
PROJECT
- Collaborative management
- Store and share materials

Storage Provider "B"
Storage Provider "D"
Storage Provider "A"
OSF Project
Storage Provider "C"

Source:

COS
CENTER FOR OPEN SCIENCE

Crossref   DataCite
Google Scholar   MENDELEY
ORCID   Zotero
aws   box
GitHub   Dropbox
R   Google Drive
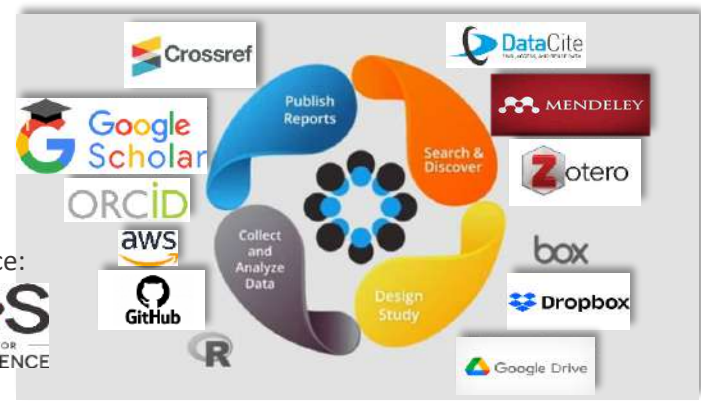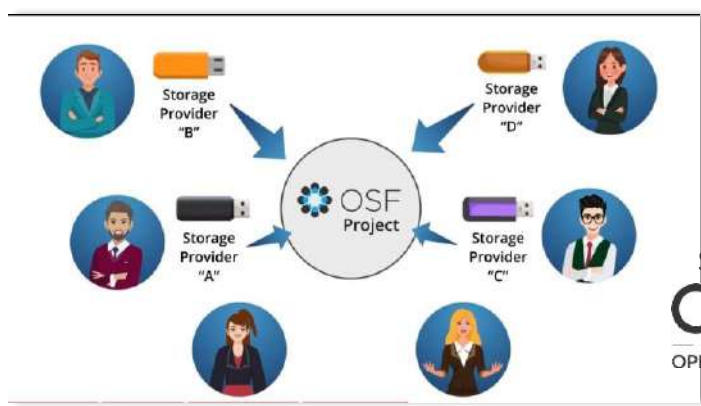
CURRENT EVIDENCE

OPEN SCIENCE FRAMEWORK (OSF)

RESEARCH PROBLEM #4

4

Interpret findings , write report and publish report

OSF Preprint

PREPRINTS
- Present findings to the largest audience
- Quickly share results

RESEARCH PROBLEM #5

5

Publish report, search and discover

OSF Institution

REPORTING
- Required reporting for funded projects
- Institutional research output trading

Funder and Institutional Requirements
Report Research Activity
- ✔ **Openly Available**
- ✔ **Accessible**
- ✔ **Persistently Available**
- ✔ **DOI for Preprints**
- ✔ **DOI for Registrations**
- ✔ **DOI for Projects**

CURRENT EVIDENCE

OPEN SCIENCE FRAMEWORK (OSF)

Preprint

Registration

Project

6
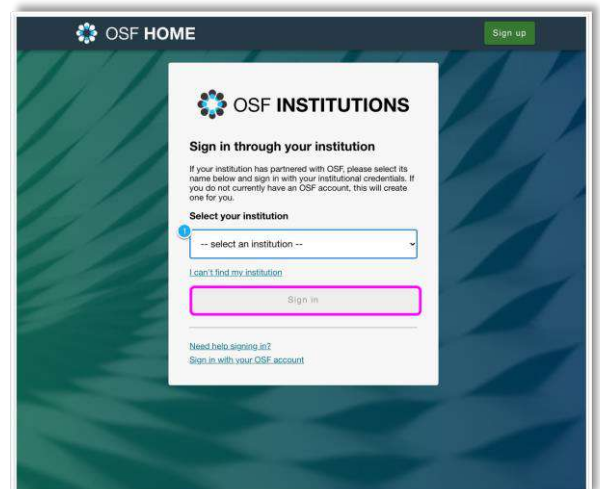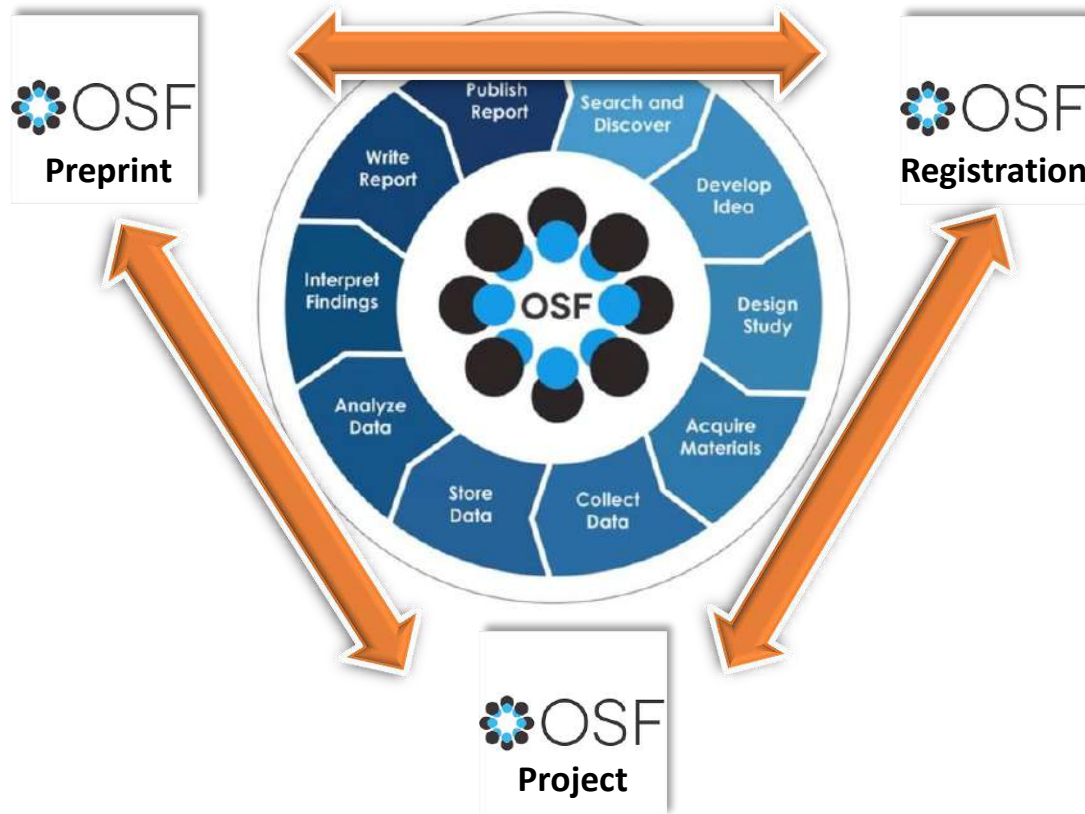
RESEARCH PROBLEM #6

How can I get help on the OSF?
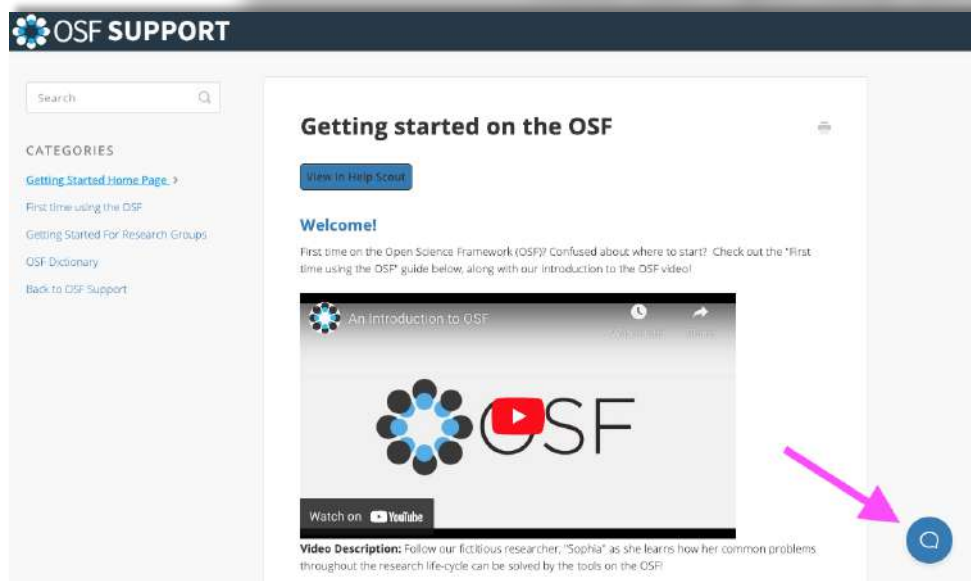
More information
on OSF:

UPDATES FROM RAYYAN A.I

1. Rayyan's PRISMA 2020 Flowchart - Ensuring Transparency, Reproducibility, and Quality

Include Individual Databases by Name ➡ Watch on Youtube on how to set the number of databases and specify the number of articles found for each database by name.

Include Individual Registers by Name ➡ Watch on Youtube on how to set the number of registers searched and specify the number of references found for each named individual register.

Include Previous Studies ➡ Watch on Youtube on how to modify the PRISMA flow diagram to include the number of previous studies identified and included in a previous version of the review.

Include Other Searches for Studies ➡ Watch on Youtube on how to add other searches for studies to PRISMA Flowchart

Click [HERE] to discover more…

2. Google Scholar: Importing References into Rayyan

Visit Google Scholar

⬇

Enter your search terms to begin searching for reference articles related to your literature or systematic review

⬇

Save the articles to My Library by selecting the star for each article you want to save

⬇

Export the articles in a compatible format. Rayyan accepts Refman, EndNote, BibTex and CSV as compatible formats

⬇

Select the files to upload into your review

⬇

Click continue to import your references. Keep in mind that you may upload 10 files at a time of 100MB each for a total of 1GB per upload

⬇

Your import is now complete. You will be brought to your review and Rayyan will use the data you uploaded to populate the workbench. It may take a few minutes depending on the size of your dataset to populate all the workbench facets and filters.

Click [HERE] to discover more…

GOOD MACHINE LEARNING PRACTICE FOR MEDICAL DEVICE DEVELOPMENT – TEN GUIDING PRINCIPLES

Written By Dr. Yew Sheng Qian (Senior Lecturer, Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangssan Malaysia)

Artificial intelligence (AI) and machine learning (ML) technologies possess the transformative potential to revolutionize healthcare by extracting valuable insights from the vast amount of data generated daily during the delivery of medical services. Through the utilization of software algorithms, they learn from real-world usage and, in some instances, enhance their performance based on this knowledge. Nevertheless, the complexity and iterative, data-driven nature of AI and ML development also present unique challenges.

Consequently, the U.S. Food and Drug Administration (FDA), Health Canada, and the United Kingdom's Medicines and Healthcare products Regulatory Agency (MHRA) have collaboratively established ten guiding principles to facilitate the development of Good Machine Learning Practice (GMLP). These principles aim to ensure the production of safe, effective, and high-quality medical devices employing AI and ML.

01 Include Experts
Include multi-disciplinary experts throughout the entire life cycle of medical devices.

02 Ensure Security
Implement good software engineering and security across the entire life cycle of medical devices.

03 Representativeness
Ensure that study participants used in device development are representative of the intended patient population.

04 Independent Data
Ensure the datasets used to train medical devices are independent of the test datasets.

Best Method

05

Employ the best available methods to select training datasets.

Intended Use

06

Adapt the design of medical devices to the available data and aligning it with the device's intended use.

Human Factor

07

Incorporate human factors and human interpretability into the assessment of medical devices.

Clinically Relevant

08

Test the performance of the medical device using clinically relevant conditions.

Provide Information

09

Provide clear and essential information about medical devices to the target users.

Monitoring

10

Establish continuous monitoring of device post-deployment, with re-training mechanisms in place.

Artificial Intelligence and Machine Learning Action Plan by FDA – A Response to SaMD Manufacturers

Written By Dr. Yew Sheng Qian (Senior Lecturer, Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangssan Malaysia)

Software as a Medical Device (SaMD) manufacturers harness the power of artificial intelligence (AI) and machine learning (ML) technologies to revolutionize their products, enhancing their ability to support healthcare providers and elevate patient care. Among the myriad advantages of incorporating AI and ML into SaMD, one stands out—their unparalleled capacity to learn from real-world usage and experiences, enabling a continuous enhancement of medical device performance. Unsurprisingly, the U.S. Food and Drug Administration (FDA) receives an overwhelming influx of marketing submissions and pre-submissions for cutting-edge products that leverage on these transformative AI and ML technologies.

In response to the rapid advancements in AI and ML-based SaMD, and the various challenges reported from SaMD manufacturers, the FDA unveiled its groundbreaking "Artificial Intelligence and Machine Learning-Based Software as a Medical Device (SaMD) Action Plan" on 12 January 2021. This comprehensive plan sets forth five strategic approaches to effectively oversee these technologies, prioritizing both the safe delivery and optimal functionality of SaMD. By implementing these approaches, the FDA aims to enhance patient care and elevate the overall quality of healthcare services provided.

Challenges

Action Plans

The current regulatory framework for AI and ML-based SaMD is still evolving and requires further development.

Action Plan 1
Regulatory Framework for AI and ML-based SaMD

FDA has taken proactive steps to update the regulatory framework by introducing the "Draft Guidance on the Predetermined Change Control Plan" [1]. This guidance aims to strengthen the safety and effectiveness of AI and ML-based SaMD algorithms.

The absence of established standards and best practices in the development of AI and ML-based SaMD is a recognized challenge.

Action Plan 2
Good Machine Learning Practice (GMLP)

FDA has taken proactive measures to create the Good Machine Learning Practice (GMLP) guidelines [2], which serves as a comprehensive set of best practices to guide the development of AI and ML-based SaMD.

Manufacturers have difficulties in describing the data that were used to train the algorithm, the relevance of its inputs, the logic it employs, and the evidence of the device's performance.

Action Plan 3
Incorporating Transparency to Users

To enhance transparency, FDA is actively working on identifying the specific types of information that manufacturers should include in the labeling of AI and ML-based SaMD.

Efforts are underway to develop methods for evaluating and mitigating algorithmic bias and promoting algorithmic robustness, addressing a crucial need in the field.

Action Plan 4
Methods Related to Algorithm Bias and Robustness

FDA is actively engaged in developing robust methodologies to evaluate and enhance AI and ML algorithms, with a particular focus on identifying and eliminating biases and promoting algorithmic robustness.

Manufacturers require guidance on how to validate and test algorithms, ensuring their accuracy, reliability, and safety in real world.

Action Plan 5
Real-World Performance

FDA is adopting a total product lifecycle (TPLC) approach to the oversight of AI and ML-based SaMD. Modifications to these SaMD applications may be supported by collecting and monitoring real-world data.

Further Readings:
1. https://www.fda.gov/medical-devices/medical-devices-news-and-events/cdrh-issues-draft-guidance-predetermined-change-control-plans-artificial-intelligencemachine
2. https://www.fda.gov/medical-devices/software-medical-device-samd/good-machine-learning-practice-medical-device-development-guiding-principles

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ANNOUNCEMENTS

- ✔ MJH Series 19: Comparative Effectiveness of Aspirin Dosing in Cardiovascular Disease. 1030 – 1145, 25th August 2023.

- ✔ Research Colloquium series 1/2023. 1545 – 1630, 9th August 2023.

- ✔ Empowering Excellence: Unleashing the Power of Medical Audit for Enhanced Patient Care. 1400 – 1700, 3 August 2023 (Thursday), Bilik Seminar HSAAS.

- ✔ Identifying and Managing Missing Data and Outliers in Clinical and Health Sciences Research. 1400 – 1700, 10 August 2023, Bilik Seminar HSAAS.

- ✔ REDCap. 1400 – 1700, 17 August 2023 (Thursday), Bilik Seminar, HSAAS.

- ✔ Research Into Practice: The Challenge of Implementation (Hybrid Seminar). 1430 – 1600, 19th September 2024, Mini Theatre HSAAS

- ✔ The International Training Workshop on Open Science and SDGs 2023, 28 August – 8 September 2023, Beijing, China

- ✔ The International Symposium on Open Science Cloud (ISOSC), 4 – 6 September 2023, Beijing, China

- ✔ The 3rd International Forum on Big Data for Sustainable Development Goals (FBAS2023), 6 – 8 September 2023, Beijing, Chin

- ✔ 23rd FERCAP INTERNATIONAL CONFERENCE. A hybrid conference with face to face and online participation. November 26-29, 2023, Kuala Lumpur, Malaysia

META-JOURNAL HOUR

Comparative Effectiveness of Aspirin Dosing in Cardiovascular Disease
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https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9908069/pdf/nihms-1864598.pdf

25th AUGUST 2023 (FRIDAY) | 10.30 – 11.45AM | WEBEX

Tentative (Online Webinar)

Time	Agenda
1025 - 1030	Welcoming note *Assoc. Prof. Dr. Chew Boon How* *Head, Research Clinical Unit* *HSAAS*
1030 – 1145	Meta Journal Hour Appraisal Session 19 - Presentation by the Speaker *Mrs. Salwana Ahmad* *Research Officer* *Research Clinical Unit, HSAAS* - Article appraisal - Q&A session
1145	End session

For any inquiries, please contact: 03-97699759 or email: cru_hpupm@upm.edu.my

OBJECTIVES OF THE PROGRAM

01 Understand the purposes of conducting medical audit

02 Understand the differences between audit and research

03 Understand an audit cycle process

04 Understand how to determine the scope of medical audit

05 Understand how to calculate sample size and analyze data for medical audit

TENTATIVE PROGRAM

Time	Agenda	Speaker
14:00-14:15	Registration	
14:15-15:45	- What is a medical/clinical audit? - Audit versus research - Audit versus service evaluation - Clinical audit and Implementation Research - How to select an audit topic? - How to determine the inidcators, criteria and target of performance? - What data should be collected?	**CBH
15:45-16.00	Tea break	
16:00-16:30	Sample size calculation and statistical analysis	*NAI
16:30-16:45	- How the sampling should be done? - Audit for impactful research	CBH
16:45-17:00	Question and Answer	CBH/NAI

**CBH = ASSOC. PROF. CHEW BOON HOW
*NAI= DR. NUR AAZIFAH ILHAM

Objectives

- Types of "Missing data" such as Missing Completely at Random (MCAR), Missing at Random (MAR) and Missing not at Random (MNAR).

- Method to identify the type/mechanism of missing data.

- Methods for missing data management based on the type/mechanism of missing data such as: complete case analysis, available case analysis, single imputation method, multiple imputation, multivariate imputation chained equation (MICE) and maximum-likelihood imputation.

- Types of outliers such as 'influential outliers' and 'noisy outliers' and how to distinguish these types of outliers.

- Classification of outlier management:
  a) Rejected as erroneous
  b) Identified as important
  c) Tolerated with in analysis (Accommodating)
  d) Incorporated into the analysis

- Techniques of 'robust' statistical methods for outlier management such as 'winsorization technique', transformation technique, 'Robust regression' (Huber regression or M-estimator), and data stratification

- Spss demonstration 'Identifying and Managing Missing Data and Outliers in Clinical and Health Sciences Research'

Tentative

Time	Agenda	Speaker
14:00-14:15	Registration	
14:15-14:30	Welcoming Speech	Assoc. Prof. Dr. Chew Boon How Head, Clinical Research Unit (CRU) Hospital Sultan Abdul Aziz Shah, UPM
14:30-15:30	Identifying and Managing Missing Data in Clinical and Health Sciences Research	Prof. Dr. Karuthan A/L Chinna UCSI University
15:30-15:45	Tea Break	
15:45-16:30	Identifying and Managing Outliers in Clinical and Health Sciences Research	Prof. Dr. Karuthan A/L Chinna UCSI University
16:30-16:45	Summary	
16:45-17:00	Question & Answer	

Tentative Program

Time	Agenda	Speaker
14:00-14:15	Registration	
14:15-14:30	Welcoming Speech	Dr. Nur Aazifah Ilham
14:30-16:45	Data Management With REDCap	Dr. Abqariyah Yahya@Ahmad Noor
16:45-17:00	Question & Answer	Dr. Abqariyah Yahya@Ahmad Noor

NOTES:
1. Please bring your own laptop
2. For non-UPM participants, please make sure you already have your REDCap account from your respective institution

HYBRID SEMINAR

RESEARCH INTO PRACTICE:
THE CHALLENGE OF IMPLEMENTATION

Outline of talk:

The challenge of translating evidence-based interventions into routine clinical practice is well recognised and there is growing interest in the science of developing and evaluating implementation strategies. In her talk, Professor Pinnock will discuss the features of implementation research using exemplars from her research portfolio in respiratory and other non-communicable diseases.

The Event Will Be Held On:

TUESDAY
19 September, 2023

Mini Theatre, Level 2, HSAAS
Online via zoom

START AT
02:30PM - 4:00PM

Professor Hilary Pinnock

Professor Hilary Pinnock is a Professor of Primary Care at the University of Edinburgh. She is also a practising Family Medicine Specialist in Whitstable, Kent. Her impressive career spans across research, education, and clinical practice, with particular expertise in implementation science and managing respiratory conditions. Widely respected in the medical community, she is recognised for her dedication to advancing healthcare practices and improving patient outcomes. In September 2023, she will take on the role of Chair of the Education Council of the European Respiratory Society, demonstrating her commitment to medical education and mentorship. Professor Pinnock's work consistently contributes to shaping the future of healthcare by translating research into practical solutions.

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FREE

*E-certificates for all participants will be given
*CPD points for UPM staff are available

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WITH KNOWLEDGE WE SERVE

INTERNATIONAL TRAINING WORKSHOP ON OPEN SCIENCE AND SDGS 2023

8.28–9.8, Beijing China

About

We are excited to announce that the International Training Workshop on Open Science and SDGs 2023 is now open for application! As a feast of knowledge sharing, this year's onsite training will be arranged in Beijing, China, on 28 August - 8 September 2023.

The 2023 training will feature diversified formats for knowledge-sharing, including lectures, seminars, and presentations at relevant international conferences. Hands-on technical sessions, as well as social events, will also be arranged to take full advantage of the two-week onsite training.

Highlights this year are likely to include global open science framework and roadmaps, dialogue between worldwide open science clouds, applications of cutting-edge technologies, and open science demonstrations across domains and disciplines, such as the atmospheric sciences, geosciences, and material sciences.

READ MORE »»

International Symposium on Open Science Cloud (ISOSC)

4-6 Sept 2023 Beijing, China

Sponsors: Chinese Academy of Sciences (CAS), China Association for Science and Technology (CAST)

Convenors: GOSC International Programme Office (GOSC IPO), Committee on Data of the International Science Council (CODATA), CODATA China

Local organiser: China Science and Technology Cloud (CSTCloud), Computer Network Information Center of CAS

[Register](#) for the International Symposium on Open Science Clouds 2023!

The International Symposium on Open Science Clouds (ISOSC) 2023 will be held on 4-6 September 2023 in Beijing, China, with both in-person and online participation options available. In the spirit of open and inclusive science, this year's event offers free registration with no associated fees. For more information, the symposium agenda and to register, please visit our website at https://isosc.casconf.cn/.

ISOSC 2023 is currently inviting proposals. If you wish to participate in our event as a speaker or poster presenter, please submit your application at https://isosc.casconf.cn/profile/submission before August 13th.
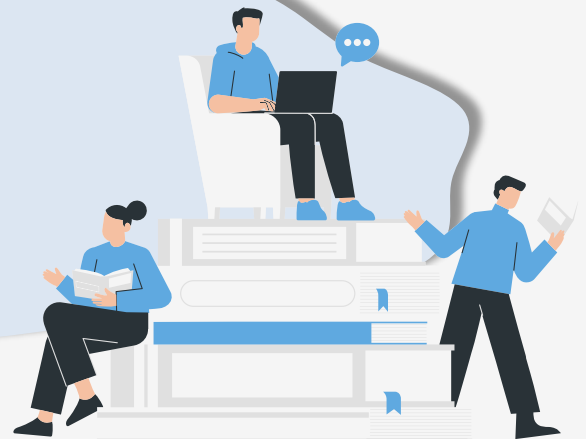
第三届可持续发展大数据国际论坛
The 3rd International Forum on Big Data for Sustainable Development Goals

2023年9月6日-8日 中国 北京
September 6-8, 2023 Beijing, China

Scientific and technological innovations are important tools to support the implementation of sustainable development goals. Big data, as an important content of digital technology, plays a crucial role in supporting the realization of Sustainable Development Goals. In order to promote the sharing of methods, technologies and cases of big data and digital technology in support of sustainable development, The 3rd International Forum on Big Data for Sustainable Development Goals (FBAS2023) will be held in Beijing, China. The Forum will not only provide a global high-level academic communication platform on the use of technology facilitation mechanism to achieve the SDGs, but also help to serve the relevant United Nations agencies and Member States to implement the 2030 Agenda for Sustainable Development.

For further information on the forum, click [HERE]